

3.5 Biological Resources

The Lompoc Wind Energy Project (Project) would be located in a semiarid region where warm and cold ocean currents mix and distributional ranges of a number of northern and southern wildlife species overlap. A high rate of endemism (vegetation and wildlife only known to occur within a certain area) also characterizes this region of varied topography, geology, and soils. This analysis addresses potential Project impacts on both common and special-status plant and wildlife species during both the construction and operation and maintenance (O&M) phases.

Section 3.5.1 describes the data and information sources used to characterize existing conditions at and in the vicinity of the Project. This discussion is followed by Section 3.5.2, a detailed description of the vegetation and habitats observed in the Project area. Section 3.5.3 addresses the common wildlife and plant species present (or likely to be present) in the Project area, and Sections 3.5.4 addresses special-status wildlife and plant species. The regulatory framework addressing the type of species potentially found in the Project area is included in Section 3.5.5, and impacts, mitigation measures, and residual impacts are included in Section 3.5.6.

3.5.1 Methods

Biological resources in the Project area were identified through literature and database searches, personal communications with qualified wildlife biologists and botanists, and field surveys.

3.5.1.1 Literature and Database Review

Much of the information regarding existing conditions was derived from the Lompoc Wind Energy Project Biological Resources report (Olson and Rindlaub, 2006). This report was independently reviewed by CH2M HILL biologists, and its findings were verified and supplemented through additional field surveys and database searches.

The Olson and Rindlaub report, published in 2006, was based on the review of numerous sources, including regional and local bird guides, technical reports prepared for nearby La Purisima State Park and Vandenberg Air Force Base (VAFB), the La Purisima Audubon Society newsletters and Web site, and other technical reports prepared for the Lompoc area. Additionally, the California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDDB) was queried in 2003 and 2005 for the 7.5-minute United States Geological Survey (USGS) quads of the Project area, as well as adjacent quads (Tranquillon Mountain, Lompoc, Lompoc Hills, Santa Rosa Hills, Point Arguello, Los Alamos, Point Conception, Sacate, and Surf). Additional information regarding special-status plants was obtained from the California Native Plant Society (CNPS) online inventory, the Central Coast Center for Plant Conservation, and the Santa Barbara Botanical Garden, as well as technical reports for nearby areas, including VAFB and Hollister Ranch. The Jepson Manual (Hickman, 1993) was used to key and identify plant species in the field, and vegetation communities were classified according to the system (1986).

The information gathered by Olson and Rindlaub (2006) was supplemented by a CNDDDB search for the Project area and surrounding lands in 2006. A list of federally threatened and

endangered species also was obtained from the United States Fish and Wildlife Service (USFWS) at this time. Further information was obtained from a long-term ecological monitoring program at VAFB conducted by the University of California, Santa Barbara (UCSB) Museum of Systematics and Ecology (Gallo et al., 2000) and from Christmas Bird Counts conducted in Miguelito Canyon by the Audubon Society from 1997 to 2005 (National Audubon Society, 2006).

3.5.1.2 Professional Contacts

Biologists with extensive experience in the general Project area were contacted to obtain information about local species distribution, including birds, bats, and species of local concern. Agency botanists from the USFWS, CDFG, VAFB, and the County, as well as the Santa Barbara Botanic Garden (D. Wilken, Personal Communication), also were contacted to obtain information regarding Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) status and distribution (Olson and Rindlaub, 2006). Information regarding raptor observations in San Miguelito Canyon dating from 1971 was obtained from the University of California at Santa Cruz, Santa Cruz Predatory Bird Research Group (UCSC SCPBRG) (B. Walton, Personal Communication).

3.5.1.3 Botanical Surveys

Botanical surveys were conducted during daylight hours on 7 separate days in the spring and summer of 2002 for all areas of potential disturbance, including access roads. Surveys were conducted on foot, except for South Road both north and south of Signorelli Ranch, and North West Road south of the Scolari farmstead; these were surveyed from a vehicle. The Olson and Rindlaub (2006) study included portions of the Signorelli Ranch property that extend into the coastal zone; however, these areas are not included in the current Project. Areas that were inaccessible because of steep terrain were checked using binoculars to characterize the vegetation and the presence of sensitive species. Coverage of the corridors along access roads was limited to about 20 feet on either side of the road unless a wind turbine generator (WTG) site was mapped farther off the road. Similar methods were used on 5 separate days in the spring, summer, and fall of 2005, although these were more limited, focusing on new WTG sites and new access roads (Olson and Rindlaub, 2006).

All areas of the Project site with sandy soils were checked for Gaviota tarplant in 2002. Areas where tarweed seedlings were observed in early 2002 were revisited later in the season, when Gaviota tarplant was in full flower. Areas with sandy soils where WTGs were added or relocated and along new access road routes were rechecked in 2005, but not all areas where Gaviota tarplant was found in 2002 were rechecked in 2005 (Olson and Rindlaub, 2006).

Additional reconnaissance-level surveys were conducted by CH2M HILL on 4 separate days in September 2006, using similar methods to provide independent verification of the findings of the earlier surveys and to evaluate areas not previously surveyed by Olson and Rindlaub (2006) for special-status plant species; particular focus was given to identification of the Gaviota tarplant. New areas for surveys included the PG&E transmission line corridor and Larsen Ranch. Power line angle point locations were marked on maps and flagged or staked in the field. Depending on the terrain, the power line corridor (a 200-foot swath, 100 feet on each side of the proposed alignment) between angle point locations was

surveyed by binoculars or walking meandering transects every 20 feet. Surveys for Gaviota tarplant were conducted in a 200-foot radius around potential angle point locations. Vegetation communities were mapped 1,000 feet on either side of the power line corridor. Larsen Ranch was surveyed for the presence of Gaviota tarplant by walking meandering transects every 20 feet along access roads and WTG corridors. Because the 2006 botanical surveys were completed late in the growing season, only dominant plant species were identified in the general community descriptions (CH2M HILL, 2006a).

3.5.1.4 Wildlife and Bird Surveys

Wildlife surveys of the WTG corridors, including surveys for birds, were conducted on 6 separate dates in the spring, summer, and fall of 2002, and on 7 separate dates in the spring and summer of 2005. The 2005 surveys included the WTG corridors and the Project Substation site. The 2002 surveys were conducted during the afternoon to facilitate good visibility and to avoid the marine layer weather conditions, which are common during the late spring and summer months. Most of the 2005 surveys were conducted in the afternoon, but some took place in the mornings. Surveys extended into adjacent habitats, especially those with a woodland component, out to a distance of 500 feet from proposed WTG corridors. Binoculars were used to examine habitats and to scan periodically for birds in flight. Large features that could be used by nesting and perching birds, such as existing electrical distribution lines, fences, trees, and rock outcrops, were searched with binoculars and a spotting scope (Olson and Rindlaub, 2006).

Additional reconnaissance-level surveys were conducted on 4 separate dates in September 2006 to provide independent verification of the earlier surveys and to identify wildlife present in previously nonsurveyed areas, including portions of some roads, the O&M facility, Larsen Ranch, and the Pacific Gas and Electric Company (PG&E) power line corridor (CH2M HILL, 2006b). These surveys were performed by CH2M HILL biologists using a methodology similar to that used in 2002 and 2005.

In addition, avian point count stations were established within strategic areas of Larsen Ranch and North Corridor (primarily on the gradient between two vegetation communities and in areas that provided optimal views of ridgelines and valleys) to allow the quantification of bird sightings (Figure 3.5-1) (CH2M HILL, 2006b). Surveys were conducted during the afternoon to avoid the marine layer that is characteristic of the area. All bird species detected through observation and vocalizations were documented during a 10-minute point count interval. To remain consistent with previous survey methodology (Olson and Rindlaub, 2006), incidental wildlife observations also were obtained while walking along meandering transects between point count stations. All wildlife detected via direct observation, vocalization, tracks, scat, or feathers were noted.

Olson (2007) conducted avian point count surveys during three, 3-day periods in December 2006 at 18 potential WTG sites (Figure 3.5-1). The points were surveyed for 20 minutes at different times of the day for each survey. Each point was surveyed once each during the morning, midday, and afternoon. Each point count survey identified birds using sight and sound along with the number of individuals, types of species, the natural community, topography, and incline in which the observation was made, and the behavior of the bird (for example, foraging, flying, or vocalizing). Areas near the point locations were scanned constantly with binoculars during the 20-minute count. A spotting scope was used to

identify birds at a distance. Larger birds were observed to an approximate distance of 800 meters on days with good visibility.

3.5.2 Vegetation and Habitats

The major vegetation communities at the Lompoc Wind Energy Facility (LWEF) site and 115-kilovolt (kV) power line corridor are shown on Figure 3.5-2 and 3.5-3, respectively. Most areas where Project components would be located are grazed by cattle. As in many other parts of California, naturalized alien species are important members of the herbaceous communities. Native species usually are more important on steeper terrain where cattle spend less time; where grazing has been less intense; where soils are not as favorable to forage species; where bedrock is shallow or exposed; and in areas shaded by larger shrubs and trees.

Evergreen woodlands and forests grow on the tops and leeward slopes of some hills, along ravines, and around farmsteads. Shrub-dominated vegetation is common on steeper slopes and more exposed sites. The boundary between scrub and grassland is often abrupt. Deciduous riparian vegetation is uncommon at these elevations. Most drainages are steep with rapid runoff, although moisture may be present most of the year, supplied by the scattered seeps and springs. Scrub or evergreen woodland vegetation follows shaded drainage reaches. Flatter and broader reaches may support willow thickets, rush colonies, or small patches of freshwater marsh. Grasslands are the most extensive vegetation type; some include a substantial native component, including native grasses. A few areas mapped as grasslands are composed of a mosaic of annual and perennial grasses, short-statured native shrubs, and perennial herbs.

The major vegetation and habitat types are described below.

3.5.2.1 Grassland

Southern Coastal Grassland

Grass- and annual forb-dominated vegetation occupies most of the gentler to moderately steep slopes in the Project area, including the power line corridor. Species composition apparently shifted with soil types (dark clays versus lighter sandy loams) and slope exposure, but may also respond to grazing intensity and other factors related to land use history. Where diversity is lowest, dominants are usually non-native annuals, particularly wild oats (*Avena* spp), introduced bromes (*Bromus* spp), foxtail barley (*Hordeum leporinum*), ryegrass (*Lolium*), milk thistle (*Silybum marianum*), bur clover (*Medicago polymorpha*), storksbill (*Erodium botrys*) and Crete weed (*Hedynois cretica*). This assemblage is most common on heavily grazed sites, gentle slopes with southern exposure, and on sites with dark clay soil.

Grasslands with more diversity, contributed mostly by native species, are found on sites with less grazing pressure, on northern or eastern exposures, and generally on sandy loam soils. These flowery grassland areas are most prevalent on the central portion of Middle Corridor, extending across San Miguelito Road to Middle Corridor - South, on Sudden Corridor - East, around Quarry Ridge, and on the eastern slopes of South Corridor - Central. Common species include pineapple weed (*Amblyopappus pusillus*), horkelia (*Horkelia cuneata*), silver puffs (*Uropappus*), tidy tips (*Layia platyglossa*), goldfields *Lasthenia californica*), owl's clover (*Castilleja* spp.), mountain dandelion (*Agoseris* spp.), lupines (*Lupinus* spp),

Lotus (*Lotus* spp.), clovers (*Trifolium* spp.), and Gaviota tarplant. Native grasses, particularly needlegrasses (*Nassella*) and creeping rye (*Leymus triticoides*) often are associated with concentrations of native herbs. The annual Crete weed is abundant and strongly dominant in most grassland areas, particularly on clay soil. Patches of mustard, principally black mustard (*Brassica nigra*), and colonies of milk thistle are found on some knolls and ridge tops.

In the power line corridor, annual grasslands are dominated by slender wild oats (*Avena barbata*), foxtail barley (*Hordeum murinum*), meadow barley (*Hordeum brachyantherum*), Italian rye-grass (*Lolium multiflorum*), milk thistle, soft chess (*Bromus hordeaceus*), saw-toothed goldenbush (*Hazardia squarrosa*), plantain (*Plantago* sp.), and curly dock (*Rumex crispus*).

Grassland/Coastal Scrub Mosaic

Fingers of bracken fern (*Pteridium aquilinum*) and runners of blackberry (*Rubus ursinus*) and poison oak (*Toxicodendron diversilobum*) extend into the grassland near rock outcrops, cliffs, and on ridges, with small-statured individuals of coffeeberry (*Rhamnus californica*), small-leaved buckwheat (*Eriogonum parvifolium*), goldenbush (*Isocoma* sp.), and California sagebrush (*Artemisia californica*). Colonies of needlegrasses and creeping rye are sometimes common in the grasslands with many native herbs, possibly due to upslope seeps, such as on south Middle Corridor. Patches of common rush (*Juncus patens*) and sickle-leaved rush (*J. falcatus*) are scattered in some grassland areas that appear to be downslope of seeps and springs.

Annual Grassland Habitat

Annual grassland is the most widespread vegetation type within the Project area, including the power line corridor. The large expanses of annual grassland are used by nesting horned larks (*Eremophila alpestris*) and western meadowlarks (*Sturnella neglecta*). Flocks of red-winged blackbirds (*Agelaius phoeniceus*) and tricolored blackbirds (*Agelaius tricolor*) were observed during the surveys, as were lark sparrows (*Chondestes grammacus*), grasshopper sparrows (*Ammodramus savannarum*), white-crowned sparrows (*Zonotrichia leucophrys*), and Brewer's blackbirds (*Euphagus cyanocephalus*). Turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), and American kestrels foraged over this vegetation type. During two surveys, kestrels were observed roosting on anemometer tower guy wires. California thrasher (*Toxostoma redivivum*), northern harrier (*Circus cyaneus*), and Nuttall's woodpecker (*Picoides nuttallii*) also were observed, as were Western bluebird (*Sialia mexicana*) and golden-crowned sparrow (*Zonotrichia atricapilla*).

Several bird species were noted at the edges of grassland and other vegetation types, such as Central Coast scrub and mixed evergreen forest. Those included red-shouldered hawk (*Buteo lineatus*), mourning dove (*Zenaida macroura*), western scrub-jay (*Aphelocoma californica*), and lesser goldfinch (*Carduelis psaltria*).

The diversity of other wildlife species observed was relatively low. Western fence lizards (*Sceloporus occidentalis*) were observed throughout the Project area, including the power line corridor, as were species of small mammals that represent prey items for raptors, such as California ground squirrel (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*). The ground squirrels were not evenly distributed throughout the grassland areas, but rather, were in scattered locations. Sign of several predatory mammals was noted,

including gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), and mountain lion (*Felis concolor*).

Native Perennial Grassland

Native grasses, particularly the needlegrasses, may be widely distributed on parts of the LWEF site. These species were more prevalent in late August of 2005 than in 2002, possibly due to unusually high rainfall or because those pastures were grazed early that year. Native grasses can be difficult to identify when the vegetation is heavily grazed.

Native perennial grasses such as purple needlegrass (*Nassella pulchra*) seem dense enough in several areas both on clay and sandy soils to satisfy the 10 percent relative cover criterion used as a threshold to delineate native grassland by the County of Santa Barbara (2006), particularly in the southwest portion of the Signorelli property, near its border with the West property. Other species of native grasses, including coast range melic (*Melica imperfecta*), alkali rye (*Elymus triticoides*), and foothill needlegrass (*Nassella lepida*) are in these species-rich grasslands. This grassland is similar to the Valley Needlegrass Grassland of Holland, except that native associates were coastal, rather than interior, species (Holland, 1986). They include wedge-leaved horkelia, poison oak, cudweed aster (*Lessingia filaginifolia*), goldenrod (*Solidago* spp), bracken fern, goldenbush, annual wildflowers, and annual grasses.

A less common type of native grassland, strongly dominated by California barley, is found on or below areas fed by seeps, particularly on the slopes of the southernmost portion of the Signorelli property (South Corridor). These grasslands also usually include a substantial proportion of native perennial herbs.

Native Grassland Habitat

Wildlife species using native grassland in the Project area include western meadowlark, white-crowned sparrow (*Zonotrichia leucophrys*), lark sparrow, and Brewer's blackbird, northern harrier, loggerhead shrike (*Lanius ludovicianus*), and sharp-shinned hawk (*Accipiter striatus*). California horned larks (*Eremophila alpestris actia*) were not observed in this habitat, likely due to the relatively taller vegetation cover compared to annual grassland.

3.5.2.2 Central Coast Scrub

Coastal scrub in the Project area is most common on steeper sites, where cover often is very high. As suggested above, grazing probably limits the extent of scrub vegetation on many areas of gentler terrain, although wind and grazing probably control shrub stature. Central Coast Scrub is composed of both summer deciduous and evergreen shrubs and differs from Venturan Coastal Sage Scrub in part because black sage (*Salvia mellifera*) is the only shrubby salvia. Dominant species in most areas include California sagebrush, coyote brush (*Baccharis pilularis*), poison oak, and coffeeberry. Diversity is higher on north-facing slopes, where wild strawberry (*Fragaria vesca*), bracken fern, bedstraws (*Galium* spp), and monkeyflower (*Mimulus aurantiacus*) mingled with the more widely distributed species. Wedge-leaved horkelia, various lotus, sanicle (*Sanicula* spp), wild hyacinth (*Dichelostemma capitatum*), bee plant (*Scrophularia californica*), Indian paintbrush (*Castilleja affinis*), everlastings (*Gnaphalium* sp), and cudweed aster (*Lessingia filaginifolia*) are often found in openings.

In many areas, the line between grassland and scrub is abrupt, but mosaics of shrubs and grasslands occur on the slopes east of Sudden Peak, the east side of South Corridor, and

along drainages descending from West Corridor, South Corridor, and Middle Corridor. Scrub vegetation often surrounds rock outcrops and large rocks, and it grows among boulder piles and other places where access is difficult for grazers and browsers. The densest scrub vegetation grows in the bottoms of the deeper drainages.

Central Coast scrub along the power line corridor is dominated by California sagebrush, coyote brush, bush lupine (*Lupinus albifrons*), buckwheat (*Eriogonum* sp.), black mustard, coffeeberry, coast tarweed (*Dienandra increscens* ssp. *increscens*), pampas grass (*Cordaderia* sp.), and monkey flower (*Mimulus* sp.). In the northeast portion of the power line corridor, the coastal scrub communities are intermixed with annual grasslands. Even in those portions where coastal scrub is dominant, except rock outcrops, it is intermixed with grasslands.

Central Coast Scrub Habitat

Birds observed in scattered patches of Central Coast scrub within the Project area included California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), Bewick's wren (*Thryomanes bewickii*), common yellowthroat (*Geothlypis trichas*), and song sparrow (*Melospiza melodia*). Rock wrens (*Salpinctes obsoletus*) were observed on and around rock outcrops that occurred in pockets within larger areas of grassland and Central Coast scrub. Other wildlife sighted included southern alligator lizard (*Elgaria multicarinatus*), California striped racer (*Masticophis lateralis*), and brush rabbit (*Sylvilagus bachmani*). Coyote or gray fox scat, or both, was observed near most patches of Central Coast scrub, particularly those with rock outcrops.

3.5.2.3 Evergreen Forest and Woodland

Evergreen Forest and Woodland are tree-dominated communities that usually occupy north-facing slopes, ravines, and drainages. Understory plants are generally a mixture of shrubs, forbs, and grasses from the surrounding areas; some understory plants are restricted to the shady habitats beneath the tree canopies. Additional shrub species probably grow among the trees that were not found growing on more exposed sites in the adjacent communities. The presence of fence lines along woodland edges and the greater areal coverage by woodland on the VAFB side of the ridges suggest that this vegetation was more extensive in the Project area in the past. The communities within the power line corridor designated as mixed evergreen forest/oak woodland are dominated by oak woodland. Species found in this community type are coast live oak (*Quercus agrifolia*) and poison oak and are surrounded by annual grassland vegetation.

Tanoak Forest

Tanoak forest, dominated by tanoak (*Lithocarpus densiflorus*), is uncommon in the County although common farther north. Many of the species typically found in this type of vegetation may be absent or only sporadic at this latitude (Holland, 1986). Tanoak forest is most commonly seen on the ridges and northeasterly or leeward slopes surrounding the Project site. A small stand of tanoaks was observed on a ridgeline in Larsen Ranch. Chaparral shrubs such as toyon (*Heteromeles arbutifolia*) appeared in the understory with species from the Coastal Scrub community, such as wood mint (*Stachys bullata*) and yerba buena (*Satureja douglasii*). Madrone (*Arbutus menziesii*) and Pacific wax-myrtle (*Myrica californica*), both species with northern affinities, were present in this vegetation community.

Coast Live Oak Woodland

Dominated by coast live oak (*Quercus agrifolia*), coast live oak woodland is common in coastal Santa Barbara County. Oak woodland is common at the lower elevations in Miguelito Canyon, as well as on some of the more protected north-facing slopes at higher elevations, particularly toward the east end of the LWEF site. A knoll northeast of Sudden Peak is forested by both tanoak and coast live oak. The unusually moist character of the foggy hilltops is illustrated by the distribution of coast live oak on the south-facing slopes, with tanbark oak on west- and north-facing exposures. Shrubs from the surrounding coastal scrub community are most commonly seen in the understory. Some oaks and the occasional tanoak and Pacific wax-myrtle (*Myrica californica*) grow in deeper creek channels and on drainage bottoms adjacent to planned access roads.

Evergreen Forest and Woodland Habitat

A number of bird species were observed in mixed evergreen forest, but not in adjacent grassland or Central Coast scrub habitats. Nests of red-tailed hawks were included in the observations. The nests were northeast of the areas that would be disturbed by LWEF construction (that is, northeast of North Corridor and Sudden Corridor).

Red-shouldered hawks and golden eagles (*Aquila chrysaetos*) are also known to be present in this vegetation type in the vicinity; however, no nests of either species were found during the surveys. A communal roost of more than 250 American crows (*Corvus brachyrhynchos*) was observed northeast of Sudden Corridor. A number of woodpeckers used this habitat, including acorn woodpeckers (*Melanerpes formicivorus*), northern flickers (*Colaptes auratus*), Nuttall's woodpeckers, and downy woodpeckers (*Picoides pubescens*). Other birds observed included oak titmouse (*Baeolophus inornatus*), bushtit (*Psittiparus minimus*), and California towhee (*Pipilo crissalis*).

Mule deer (*Odocoileus hemionus*) and evidence (scat, rootings in the ground) of wild pigs (*Sus scrofa*) were observed during surveys in mixed evergreen forest, especially near interfaces with grassland. Several stick nests of dusky-footed woodrats (*Neotoma fuscipes*) were noted to the northeast of North and Sudden corridors.

3.5.2.4 Central Coast Riparian Scrub

Arroyo Willow Scrub

On gentler, more open terrain, drainages are vegetated by Arroyo Willow Scrub dominated by arroyo willow (*Salix lasiolepis*), common rush, coyote brush, poison oak, and occasionally with narrow-leaf willow (*Salix exigua*) and giant creek nettle (*Urtica dioica* ssp *holosericea*). Ruderal species such as milk thistle are often common along the banks. Common rush is common, along with willow shrubs, in some areas along creeks, such as the small drainage that flows from the south end of Middle Corridor toward Sudden Peak Road. Arroyo willow is most common, although sandbar willow (*Salix exigua*) appears with it along creeks in the bottomlands. Other associates include blackberry (*Rubus* sp.), creek nettle (*Urtica dioica*), coffeeberry, and poison oak. Occasional colonies of elderberries (*Sambucus mexicana*) were found.

Well-developed willow scrub is more common in bottomlands and follows Honda Creek along San Miguelito Road in the vicinity of the proposed access road crossing near the VAFB boundary fence. Arroyo willow scrub also follows the unnamed tributary to Honda

Creek that runs between Scolari and Signorelli benches; and patches of thickets grow on the hillside between the Scolari farmstead and Scolari Corridor. Willow patches were also occasionally seen along seeps and springs, such as the patch in South Middle Corridor.

Dominant species along the power line corridor include California sagebrush, coyote brush, blackberry (*Rubus* sp.), and willows (*Salix* sp.).

Central Coast Riparian Scrub Habitat

Wildlife species observed in this habitat type included common yellowthroat, yellow warbler (*Dendroica petechia*), yellow-rumped warbler (*Dendroica coronatum*), dark-eyed junco (*Junco hyemalis*), and California towhee. Killdeer (*Charadrius vociferus*) were observed nearby, and golden eagles were observed flying overhead during December 2006 surveys (Olson, 2007). Brush rabbits occurred in the understory vegetation, as did stick nests of dusky-footed woodrat and coyote scat. Surface water is likely deep enough in some areas of these small drainages for occupation by Pacific treefrogs (*Pseudacris regilla*) and western toads (*Bufo boreas*).

3.5.2.5 Freshwater Marshes, Seeps, Springs, and Ponds

These freshwater habitats may be closely related because they all appear to originate from the scattered seeps and springs in the Project area.

Seeps and Springs

The USGS Tranquillon Mountain 7.5-minute quadrangle shows a number of seeps and springs scattered through the Project area, particularly at high elevations in Middle and South corridors. Many of the drainages in this area appear to originate below springs.

An unusually mesic drainage with a rich flora is found in the drainage on the north slope of South Corridor, where elements of mixed evergreen forest, willow scrub, and coastal scrub all are present. Several locally rare species are found along this drainage, including Pacific wax-myrtle (*Myrica californica*), sword fern (*Polystichum munitum*), and thimbleberry (*Rubus parviflorus*). Other mesic associates are strawberry (*Fragaria vesca*), alum root (*Heuchera micrantha*), possibly canyon gooseberry (*Ribes menziesii*), California polypody (*Polypodium californicum*), bracken fern, poison oak, and blackberry (*Rubus* sp.).

Exposed, spring-fed hillsides with more open exposures support arroyo willow thickets. A particularly extensive patch of these scattered thickets was seen north of the Scolari farmstead near the bottom of Honda Canyon and the VAFB fence line. Associate species were common rush, toad rush (*Juncus bufonius*), brown-headed rush (*J. phaeocephalus*), honeysuckle (*Lonicera involucrata*), and canyon gooseberry (identification uncertain).

Hillside seeps dominated by patches of what appeared to be California barley are found around and south of VABM Prospect 1933 (South Corridor). The colonies were only occasionally spot-checked to search for meadow barley, which is a wetland indicator. The soil beneath these colonies was very dark clay; no formal testing for hydric soil characteristics was performed, although a few bright mottles were seen on a recently bladed road. Clay soils that weather from Monterey shale may be very dark without being wetland soils.

A colony of California barley was also found on the steeper section of the planned route for access to South Corridor along Signorelli Ridge. The steep northwest slope of VABM

Prospect 1933 (South Corridor) and a small area in South Middle Corridor support colonies of Mexican rush (*Juncus mexicanus*). In the former location, creeping rye, purple owl's clover (*Castilleja exerta*), and alkali rye (*Elymus glaucus*) are associates with other upland grasses and forbs. No quantitative cover data were collected, although the extent of the Mexican rush colony in South Corridor was measured in 2005. Sick-leaved rush also was found farther down slope from the South Middle Corridor seep, mixed in the grassland with creeping rye and purple owl's clover.

Wildlife species observed at the seeps included California towhee, spotted towhee, Anna's hummingbird (*Calypte anna*), and brush rabbit.

Ponds

A small pond is located on the western slope of the northern part of Middle Corridor, where a landslide apparently created a small basin that collects rainwater runoff. Duckweed (*Lemna* sp.) was observed floating on the water surface, and mesic weedy species, such as watercress (*Rorippa anagallis-aquatica*) and pimpernel (*Anagallis arvensis*), were observed in the muddy area surrounding the pond. Another pond is located just north of the northwestern ridge of VABM Prospect 1933 (South Corridor). Vegetation surrounding this bermed pond includes giant spikerush (*Eleocharis macrostachya*) and poison hemlock (*Conium maculatum*), as well as clumps of common rush. Brass buttons (*Cotula coronopifolia*) and watercress were observed growing in the water. This pond appears to be fed by seeps, as well as rainwater runoff. A third pond, which was not surveyed, was seen next to the agricultural field at the bottom of Honda Canyon.

Freshwater Marsh

Freshwater marsh develops only in very small areas in the rather steep terrain on the Project sites. Landslides may impound runoff and slow drainage, creating marshy areas colonized by species of rush, as in northern Middle Corridor around the small pond. Freshwater marsh, dominated by giant spikerush, surrounds the small bermed pond below the South Corridor ridgeline. Another small patch of freshwater marsh has developed around a spring-fed cattle trough on the access route to North Corridor. In 2002, watercress, brass buttons, willow dock (*Rumex salicifolius*), rabbit's foot grass (*Polypogon monspeliensis*), and other common species had colonized the short reach of the creek that had silted in behind the access road along the small channel next to the trough.

3.5.2.6 Eucalyptus Groves

Well-grown eucalyptus trees, generally composed of blue gum (*Eucalyptus globulus*), are planted around most of the residences in the Project area and along portions of the power line corridor. One large grove of eucalyptus trees has expanded near the VAFB boundary on the south side of Honda Canyon north of the Scolari farmstead buildings. These trees are down slope of the willow-dominated seep area. The trees in this grove are clustered; groups of trees with interwoven canopies are separated by small openings. Other stands of eucalyptus trees are far smaller and are often planted in windrows along fence lines.

Eucalyptus Groves as Habitat

Five (four small and one large) eucalyptus groves are all in one location near the farmhouses in the east-central part of the LWEF area. All the eucalyptus trees probably originated from the same planting period. Because groves of eucalyptus trees are almost monotypic, this

habitat lacks structural diversity to be used by many wildlife species. However, the trees do provide important habitat for some species. The trees are known to be used by some roosting and nesting birds. American crows (*Corvus brachyrhynchos*) were observed in the trees during the surveys, but no nests of large birds, such as raptors, were observed. During the August 26, 2005, survey, up to 12 turkey vultures were observed foraging over and near the large eucalyptus grove. It is not known if the vultures are utilizing the large grove for roosting. The wintering-flowering species of eucalyptus has resulted in some bird species now wintering in the County. Some species of bats, including the red bat (*Lasiurus blossevillii*), are known to forage along rows of eucalyptus trees.

3.5.2.7 Ruderal

A few areas are dominated by one or a few weedy plant species that typically follow disturbance. Native species may be entirely absent in ruderal areas, but some natives, such as coyote brush and telegraph weed (*Heterotheca grandiflora*), readily colonize disturbances. Ruderal plants often persist along roadsides and trails, next to agricultural fields, and around fences, water sources, and in areas where livestock use is concentrated. Ruderal species may replace the herbaceous understory in tree and shrub dominated habitats if cattle find shade beneath the taller plants. Ruderal plants may be annual or perennial, and many produce copious amounts of seed. Common ruderal species are black mustard and thistles, including milk thistle, Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), and tocalote (*Centaurea melitensis*). Knotweed (*Polygonum aviculare*) is an example of a species commonly found growing in very compacted soils. Poison hemlock frequently colonizes disturbed wetland margins, and fennel (*Foeniculum vulgare*) may spread over large areas of upland habitats.

3.5.2.8 Agricultural Fields

Cultivated fields were located in the bottom of Honda Canyon between the public paved road and the hills. The crop under cultivation in 2005 appeared to be a forage crop such as red fescue. Crops in 2002 may have included safflower. Another cultivated field is located along the bottom of the unnamed drainage just south of Honda Canyon and south of the West Corridor site. Agricultural fields usually are surrounded by a few ruderal species.

Agricultural Field as Habitat

One agricultural field, which appeared to be planted in dryland crops in 2002, is located southwest of the eucalyptus trees. Red-winged blackbirds were observed foraging in agricultural fields during the surveys. Such fields are also known to provide habitat for burrowing small mammals, such as Botta's pocket gopher and California ground squirrel. The presence of small mammals attracts raptors, including northern harrier and red-tailed hawk, to forage over agricultural fields. If agricultural fields are allowed to go fallow, they may be used by some nesting birds, including California horned lark (*Eremophila alpestris actia*).

3.5.3 Common Species

Both common wildlife and plant species are addressed in this section with special attention to raptors, passerines, and bats.

3.5.3.1 Common Wildlife Species

Common wildlife species observed or expected to be in the Project area include western fence lizard, California ground squirrel, Botta's pocket gopher, gray fox, coyote, mountain lion, southern alligator lizard (*Elgaria multicarinatus*), California striped racer (*Masticophis lateralis*), brush rabbit, mule deer (*Odocoileus hemionus*), wild pigs (*Sus scrofa*), and dusky-footed woodrats. Additionally, small drainages may be occupied by Pacific treefrogs and western toads.

During the field surveys for this Project, numerous species of birds were observed. Lists of all birds observed in the 2002, 2005, and 2006 surveys are presented in Appendix B). The most frequently observed species on the LWEF site and power line corridor include the following:

- Turkey vulture (*Cathartes aura*)
- Red-tailed hawk (*Buteo jamaicensis*)
- American kestrel (*Falco sparverius*)
- California quail (*Callipepla californica*)
- Killdeer (*Charadrius vociferus*)
- Mourning dove (*Zenaida macroura*)
- Anna's hummingbird (*Calypte anna*)
- Western scrub-jay (*Aphelocoma californica*)
- California horned lark (*Eremophila alpestris actia*)
- Cliff swallow (*Petrochelidon pyrrhonota*)
- Wrentit (*Chamaea fasciata*)
- European starling (*Sturnus vulgaris*)
- Spotted towhee (*Pipilo maculatus*)
- Song sparrow (*Melospiza melodia*)
- Western meadowlark (*Sturnella neglecta*)

Raptors

Ten species of raptors were observed during the surveys. The sensitive species observed (white-tailed kite [*Elanus leucurus*], ferruginous hawk [*Buteo regalis*], peregrine falcon [*Falco peregrinus anatum*], golden eagle, and Cooper's hawk [*Accipiter cooperii*]) are discussed in Section 3.5.4.1, along with two other sensitive raptors with potential to occur in the Project area. Species without sensitive classifications that were sighted during surveys for this Project include turkey vulture, red-tailed hawk, red-shouldered hawk, and American kestrel. With the exception of red-shouldered hawk, these species were observed throughout the Project area. As noted earlier, kestrels were observed perching on the guy wires for two anemometers near Quarry Ridge and North Corridor. Overall, turkey vultures, red-tailed hawks, and American kestrels would be considered common in the Project area, while red-shouldered hawks were uncommon.

The four common raptor species are year-round resident species in the vicinity of the Project area. Red-tailed hawk nests were observed in mixed evergreen forest northeast of Middle Corridor. Red-shouldered hawks also nested in mixed evergreen forest. This species more likely nests in lower densities within the vicinity of the Project area than red-tailed hawks and kestrels. Turkey vultures nest primarily in cavities in cliffs, banks, and steep hillsides. As such, secluded portions of Sudden Peak, Oak Mountain, and other ridges in the vicinity of the Project area contain potential nesting habitat. No turkey vulture nests were found during the surveys.

Passerines

A majority of the birds observed during the field surveys were passerines. Among the most frequently observed species listed above were California horned lark, wren, spotted towhee, song sparrow (*Melospiza melodia*), western meadowlark, cliff swallow (*Petrochelidon pyrrhonota*), and European starling (*Sturnus vulgaris*). Spotted towhees occasionally nest on undergrowth or piles of debris or brush just above ground level. California horned lark (*Eremophila alpestris actia*) and western meadowlark nest almost exclusively in grassland. Song sparrows nest on the ground or in shrubs or trees just above ground level in chaparral, coastal sage scrub, and riparian scrub habitat. Cliff swallows build mud nests along cliffs or rock overhangs. Starlings have been known to nest on the ground, but typically nest in cavities or crevices.

Bats

Pierson et al. studied the occurrence of 10 species of bats on nearby VAFB (Pierson et al., 2002). Occurrence information for the four species with sensitive classifications (pallid bat [*Antrozous pallidus*], Townsend's big-eared bat [*Corynorhinus townsendii*], red bat [*Lasiurus blossevillii*], and western mastiff bat [*Eumops perotis*]) is presented in Section 3.5.4.1. The other six species, which are more common overall, are:

- **Big brown bat (*Eptesicus fuscus*)** – This is one of the most common bat species in the region. It roosts in at least 24 buildings and 2 bridges on VAFB. There are no known roosts in the Project area. It is a year-round resident species.
- **Silver-haired bat (*Lasionycteris noctivagans*)** – This species is very rare in the region. There were only three acoustic detections during the Pierson et al. study.
- **Hoary bat (*Lasiurus cinereus*)** – Detections of this species were relatively limited in number and widely distributed throughout the base.
- **California myotis (*Myotis californicus*)** – This species was widespread on base. It was a common species based on survey results. Roosts were found throughout the base, including buildings, bridges, and Shuman Cave. It occurs in the region on a year-round basis.
- **Yuma myotis (*Myotis yumanensis*)** – Although a number of roosts were identified on the base, most were on North Base, a considerable distance from the Project area. This species is a year-round resident of the region.
- **Mexican free-tailed bat (*Tadarida brasiliensis*)** – This was the second most widespread and commonly found bat on the base. There were 14 roosts located, all in human-

constructed structures. Mexican free-tailed bats are very mobile and do not hibernate. Numbers in the region are lower in the winter relative to the other three seasons.

3.5.3.2 Common Plant Species

The Project plant list (Appendix B, Table B-5) focuses on the survey area, which was mostly in grasslands, and does not include many habitats that occur adjacent to Project components. Some species, including two grasses, were incompletely identified. Some of the grazed grasslands were quite diverse. About 70 percent of the taxa found during the surveys were native plants, although the diversity and proportion of native versus alien (non-native) species varied from site to site. About 38 percent of non-native species were abundant enough to predominate in at least one type of vegetation, which is an expected result of the emphasis on grazed grassland sites.

Native perennial herbs and subshrubs not only persist in many of the grazed grassland areas, but are often quite common, particularly on the sandy loam soils of Middle Corridor. Many of the endemic plants for which northern Santa Barbara County is known are more likely to occur in the shrub- and tree-dominated habitats that will be largely avoided by the Project. Chaparral was not only excluded from the surveys, but was not found in the immediate Project area.

3.5.4 Special-status Species

Wildlife and plant species that have special status may be protected under policies of federal, state, and local agencies. These include formally listed species as well as species that are not listed but appear to be declining. The following section discusses wildlife species observed from or likely to occur in the Project area, followed by the vascular plant species. Non-vascular plants and lichens were not included in this study.

3.5.4.1 Special-status Wildlife Species

Special-status wildlife species include those that are:

- Listed as threatened or endangered by the state or federal government, or both
- Included on the “species of special concern” lists maintained by the State of California
- Considered to be rare or declining on a local or regional basis

Special-status species and their potential to occur in the Project area are listed in Table 3.5-1, which is supplemented by a more detailed discussion of each.

TABLE 3.5-1
Special-status Wildlife Species and Potential Occurrence in the Project Area

Common Name	Scientific Name	Federal/ State Rank	Occurrence
Amphibians			
California tiger salamander	<i>Ambystoma californiense</i>	FT, CSC	Not expected to occur due to lack of habitat
Western spadefoot toad	<i>Spea (=Scaphiopus) hammondi</i>	CSC	Not expected to occur due to lack of habitat

TABLE 3.5-1
Special-status Wildlife Species and Potential Occurrence in the Project Area

Common Name	Scientific Name	Federal/ State Rank	Occurrence
California red-legged frog	<i>Rana aurora draytonii</i>	FT, CSC	Unlikely due to lack of suitable habitat
Reptiles			
Southwestern pond turtle	<i>Emys</i> (=Actimenys= <i>Clemmys</i>) <i>marmorata pallida</i>	CSC	Unlikely due to lack of suitable habitat
Two-striped garter snake	<i>Thamnophis hammondi</i>	CSC	Moderate; known from area, but limited habitat
Coast patch-nosed snake	<i>Salvadora hexalepis virgulata</i>	LR	Possible in areas with scrubby vegetation
California horned lizard	<i>Phrynosoma coronatum frontale</i>	CSC	Known to occur
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	CSC	Likely present in some areas (scrub and woodland habitats)
Birds			
White-tailed kite	<i>Elanus leucurus</i>	FP, LR	Most likely to forage, low probability of nesting
Golden eagle	<i>Aquila chrysaetos</i>	BGA, CSC, FP	Observed during surveys in winter 2006; likely to nest near the Project area
Northern harrier	<i>Circus cyaneus</i>	CSC	Observed foraging in area
Sharp-shinned hawk	<i>Accipiter striatus</i>	CSC	Low
Cooper's hawk	<i>Accipiter cooperii</i>	CSC	Observed during surveys; low potential to nest in vicinity
Ferruginous hawk	<i>Buteo regalis</i>	CSC	Observed during surveys in winter 2006; low potential to nest in vicinity
Merlin	<i>Falco columbarius</i>	CSC	Low
Peregrine falcon	<i>Falco peregrinus</i>	SE, FP	Observed during surveys in winter 2006; low likelihood for nesting in vicinity
Western burrowing owl	<i>Athene</i> (=Speotyto) <i>cunicularia hypugea</i>	CSC, PSTE	Low to moderate; no observations during surveys, but wintering individuals known from VAFB and Cojo Ranch
California horned lark	<i>Eremophila alpestris actia</i>	CSC	Observed nesting and numerous on Project sites during nesting season.
Loggerhead shrike	<i>Lanius ludovicianus</i>	CSC	Known to occur onsite; observed by CH2M HILL in 2006 and Olson in 2007

TABLE 3.5-1
Special-status Wildlife Species and Potential Occurrence in the Project Area

Common Name	Scientific Name	Federal/ State Rank	Occurrence
Yellow warbler	<i>Dendroica petechia</i>	CSC	Known to occur onsite; observed by Olson in 2002
California rufous-crowned sparrow	<i>Aimophila ruficeps ruficeps</i>	LR	Observed nesting; likely to nest in select areas that include scrub habitat or rock outcrops
Bell's sage sparrow	<i>Amphispiza belli belli</i>	CSC	Low; not observed on site but habitat present in region
Grasshopper sparrow	<i>Ammodramus savannarum</i>	LR	Observed nesting; likely to nest in grassland on Project sites
Tricolored blackbird	<i>Agelaius tricolor</i>	CSC	Observations in area; unlikely to nest due to lack of extensive bulrush/cattail habitat
Mammals			
Western mastiff bat	<i>Eumops perotis</i>	CSC	Unlikely; could forage in nearby Santa Ynez Valley but not common at Project site
Pallid bat	<i>Antrozous pallidus</i>	CSC	Could forage nearby, but unlikely to breed in area
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	CSC	Low likelihood, commonly found at VAFB
Red bat	<i>Lasiurus blossevillii</i>	PCSC	Low likelihood, commonly found at VAFB
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	CSC	Potential to occur in areas of coastal sage scrub, especially South Corridor and West Corridor, Signorelli Ridge, and Signorelli Bench.
American badger	<i>Taxidea taxus</i>	LR	Resident along Sudden Corridor – East and North Corridor; could occur elsewhere in grassland habitat

BGA – Protected by the Bald and Golden Eagle Act

CSC – California Species of Special Concern

FE – Listed by the Federal government as an endangered species

FT – Listed by the Federal government as a threatened species

FP – Fully protected animal in California per Section 5050 of the California Fish and Game Code

LR – Recognized as a locally rare species

PCSC – Proposed for status as California Species of Special Concern

PSTE – Petitioned for state-listing as threatened or endangered

SE – Listed by the State of California as an endangered species

Source: Olson and Rindlaub, 2006; Pierson et al., 2002

California Tiger Salamander (*Ambystoma californiense*)

The California tiger salamander is a federally listed threatened species and a California Species of Special Concern. The USFWS published a Final Rule in November 2004 (50 CFR Part 17) designating 11,180 acres of land as critical habitat in several portions of Santa Barbara County; the Project site and power line corridor are not within designated critical habitat. The tiger salamander is found in permanent and seasonal ponds and pools, usually in grassland and savanna habitats. Seasonal pools must hold surface water for at least 10 weeks to allow successful breeding to take place. This species spends a majority of its life underground in small mammal burrows that can be up to 1.2 miles from the breeding pond or pool. California tiger salamanders are known from the Santa Maria and Los Alamos valleys and from several locations between Lompoc and Buellton. There are no known locations near the Project area. The only seasonal pool is an impounded stock pond on the western portion of Sudden Corridor. The only observations of amphibians during the surveys were Pacific tree frog larvae. Due to a lack of habitat and substantial distance from the nearest reported occurrence, this species is not expected within the Project area.

Western Spadefoot Toad (*Spea hammondi*)

Similar to the California tiger salamander, this species breeds in permanent and seasonal ponds and pools, but spends much of its life underground in small mammal burrows or deep cracks in the ground. The only seasonal pool is an impounded stock pond on the western portion of Sudden Corridor. This is an isolated pool in which only Pacific tree frog larvae were observed during the May 20, 2005, survey. This species is not expected to occur in the Project area due to the substantial distance to other reported occurrences of the western spadefoot toad and the lack of suitable habitat in the area.

California Red-legged Frog (*Rana aurora draytonii*)

The California red-legged frog is a federally listed threatened species and a California Species of Special Concern. The USFWS published a Final Rule in April 2006 (50 CFR Part 17) designating critical habitat in several portions of Santa Barbara County, including 7,662 acres about 4.4 miles south of the City of Lompoc; this area includes the southeastern portion of the Project site. Possible threats include predation by non-native species and water management practices that could negatively affect the aquatic habitat of the frog. Populations in this unit may also require special management or protection due to their potential importance in stabilizing populations in tributaries to the Santa Ynez River. The California red-legged frog is found in a variety of freshwater aquatic habitats, including ponds (natural and artificial), small reservoirs, and portions of streams and rivers with pools or slow-moving water. They are known from a number of locations on VAFB, including upper Honda Canyon, a number of smaller streams in the Lompoc area, and areas along State Route 1 (SR-1) between Lompoc and Las Cruces.

No red-legged frogs were observed during surveys on the Project site, and there is little suitable habitat in the Project area. Although red-legged frogs could potentially occur in the Project area, they would only be expected to occur on very rare occurrences as dispersing individuals.

Southwestern Pond Turtle (*Emys marmorata pallida*)

The southwestern pond turtle is a California Species of Special Concern. Similar to red-legged frogs, this species uses areas with permanent surface water, such as ponds, reservoirs, and slow-water pools in streams. Basking sites that protrude above the surface of

the water (such as rocks, logs, downed trees, and mats of aquatic vegetation) are an important component of the habitat. Pond turtles are also found occasionally in nearby upland areas during nesting and winter. Loss of and disturbance to wetlands and riparian zones have caused this species to decline in numbers and distribution.

This species is known to occur in creeks and ponds in northern Santa Barbara County. It occurs at a number of locations on VAFB. It is unlikely that southwestern pond turtles occur in or near the Project area due to a lack of permanent surface water.

Two-striped Garter Snake (*Thamnophis hammondi*)

This species is a California Species of Special Concern. Two-striped garter snakes are found in a variety of aquatic habitats, including creeks, streams, ponds, and reservoirs. Aquatic and riparian vegetation is used as cover. This species is known to occur in coastal northern Santa Barbara County, including VAFB and in the vicinity of the Project site.

Habitat for two-striped garter snakes in and near the Project area is very limited. One area of North Corridor - East would cross over a seasonal drainage that includes marginal habitat for this species. An access road leading to parts of the South Corridor and West Corridor crosses a seasonal drainage with limited riparian scrub habitat. In addition, artificial impoundments on the western portion of Sudden Corridor and on Middle Corridor represent at least seasonal habitat for this species. The occurrence of two-striped garter snakes at the streams is possible, but unlikely; the habitat quality is marginal, and the duration of surface water is unknown. The pond represents better quality habitat, but persistence of surface water in that impoundment is unknown, and the pond is isolated from other areas of potential habitat.

Coast Patch-nosed Snake (*Salvador hexalepis virgultea*)

This species is considered to be locally rare in the western portions of Santa Barbara County. The coast patch-nosed snake is often found in scrub and chaparral habitats, but has a distribution that is generally east of SR-154. There have been recent sightings in the Lompoc region, including one in Vandenberg Village. Although not reported previously in the vicinity of the Project, the occurrence of this species is possible, especially in habitats with a shrub component.

California Horned Lizard (*Phrynosoma coronatum*)

The California horned lizard is a California Species of Special Concern. Habitat loss has occurred in many parts of the range of this species due to residential development and other factors, such as conversion to cultivated agriculture. Horned lizards are active above-ground primarily between April and October with activity concentrated in April through June. Preferred habitat includes loose, sandy loam and sandy-gravelly soils supporting scattered shrubs and an open canopy, including riparian woodland, riparian scrub, coastal sage scrub, open areas in chaparral, and annual grassland.

This species occurs in many habitats on VAFB. In the vicinity of the Project area, California horned lizards could occur at locations that are inland enough to be away from persistent convection fogs that blanket western and southern coastlines of Santa Barbara County. This would include most portions of the Project area that contain combinations of annual grassland and Central Coast scrub.

Silvery Legless Lizard (*Anniella pulchra pulchra*)

The silvery legless lizard is a California Species of Special Concern. There have been recent estimates of the loss of approximately 20 percent of the historic range of this species (Jennings and Hayes, 1994). Factors in habitat loss include urbanization, conversion to intensive agriculture, coastal dune development, and the introduction of non-native plants, such as veldt grass (*Ehrharta calycina*), ice plant (*Carpobrotus edulis* and related species), eucalyptus, and other invasive species that displace native vegetation and create unsuitable microhabitat conditions for silvery legless lizards. This species is very limited in its mobility. It is quite long-lived, having survived in captivity for up to 7 years. Reproductive maturity is reached at 2 to 3 years. Adult females bear from one to four (usually one) live young between September and November (Goldberg and Miller, 1985). Suitable habitat occurs in portions of the Project area that contain Central Coast scrub and annual grassland that has elements of Central Coast scrub.

White-tailed Kite (*Elanus leucurus*)

This is a locally rare species and a fully protected bird in California. White-tailed kites are an uncommon resident of the Lompoc area. They forage over relatively open areas, including grassland and agricultural land. Communal roosts used in the fall and winter are established in a variety of settings, including stands of oak and eucalyptus trees.

Most nesting occurs between March and July. This species has been observed nesting in the Lompoc region (T. Olson, 2006; Holmgren and Collins, 1999). None of the records compiled by Holmgren and Collins were in the vicinity of the Project area. An individual white-tailed kite was observed during Survey 3 at Point 18 from Signorelli Ridge and South Corridor.

Foraging habitat for this species occurs in annual grassland and agricultural field throughout the Project area, including the vicinities of the Project Substation and maintenance station. Some portions of the Project area are nearby potential roosting and nesting habitat, including the eastern part of Sudden Corridor and portions of North Corridor - East and Middle Corridor - Flank, and Sudden Corridor -Northeast.

Golden Eagle (*Aquila chrysaetos*)

This species is a California Species of Special Concern and a fully protected species in California. In addition, it is protected by the Bald and Golden Eagle Act. Golden eagles use open areas and semiopen woodlands. They often forage over large expanses of grassland. This species is considered to be rare in the Lompoc region; however, there are records in the Project vicinity. Three were observed in the Oak Mountain region during August and September 1990. This species occurs year-round on VAFB. Data collected and compiled by Holmgren and Collins in 1999 include sightings primarily around the mouth of the Santa Ynez River and the Point Sal area. However, there were at least six sightings in Miguelito Canyon and Sudden Canyon, and near Sudden Peak and Oak Mountain, during 1994 and 1995. The 1994 report near Oak Mountain was of a nesting pair.

Tetra Tech reported that golden eagles had nested in the vicinity of an Oak Mountain road repair project (TetraTech, 1999b). VAFB wildlife biologist Nancy Read noted that one or two pairs have nested in that area consistently over the past several years. She indicated that the Oak Mountain area is one of the few locations in northern Santa Barbara County where golden eagles are consistently observed (T. Olson, 2002). A pair was observed while conducting surveys on VAFB in the vicinity of the Project site (Olson and Rindlaub, 2006).

During the surveys for this Project, five golden eagles were sighted. Two individuals were observed near the junction of San Miguelito Road and Sudden Road. An immature golden eagle was observed on June 20, 2002. The other observation was an adult flying overhead on April 15, 2005. Three individuals were observed in the Signorelli Ridge/South Corridor area in December 2006. Golden eagles could potentially forage over large expanses of open habitat (mostly grassland) throughout the Project area. The foraging habitat for this species within the Project area is small compared to territory size. Natural vegetation within the Project area is about 3,000 acres. Adjacent and nearby properties with significant areas of natural vegetation include south VAFB (about 30,000 acres) and Bixby Ranch (more than 10,000 acres). Studies have shown that golden eagles occupy large territories. Dixon estimated the average size of golden eagle territories in a study conducted in San Diego County to be 93 square kilometers (36 square miles = 23,040 acres) (Dixon, 1937), while another study reported an average territory size of 124 square kilometers (48 square miles = 30,720 acres) for golden eagles in northern California (Olson and Rindlaub, 2006).

Northern Harrier (*Circus cyaneus*)

This species is a California Species of Special Concern. Northern harriers use a variety of open habitats, such as grassland, coastal sage scrub, wetland areas, and agricultural lands. In the Lompoc area, this species is considered to be rare during the breeding season and uncommon for the remainder of the year. Holmgren and Collins compiled numerous sightings on VAFB, including several with evidence of nesting. Four of the observations were in the vicinity of the Project area; however, none included signs of nesting (Holmgren and Collins, 2006). Northern harriers were observed on nearby VAFB property and are believed to be present in low numbers in the vicinity (Olson and Rindlaub, 2006).

An adult female was sighted on April 15, 2005, soaring low to the ground along Quarry Ridge. This species could occur in the Project area on infrequent occasions but is not expected to nest in the vicinity. Relatively open areas throughout the Project area, including grassland, open Central Coast scrub, and agricultural field, provide potential foraging habitat for this species. In September 2006, a harrier was sighted in annual grassland and Central Coast riparian scrub. Two individuals were seen at Points 5 and 18 at Middle Corridor South and Signorelli Ridge, respectively, during Surveys 2 and 3 in December 2006. This species also was observed along the power line corridor in September 2006.

Sharp-shinned Hawk (*Accipiter striatus*)

The sharp-shinned hawk is a California Species of Special Concern. This species occurs in woodlands and at interfaces between wooded and open habitats. In the Lompoc area, it is an uncommon winter visitor. Lehman reported that only one probable nesting has been documented in Santa Barbara County (Lehman, 1994).

No sharp-shinned hawks were observed during the surveys for this study during 2002 or 2005. This species could potentially occur on an uncommon basis during fall and winter at edges of annual grassland and mixed evergreen forest. Locations are northeast of Middle Corridor and Sudden Corridor. Nesting by sharp-shinned hawks is not expected in the Project area. In 2006, a sharp-shinned hawk was observed in grassland habitat.

Cooper's Hawk (*Accipiter cooperi*)

This species is a California Species of Special Concern. Cooper's hawks use woodlands, riparian areas with openings, and some open habitats, including agricultural fields. In the

Lompoc area, this species is a rare breeding species and uncommon during other seasons of the year. During a study of La Purisima Mission State Historic Park in 2004, there were several observations of this species, including one successful nest (Olson and Rindlaub, 2006). Among many reported observations compiled by Holmgren and Collins (1999) were: (1) one along Lower Honda Ridge Road in September 1994; and (2) a probable nesting near Upper Honda Creek (an adult carrying food) in June 1996. During the surveys for this study, one adult was observed on September 25, 2002, and another on May 20, 2005. The 2002 sighting was in mixed evergreen forest northeast of Middle Corridor - Flank. The 2005 sighting was near a small patch of woodland adjacent to a seep on the western portion of Sudden Corridor - West. Suitable habitat for this species occurs in the Project area, primarily in and around areas of mixed evergreen forest northeast of Middle Corridor - Flank and Sudden Corridor - East. Nesting by this species in the Project area is possible, but in low numbers. In December 2006 during Survey 2, an individual was sighted in Signorelli Corridor flying relatively low to the ground at a height of 4 to 5 meters.

Ferruginous Hawk (*Buteo regalis*)

The ferruginous hawk is a California Species of Special Concern. This species occurs in open areas, mostly grassland and agricultural areas in parts of Santa Barbara County, where it is uncommon in the fall and winter. Although most county observations are made in the Cuyama Valley, small numbers of ferruginous hawks frequent the Lompoc/VAFB region each winter. This species is not known to nest in Santa Barbara County.

There are 36 observations of ferruginous hawks in and near VAFB in Holmgren and Collins (1999), including an October 1996 sighting by Paul Collins in the Oak Mountain area. There are no nesting records for this species in the vicinity of the Project area. No ferruginous hawks were observed during the spring and summer surveys conducted for this study. Foraging habitat occurs in open annual grasslands in the Project area. One ferruginous hawk was observed during midday, flying at approximately 40 meters from Middle Corridor - North, during Survey 3 of the December 2006 survey.

Merlin (*Falco columbarius*)

This species is a California Species of Special Concern. Merlins occur in open habitats, such as agricultural fields, grasslands, wooded wetlands, and beaches. This species is a rare winter visitor along the northern coast of Santa Barbara County. Holmgren and Collins (1999) compiled a list of 25 sightings on VAFB between 1980 and 1996. Most of those observations were either near the mouth of the Santa Ynez River or the waterfowl management ponds. However, one February 1996 sighting by Kathleen Whitney was at Sudden Flats, about 0.5 miles west of Sudden Canyon. There are no records of merlins nesting in Santa Barbara County.

No merlins were observed during the surveys conducted for this study. This species could potentially occur in the Project area on a rare basis during the winter. Nesting by merlins is not expected in or near the Project area.

Peregrine Falcon (*Falco peregrinus anatum*)

The peregrine falcon is a state-listed endangered species and fully protected bird in California. The peregrine falcon was federally delisted on August 25, 1999. This species forages over open habitats, such as grasslands, agricultural fields, ponds, and coastal areas.

Throughout Santa Barbara County and specifically in the Lompoc area, the peregrine falcon is considered rare, occurring mostly in fall and winter months.

Sightings compiled by Holmgren and Collins (1999) included a September 1993 observation by Paul Collins on Honda Ridge and a pair observed along lower Honda Ridge Road in September 1994. Tetra Tech (1999a,b) reported that one nesting pair of peregrine falcons had been using rocky cliffs along the coast of South VAFB. Those reports also included an estimate of 60 acres of such habitat occurring on the base. No similar habitat exists in the Project area. Peregrine falcon was among the species observed during surveys on the South Base of VAFB. Nancy Read indicated that peregrine falcons are regularly reported from the vicinity of the Project area during migration (Olson and Rindlaub, 2006). During the December 2006 survey, two observations of this species were made during Surveys 1 and 3 at North Corridor - East and South Corridor - Central, respectively. It is possible that the two observations of the bird diving were the same individual.

Western Burrowing Owl (*Athene cunicularia*)

The burrowing owl is a California Species of Special Concern. Burrowing owls use large expanses of grassland and agricultural areas. The burrows used for roosting and nesting are primarily those initially excavated by California ground squirrels. Lehman (1994) states that the burrowing owl is almost extirpated in Santa Barbara County due to conversion of grassland habitat, rodent control, and pesticide usage. In the petition to list this species under the California Endangered Species Act (CESA), the Center of Biological Diversity, et al. (2003) also described the status of burrowing owls in Santa Barbara County as “nearly extirpated.” In the Lompoc area, this species is considered to be an uncommon but regularly observed species during nonbreeding months of the year.

Wintering birds and transients are regularly sighted on VAFB, primarily between November and April (Tetra Tech, 1999b). A previous sighting in 1997 was within 1 mile of the Oak Mountain Road Repair Project site, but not at the time of the work was underway. There have been no reports of burrowing owl nests on VAFB since 1980. Despite the lack of nesting records, Holmgren and Collins indicated there was “significant use of suitable habitat on the base by migrants and winter visitors.” During that study, there were 47 sightings at 31 different locations in grassland and coastal scrub habitats. Included among the 31 localities were 4 on East Honda Ridge, 12 on the Sudden Ranch, and 1 sighting at Oak Mountain (Holmgren and Collins, 1999).

No burrowing owls were observed during the surveys for this Project. Suitable wintering habitat occurs in the Project area in annual grassland and Central Coast scrub habitats. Nesting by burrowing owls is not expected in the Project area.

California Horned Lark (*Eremophila alpestris actia*)

The California horned lark is a California Species of Special Concern. It occurs mostly in open areas with short vegetative cover, including fallowed cropland, dunes, and short grassland. This species is still considered a fairly common nesting species in North Coast areas of Santa Barbara County, especially around Lompoc and Santa Maria. Numbers of this species in the fall and winter are higher due to an influx of migrants from elsewhere.

During surveys conducted for the Holmgren and Collins report, there were several observations of this species on Honda Ridge, Sudden Road (to the base of Tranquillon Peak

and near the junction with San Miguelito Road), and near the Oak Mountain gate. The observation near the Oak Mountain gate was of a female with a “broken wing” display, indicating that an active nest was nearby (Holmgren and Collins, 1999).

California horned larks were commonly observed during five of the six Project surveys in 2002 (May 31, June 30, July 21, August 23, and September 25). The highest count for one survey in 2002 was 20 on August 23. Nests were found on May 31 and June 30, 2002, on West Corridor, North Corridor - East, and Middle Corridor - Flank. In general, nests were established on relatively level areas with very short grass cover.

This species was noted in 2005 during surveys conducted on April 15, June 12, June 16, and August 26. During the August 26, 2005, survey, this species was especially common along Middle Corridor - South; a total of 27 California horned larks were observed during that survey. Based on observations made in 2002 and 2005, other areas also contain suitable nesting habitat, including South Corridor - East, South Corridor - Central, the new access road leading from San Miguelito Road to North Corridor, Sudden Bench - Northwest, and Sudden Corridor - West. Several individuals were observed during all three December 2006 surveys at Sudden Bench, and Quarry, Middle, North, Signorelli, South, Scolari, and West corridors.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a California Species of Special Concern. This species is found in grassland, oak savanna, scrub habitats, open riparian zones, and agricultural areas. It is an uncommon year-round resident along the northern coast of Santa Barbara County. In the Lompoc area, it is considered common in fall and winter and uncommon, but regularly observed, in spring and summer. Among numerous sightings on and near VAFB compiled by Holmgren and Collins were observations in upper Honda Canyon and Sudden Canyon, as well as along lower Honda Ridge Road and near Oak Mountain. The Oak Mountain sighting was reported by Nancy Read and included one to two pairs. The Holmgren and Collins report included nine sightings in 1995 and 1996 with evidence of nesting. None of the observations reported by Holmgren and Collins was in or near the Project area (Holmgren and Collins, 1999).

No loggerhead shrikes were observed during 2002 and 2005 surveys conducted for this study. Suitable foraging habitat occurs in the Project area in areas of open Central Coast scrub and at the margins of that habitat and annual grassland. Based on previously collected data, nesting by this species in or near the Project area is likely. A loggerhead shrike was observed in September 2006 within grassland habitat, and an incidental sighting of one occurred in December 2006 during Survey 2.

Yellow Warbler (*Dendroica petechia*)

The yellow warbler is a California Species of Special Concern. It breeds in riparian areas, usually in relatively dense willow shrubs. Lehman described this species as a fairly common summer resident in the North Coast region of Santa Barbara County. In the Lompoc area, yellow warblers are considered to be common during spring and summer, especially near riparian and wetland areas (Lehman, 1994).

During surveys for this study, there were observations of yellow warblers on three dates: May 31, 2002; April 13, 2005; and May 20, 2005. A total of four individuals were sighted

during the surveys conducted for this Project. All were in arroyo willows along small drainages. Based on survey results, the number of yellow warblers in the construction zone is expected to be small. Potential habitat occurs along small drainages and around some seeps and wetlands in Sudden Corridor, West Corridor, South Corridor, and the West Access Road to North Corridor.

California Rufous-crowned Sparrow (*Aimophila ruficeps ruficeps*)

The California rufous-crowned sparrow is considered to be rare in the region. It does not have other sensitive classifications. This species uses dry, open areas of scrub and grassland habitats. Shrub cover is usually interspersed with patches of bare ground or grass and forb cover. Rufous-crowned sparrows often are observed around sparsely vegetated areas around road cuts. On South VAFB, this species was frequently observed on south-, east-, and west-facing slopes of hills and ridges, as well as on high ridges between Sudden Peak and Oak Mountain (Holmgren and Collins, 1999).

This species is considered an uncommon resident species in coastal sage scrub in the Lompoc-VAFB area of Santa Barbara County. During 1995 and 1996 surveys conducted for the Holmgren and Collins report, there were 19 rufous-crowned sparrow sightings in the vicinities of Oak Mountain, Honda Ridge, and Sudden Peak. The observations were made in March, April, May, June, and October. Three observations in June 1996 in the Sudden Peak to Oak Mountain area were of fledglings and adults carrying food; these sightings and activities indicate that these birds were nesting in the area. Overall, there were 397 rufous-crowned sparrows and 218 territories identified on South VAFB during the 1995 and 1996 surveys. Among the more abundant sites were the eastern end of North Honda Canyon Ridge and high ridges between Sudden Peak and Oak Mountain (Holmgren and Collins, 1999).

During surveys conducted for this study, rufous-crowned sparrows were observed on May 31, 2002, and September 25, 2002. Both sets of observations were of adults, including two on May 31 along West Corridor and one on September 25 along Sudden Bench - Northeast. In 2005, rufous-crowned sparrows were observed on May 4 and June 16 along North Corridor - Central, North Corridor -East, and Sudden Bench - Northeast.

Suitable habitat also occurs on hillsides with Central Coast scrub along the following corridors: South Corridor, portions of West Corridor, Quarry Ridge, Quarry Flank, and Signorelli Corridor. Two individuals were observed at Middle Corridor at Points 5 and 6 during Survey 1 in December 2006.

Bell's Sage Sparrow (*Amphispiza belli*)

This species is a California Species of Special Concern. In the Lompoc area, it is an uncommon and local resident of chaparral on VAFB and La Purisima Mission, as well as in the vicinity of Vandenberg Village. Nearly all observations made during the Holmgren and Collins studies were in Burton Mesa chaparral. By comparison, only one sage sparrow was sighted in coastal sage scrub. Areas of Burton Mesa chaparral that had burned within the previous 15 years contained the highest densities of individuals. Sightings on La Purisima Mission State Historic Park were mostly in chaparral, but also included some in coastal sage scrub (Holmgren and Collins, 1999; Olson and Rindlaub, 2006).

Most of the sightings made in 1995 and 1996 were on North VAFB. The closest subpopulation to the Project area was on the south slope of the west end of Honda Ridge, off Avery Road (Holmgren and Collins, 1999). There were no new territories identified in the Project area. No Bell's sage sparrows were observed in 2002 and 2005.

Grasshopper Sparrow (*Ammodramus savannarum*)

The grasshopper sparrow is considered regionally rare; it does not have other sensitive classifications. This species is found in extensive grassland areas with scattered shrubs, often coyote brush. The shrubs and other taller plants are used as perches. It is considered an uncommon and local summer resident in the Lompoc area.

Among observations made in 1995 and 1996 on VAFB, 12 were near Oak Mountain, Sudden Peak, Honda Ridge, and upper Honda Canyon (Holmgren and Collins, 1999). On two occasions, either juveniles or fledglings were observed, including: (1) on a ridgeline between Sudden Peak and Oak Mountain; and (2) west of the junction of Tranquillon Mountain Road and Arguello Boulevard.

During surveys conducted for this study, grasshopper sparrows were observed on May 31, June 30, and July 21, 2002, as well as during four of the 2005 surveys (April 15, May 4, June 12, and June 16). The highest number observed was nine on June 16, 2005. The observations were in grassland areas at the bases of and partway up hills in the following areas: South Corridor - Central, Middle Corridor - North, Quarry Ridge, Sudden Corridor - East, and Sudden Bench - Northeast. The 2006 survey yielded a sighting of this species in annual grassland.

Tricolored Blackbird (*Agelaius tricolor*)

The tricolored blackbird is a California Species of Special Concern. This species is usually found in scattered, large colonies that use dense stands of bulrush (*Scirpus* spp) and cattails (*Typha* spp) for roosting and nesting. This species often forages in agricultural fields and grasslands grazed by cattle. Nesting occurs between April and early July. The species is uncommon to common in portions of Santa Barbara County, but highly localized in distribution. In the Lompoc area, tricolored blackbirds are considered rare during breeding season and uncommon during other seasons of the year. Wintering concentrations occur in the Santa Maria Valley and on VAFB.

Important locations for this species on VAFB include Mod III Pond, Punchbowl Pond, Barka Slough, San Antonio Creek, the Santa Ynez River, Wildflower Wetland, Live Oak Spring, and the Waterfowl Management Ponds. Other sightings, including those of groups foraging in upland areas, have been scattered and not repeated. The closest observations to the Project area reported by Holmgren and Collins were in grasslands along Sudden Road, about 0.5 miles south of the base boundary (Holmgren and Collins, 1999). During surveys for this study, a group of approximately 12 was observed on May 31, 2002, in grasslands along the existing access road in Middle Corridor. An earlier sighting included a flock of about 30 on May 6, 2002. No tricolored blackbirds were observed during the 2005 surveys. This species is not expected to breed in the Project area due to a lack of suitable nesting habitat; however, suitable foraging sites occur in the Project area in grasslands on relatively level terrain and on gently sloping hillsides.

Western Mastiff Bat (*Eumops perotis*)

The western mastiff bat is a California Species of Special Concern. It occurs throughout much of California up to about 8,900 feet (2,713 meters) elevation. Western mastiff bats frequent a variety of habitats, including desert scrub, oak woodland, chaparral, and ponderosa pine forest (Pierson et al., 2002). They forage mostly on moths while in flight (sometimes up to 1000 feet (304.8 meters) above the ground).

During surveys conducted from 1997 to 1999, this species was detected acoustically on VAFB only three times, all in upper Honda Canyon. Pierson et al. believe those individuals may have come from a roosting site well away from the base. It appears that the western mastiff bat is not a resident of the base (Piersen et al., 2002). As such, its only potential occurrence in the Project area would be during foraging on very rare occasions.

Pallid Bat (*Antrozous pallidus*)

The pallid bat is a California Species of Special Concern. This species uses a variety of habitats ranging from deserts to oak and redwood forests. Pallid bats roost in crevices, such as openings in rock outcrops, mines, caves, hollow trees, buildings, and bridges. Within the Central Coast region, they forage in both open woodlands and wooded canyons for arthropods, including beetles and grasshoppers.

During surveys conducted from 1997 to 1999 on VAFB, this species was found at 19 sampling locations (Pierson et al., 2002). It was the sixth most abundant bat species on base. The only significant population was found in Upper Honda Canyon. Swordfish Cave was used as a day and night roost by a maternity colony of about 40 to 50 adult females, a few adult males, and young bats. Bats from Upper Honda Canyon often foraged in tanoak habitat on ridges and in coast live oak (*Quercus agrifolia*) habitat in Honda and Miguelito creeks. This species apparently relies on cave habitat on base. Because cave habitat is lacking, pallid bats are unlikely to roost in the Project area; however, foraging habitat occurs in mixed evergreen forest, especially those locations on hillsides characterized by tanoak. Such areas occur northeast of Sudden Corridor and North Corridor.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

The Townsend's big-eared bat is a California Species of Special Concern. It is quite widely distributed through the region, occurring in habitats ranging from deserts to coastal scrub and woodland. It roosts primarily in mines, caves, and buildings. Townsend's big-eared bats feed on small moths and a variety of other insects.

During surveys conducted from 1997 to 1999, big-eared bats were found in 16 day-roosts (Pierson et al., 2002). Most of the roost sites were near oak-dominated drainages and canyons. A total of 29 individuals were captured. No maternity roosts were found on VAFB. This species is not expected to roost in the Project area due to a lack of cave and mine habitat; however, foraging habitat occurs in wooded areas similar to those described above for pallid bat (*Antrozous pallidus*).

Red Bat (*Lasiurus blossevillii*)

The red bat has been proposed for future listing as a California Species of Special Concern. There are scattered records of red bat occurrence in central and southern California where they use low elevation riparian habitats. They roost under the cover of overhanging leaves

of sycamore and cottonwood trees, as well as in orchards. This species forages while in flight on a variety of insects.

During surveys in 1997 to 1999, this species was detected throughout VAFB, primarily in creek drainages along San Antonio Creek, the Santa Ynez River, and lower and upper Honda Canyon. It was also detected in wetland areas and foraging along rows of eucalyptus trees. Due to a lack of riparian habitat, this species is not expected to roost in the Project area. Foraging habitat in the Project area is limited to the eucalyptus groves and seeps along South Corridor, Signorelli Corridor, and Scolari Corridor.

San Diego Desert Woodrat (*Neotoma lepida*)

The San Diego desert woodrat is a California Species of Special Concern. This species is known to inhabit scrub habitats, such as coastal sage scrub. Its distribution tends to be on the west side of Coast Ranges from San Diego County north to at least San Luis Obispo County. Several individuals were live-trapped at La Purisima Mission State Historic Park in 2004 (Olson and Rindlaub, 2006). Recently, this species was also live-trapped near Montana de Oro State Park in San Luis Obispo County.

Unlike dusky-footed woodrats, San Diego desert woodrats do not construct large stick nests. This species normally occupies openings in rocks, vegetation (such as openings among patches of cactus), and even debris. Sometimes small stick nests are built within an opening or crevice. Portions of the Project area that contain coastal sage scrub with occasional rocky areas could be used by this species. These areas include West Corridor, North Corridor, Scolari Corridor, Signorelli Corridor, and the slope that links Signorelli and Scolari corridors.

American Badger (*Taxidea taxus*)

This species is considered locally rare. Formerly, it was included on the list of California Species of Special Concern. This species is found in a variety of nonwooded habitats, including grassland and scrub habitats. Badgers often dig and use several dens, even in the course of a single month. Areas frequented by badgers are often marked by abundant evidence of digging activity, which includes not only dens, but also attempts to dig out Botta's pocket gophers (*Thomomys bottae*) and California ground squirrels. Those two small mammal species are principal prey items for badgers.

Although declining in general, badgers still occur in many areas of northern Santa Barbara County. During surveys conducted for this study in 2002, badger dens and digging evidence were found in annual grassland habitat on May 31, July 21, and August 23. Inactive burrows were also observed in grassland during 2005 surveys on May 4, May 20, and August 28. The locations of the observations were along West Corridor, Signorelli Corridor, and Sudden Corridor. There is potential for this species to occur in grassland areas throughout the Project area, including the vicinity of Project Substation Alternatives 1 and 2 and the O&M facility.

3.5.4.2 Special-status Plant Species

Special-status plant species include those listed by federal and state agencies and the CNPS, as well as species of local concern. Lichens and bryophytes were not included in this study. Because the Project is sited on private lands, the CDFG has regulatory authority. Contra Costa goldfields (*Lasthenia conjugens*), which is listed by the USFWS but not CDFG,

are apparently extinct in Santa Barbara County. Gaviota tarplant is the only one of the ten coastal mainland Santa Barbara County plant species listed by CDFG that was found on the Project site.

Olson and Rindlaub identified special-status plants recorded from coastal mainland Santa Barbara County that were eliminated from further consideration due to distance from known range or lack of appropriate habitat. Four species from habitats along the immediate coast do not occur on the Project site. These are surf thistle (*Cirsium rothophilum*), salt marsh bird's beak (*Cordylanthus maritimus* ssp *maritimus*), beach spectaclepod (*Dithyrea maritima*), and beach layia (*Layia carnosus*). Two additional listed species do not ascend to the elevation of the Project sites or have never been found near the Project area. These are La Graciosa thistle (*Cirsium loncholepis*) and Santa Ynez false-lupine (*Thermopsis macrophylla*) (Olson and Rindlaub, 2006).

The special-status plant species observed on the Project site are identified in Table 3.5-2, along with their locations on the Project site, and are described in greater detail in the remainder of this section.

3.5.4.2.1 Federal and State Listed Species

Gaviota Tarplant (*Deinandra increscens* ssp *villosa*)

Gaviota tarplant is a late-season annual species that flowers from approximately May through October. Plants are often clustered, possibly because it does not disperse easily over longer distances. It frequently is found in recently disturbed or grazed areas. Horses and cattle generally avoid grazing these strongly scented plants. Gaviota tarplants plants prefer full sun and apparently compete poorly with introduced annual grasses. These tarplants may flower abundantly in 1 year and then virtually disappear for the next several years.

Gaviota tarplant has been affected by a number of oil and gas development projects in the Gaviota area. When listed by CDFG, Gaviota tarplant was thought to be restricted to about 1 mile along the coastal terraces in Gaviota. Additional sites documented in recent years include locations on Hollister Ranch, at Point Conception, Jalama Beach, Point Arguello, Oak Mountain/Sudden Peak, Lions Head on north VAFB, and near Point Sal. All federal land proposed as Critical Habitat in the Oak Mountain/Sudden Peak area was removed from the Critical Habitat in the final rule (November 2002). Private property, including some of the proposed Project area, was included in the Federal Critical Habitat designated by the USFWS.

Recent surveys of the distribution of this species on private land conducted in 2002 near Point Sal, near Orcutt, on both north and south VAFB, and on the Bixby Ranch documented new, large populations, and demonstrated that the plant is probably distributed more or less continuously on suitable habitat between Point Sal and Gaviota. New populations were found on the sandy loam soil thought typical for this species, but other, very large populations were found on completely different, broken shale substrate. These new populations included many thousands of individuals on many acres in 2002. New sites for Gaviota tarplant were found in many locations on north VAFB, and on several locations on south VAFB (at both low and high elevation). The Sudden Ranch fire eliminated the vegetation over a large area north of Jalama, but it seems likely that Gaviota tarplant

occupies the coastal terraces at this location (Olson and Rindlaub, 2006). Plants resembling *Gaviota tarplant* were reportedly seen in 2005 (C. Nathe, Personal Communication).

TABLE 3.5-2

Special-status Plants Observed on the Project Site

Common Name	Scientific Name	Status	Locations
Gaviota tarplant	<i>Dienandra increscens</i> <i>ssp villosa</i>	Federal Endangered, California Endangered	Grasslands in North Corridor, Middle Corridor, South Corridor – East, Sudden Corridor – West, Quarry Flank, Signorelli Corridor, and Scolari Bench
Kellogg's horkelia	<i>Horkelia cuneata</i> <i>ssp sericea</i>	CNPS List 1B ^a	Middle Corridor, possibly Sudden Corridor and Quarry Ridge areas, Signorelli Corridor and South Corridor –East
Mesa horkelia ^b	<i>Horkelia cuneata</i> <i>ssp puberula</i>	CNPS List 1B	Middle Corridor, possibly the Sudden Corridor and Quarry Ridge areas, Signorelli Corridor, and South Corridor – East and Central.
Western dichondra	<i>Dichondra occidentalis</i>	CNPS List 4 ^a	South and West Corridors
Seaside agoseris ^c	<i>Agoseris apargioides</i>	Local Concern	Middle Corridor, South Corridor – East
Seaside heuchera	<i>Heuchera pilosissima</i>	Local Concern	Old road linking Signorelli and Scolari benches
Sickle-leaved rush	<i>Juncus falcatus</i>	Local Concern	Middle Corridor – South, South Corridor – East, possibly upper Signorelli Corridor
California globemallow ^c	<i>Sidalcea malvaefolia</i> <i>ssp californica</i>	Local Concern	Middle Corridor

^aCNPS Status

List 1B: Plants rare, threatened, and endangered in California and elsewhere

List 4: A “watch list” for plants that appear to be declining.

^bIdentification tentative, but included as a potential hybrid with other *Horkelias*, including Kellogg's horkelia.^cIdentification tentative.

Source: Olson and Rindlaub, 2006

Gaviota Tarplant Project Occurrence

Gaviota tarplant locations on the LWEF site are shown on Figure 3.5-4. More detailed results are presented in Olson and Rindlaub (2006). Gaviota tarplant is scattered over Middle Corridor - South, Middle Corridor - North, and Middle Corridor - Flank; and it appeared again in North Corridor - East. Small populations also were found northwest of the upper part of North Ridge Central Road and on the east side of the creek in the upper Sloan Canyon drainage. A small population was found near the VAFB fence line north of Honda Creek. Gaviota tarplant also occurs in much of the area northwest of Sudden Peak, in Sudden Corridor - West, Quarry Flank, and near the junction of Quarry and Sudden roads. Gaviota tarplant occurs patchily in Signorelli Corridor and along the lower elevations of

Signorelli Ridge Road. It also was found along Scolari Bench Road. The 2006 botanical survey identified numerous plants in North Corridor within 200 feet of the proposed access road, and one small population was observed on a north facing slope. One small patch also was found in the power line corridor on the hills south of San Miguelito Road west of the quarry on the fingers of valleys and ridges. No Gaviota tarplant was observed on the Larsen Ranch property.

Lompoc Yerba Santa (*Eriodictyon capitatum*)

This endemic shrub is associated with chaparral and closed-cone pine forest. It has been found on the crest of the Santa Ynez Mountains on Hollister Ranch and in the Purisima Hills north of Lompoc. It has not been found in the Sudden Peak or Tranquillon Ridge areas. The Project area may be too foggy for this species, although it is also possible that suitable shrub-dominated habitat was converted to grassland. Keil and Holland commented that they found no sensitive species from the tanoak woodland on VAFB (Keil and Holland, 1998). Lompoc yerba santa is unlikely to occur on the main LWEF site. A remote possibility exists that it may occur at higher elevations along the power line corridor, where individual plants should be avoidable. It is unlikely to occur along San Miguelito Road, partly because of the shady nature of most of the habitat, and partly because it probably would have been noticed along the public road.

Gambel's Water Cress (*Rorippa gambelii*)

One of the three extant populations of this aquatic plant is on north VAFB (Keil and Holland, 1998). Although the Project area is rather high in elevation for this species, potential habitat may be found in the bottom of Honda Canyon. The area where the new North East Road would cross Honda Creek is deeply cut and shaded by willows. According to Keil and Holland, this plant probably requires permanently wet soils, and is "generally associated with tall monocots in freshwater marshes." No suitable habitat for this species occurs on the Project site, and even the pools and creeks at the higher Project elevations probably dry out too much in normal rainfall years for this species to thrive. Gambel's water cress was not found during the surveys and is unlikely to occur on the LWEF site or the power line corridor.

Seaside Bird's Beak (*Cordylanthus rigidus* ssp *littoralis*)

The Santa Barbara County population of seaside bird's beak is disjunct from the larger center of distribution in Monterey County. With the exception of one record from the Santa Rosa Hills, all populations have been reported from sites north of Lompoc in the sandy soils of the Burton Mesa. This genus flowers late in the season and would have been observed during the late season surveys conducted for Gaviota tarplant. This species is unlikely to occur on the LWEF site, but could occur in the power line corridor.

3.5.4.2.2 California Native Plant Society (CNPS) Listed Species

The CNPS maintains several lists in its Inventory of Rare and Endangered Plants of California, now in its 6th edition (CNPS, 2001). Plants on List 1B may qualify for federal or state listing. Therefore, mitigation is usually required for List 1B plants under the provisions of CEQA. The following paragraphs discuss the subset of the species from Santa Barbara County that potentially occur on the Project site.

CNPS List 1B:**Plants Rare, Threatened, or Endangered in California and Elsewhere**

The closely related CNPS List 1B taxa Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*) and Mesa horkelia (*H. c.* ssp. *puberula*) were found on the Project site. A few other species potentially occur on the site and could have been missed, because they are easily overlooked or because the above-ground parts may have been grazed off early in the season.

Contra Costa goldfields (*Lasthenia conjugens*) is a federally listed species that is on List 1B. This vernal pool plant is apparently extinct in Santa Barbara County, although its range extends farther inland and northward. It was not found.

Purisima Manzanita (*Arctostaphylos purissima*)

Purisima manzanita is endemic to the region. It ranges from Point Sal and Solomon Hills in the north to the Burton Mesa and Purisima Hills, eastward to Buellton; is in the hills southeast of Lompoc; and extends to the Santa Ynez Mountains on Hollister Ranch (Smith, 1998). Although part of the maritime chaparral that grows in the Pleistocene dune sheets, this species also grows on soils derived from diatomite and siliceous shales. Records appeared in the CNDDDB search for the area in lower Sloan and La Salle Canyons within about 1 mile of SR-246. There were no records for the hills southwest of Lompoc. The unusually mesic character of the local climate may be unsuitable for this species. It was not seen and is very unlikely to occur on the LWEF site; purisima manzanita is unlikely but possible in the transmission line corridor if it passes through chaparral habitat. Purisima manzanita is also unlikely but possible in the power line corridor where it passes through chaparral habitat.

Eastwood's Manzanita (*Arctostaphylos tomentosa* ssp. *eastwoodiana*)

This subspecies is another local endemic that occurs on diatomite on Purisima Ridge and extends to Point Sal. It also occurs on the Burton Mesa and in the lower reaches of Sloan and La Salle canyons within about 1 mile of SR-246. It was not seen and is not expected to occur on the LWEF site. Eastwood's manzanita may occur along the power line corridor where it passes through chaparral habitat.

Straight-awned Spineflower (*Chorizanthe rectispina*)

Straight-awned spineflower grows in sandy to gravelly soils in grassland, woodland, and coastal scrub habitats below about 4,000 feet elevation. It was found on north VAFB (Kell and Holland, 1998), but no records are listed for it on the South Base or south of the Santa Ynez River. This annual is considered rather unlikely in the foggy habitat of the LWEF site.

Umbrella Larkspur (*Delphinium umbraculorum*)

Larkspurs were not found on the LWEF site, although there most likely are larkspurs in the woodland and scrub habitats that are too overgrown for cattle to readily find them. Umbrella larkspur potentially occurs on the LWEF site, but the nearest reported location is at Refugio Pass. It is very unlikely to grow on the LWEF site or the power line corridor.

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)

This small, vernal liveforever has been found in heavy clay soil on the back side of the Point Sal Ridge, which is similar to some of the clay soil grassland habitats on the LWEF site. Occurrences on rock outcrops are more typical for this species. It is very small and dries

up in summer and fall, so it could have been missed. It was not found on the Project site, but rock outcrops and clay lenses should be considered potential habitat.

Ojai Fritillary (*Fritillaria ojaiensis*)

Ojai fritillary potentially occurs in the Project area. It is known from Point Sal, although most other locations are farther south and farther inland. The only fritillary observed in the Project area was in rocky soil near the VAFB property line, but it appeared to be *F. bicolor*. Suitable habitat for Ojai fritillary is found along drainages, but the probability that this species grows on the LWEF site is low. It is somewhat more likely in areas traversed by the power line corridor.

Mesa Horkelia (*Horkelia cuneata* ssp *puberula*)

Mesa horkelia is a perennial herb that grows in sandy or gravelly soils in coastal scrub, chaparral, and woodland habitats. It flowers from February to September. The known range is from 230 to 2,657 feet (70 to 810 meters) elevation, from San Luis Obispo to San Diego counties along the coast and inland to Riverside and San Bernardino counties. Populations in Ventura, Riverside, San Bernardino, and San Diego have been extirpated. According to the regional flora, the Santa Barbara County occurrences of this entity are probably part of a hybrid population (Smith, 1998).

Plants with some of the characteristics of mesa horkelia were found occasionally, scattered among the more common Horkelia (*Horkelia cuneata* ssp *cuneata*) populations of Middle Corridor and South Corridor - East, where plants that keyed to Kellogg's horkelia also were found. Even if the plants in the Project area are not "pure" mesa horkelia, the mixed gene pool may be characteristic of plants in this region of the coast.

Mesa horkelia may occur with low probability in the upper elevations of the power line corridor.

Kellogg's Horkelia (*Horkelia cuneata* ssp *sericea*)

Kellogg's horkelia is part of the group of closely related taxa discussed above. It also grows in chaparral and coastal scrub habitats. Kellogg's horkelia has recently been recorded from Gaviota State Park (Ballard, 2005) and from Hollister Ranch (Hendrickson et al., 1998).

Glandular plants that keyed to this entity were found in central and southern Middle Corridor and eastern South Corridor. Numbers of individuals attributable to this subspecies is unknown. Other populations of Horkelia within the Project area may also include this subspecies, particularly in areas with sandy-loam soil, such as Signorelli Corridor, Scolari Bench, the Sudden Corridor area, particularly Quarry Flank, and North Corridor - East.

Kellogg's horkelia may occur in the upper elevations of the power line corridor.

Santa Barbara Honeysuckle (*Lonicera subspicata* ssp *subspicata*)

This Santa Barbara County endemic has been recorded on the south side of the Santa Ynez Mountains as far west as Refugio Canyon, but suitable habitat for it is found in the drainages, cool coastal scrub, and woodland habitats in the Project areas. However, the probability that this species occurs on the LWEF site is low, but it could occur in the power line corridor. It was not found during the surveys.

Black-flowered Figwort (*Scrophularia atrata*)

Black-flowered figwort is likely to occur in the Project site. Figworts often were encountered in scrub and along creeks, but all plants were red with the very open throats that characterize California bee plant (*Scrophularia californica*). Although this endemic species was not found, it may grow in the woodlands and creeks. There is a high probability that black-flowered figwort occurs along the power line corridor, particularly in Miguelito Canyon or on soils derived from diatomite.

CNPS List 2:**Plants Rare, Threatened, or Endangered in California, but more Common Elsewhere**

Although widely distributed, only one plant potentially may occur on the Project sites. Round-leaved filaree (*Erodium macrophyllum*) is a plant of more interior locations, and salt spring checkerbloom (*Sidalcea neomexicana*) is also from interior sites. Rayless ragwort is a coastal species, but grows in alkaline sites unlike any found within the Project area.

Sonoran Maiden-fern (*Thelypteris puberula* var. *sonorensis*), CNPS 2

This plant has not been found west of Gaviota. It grows on Vaqueros sandstone outcrops on the south side of the Santa Ynez Mountains. The Project site may be too moist for this species, which ranges southward rather than northward. Sandstone outcrops in the Project vicinity may be suitable for this plant, but the probability of occurrence is very low.

CNPS List 3: A Review List of Plants about which We Need More Information**Vernal Barley (*Hordeum intercedens*), CNPS 3**

Vernal barley has a wide distribution and occurs in vernal wet lands such as seeps and vernal pools. It ranges to 1,000 meters in elevation. A small annual grass is easily overlooked, particularly in grazed grasslands, and this species may be more common than current records indicate. It should be considered a possibility on the LWEF site and along the power line corridor, particularly in areas with seeps and springs.

Mount Diablo Cottonweed (*Micropus amphibolus*), CNPS 3

Mount Diablo cottonweed has been found in Santa Barbara County and ranges well to the north. This is a small annual, superficially similar to a close and common relative. For that reason, Mount Diablo cottonweed may be more common than records show. It potentially occurs on the Project site. No *Micropus* were seen during the survey, but these small plants could have been grazed down. It should be considered a possibility in scrub openings and in low and open grassland with a high native component.

Bitter Gooseberry (*Ribes amarum* var. *hoffmannii*), CNPS 3

Bitter gooseberry is a plant of cool canyons and streams in the Santa Ynez Mountains, but it has not been found west of Gaviota Pass (Smith, 1998). Based on vegetative characters, the gooseberries found in the Project area appeared closer to Canyon gooseberry (*Ribes menziesii*) than to bitter gooseberry, but the identification needs to be confirmed. The probability for this species in the LWEF area is relatively low, but it could occur in the power line corridor.

Santa Cruz Island Manzanita (*Arctostaphylos tomentosa* ssp. *subcordata*), CNPS 1B

Occasionally found on the mainland coast, the main distribution of this species is on the Channel Islands. Neither chaparral habitat nor any manzanitas were found in the Project area, but this species could possibly occur in the power line corridor or along road alignments.

Plummer's Baccharis (*Baccharis plummerae* ssp. *Plummerae*), CNPS 4

This shrub grows in forests, woodland, and in coastal scrub. It is visible all year, but was not found on the Project site. This species did not appear on the CNDDDB search and is not listed for the Project area in the local flora (Smith, 1998). Its probability of occurrence is medium on the LWEF site and the power line corridor.

CNPS List 4: Plants of Limited Distribution**Brewer's Calandrinia (*Calandrinia breweri*), CNPS 4**

Brewer's Calandrinia is an annual herb that reportedly is often mixed in with populations of its more common sister species, red maids (*Calandrinia ciliata*), although Brewer's calandrinia may more strictly follow fires. Both species, which have vividly colored flowers, were not seen in 2002 or 2005. This species should be considered likely on the LWEF site and power line corridor.

Catalina Mariposa Lily (*Calochortus catalinae*), CNPS 4

Plants that grow from bulbs (such as wild hyacinth and amole) that were seen during the surveys were largely confined to rock outcrops, broken rock, and on slopes with some shrub cover, where grazing pressure is minimized. Although not seen, Catalina mariposa lily would be most likely to occur in those habitats, rather than on the exposed ridges that are proposed as sites for the wind farm. However, this species was not found on VAFB; therefore, the probability of occurrence in the LWEF area is low, but it could occur along the power line corridor.

Small-flowered Morning-glory (*Convolvulus simulans*), CNPS 4

This small morning-glory is often, but not always, found on serpentinite. It has been recorded growing in coastal scrub, chaparral, and valley and foothill grasslands (CNPS, 2001). The nearest coastal location in Santa Barbara County is on metamorphics near Point Sal (Keil and Holland, 1998). It has also been found in Mission Canyon in Santa Barbara on soils derived from sedimentary rock. It potentially occurs on the Project site, including the power line corridor, and could have been overlooked in grasslands.

Western Dichondra (*Dichondra occidentalis*), CNPS 4

Western dichondra is a perennial herb that is likely to occur on the Project site. In grasslands, it most likely would be grazed off by cattle, with the result that the most likely occurrences for surviving plants would be rock outcrops with limited access for livestock. Plants in a vegetative condition that may have been western dichondra were found on several rock outcrops and rocky areas, primarily along the VAFB fence line.

San Luis Obispo Wallflower (*Erysimum capitatum* ssp. *Lompocense*), CNPS 4

Typical habitat for this species is in the woodlands, coastal scrub, and chaparral of the Burton Mesa Chaparral, Solomon Hills, and Nipomo Mesa. It has been found in several locations on north VAFB. Keil and Holland noted that they also had found it "below the Honda Ridge Tower on South Base in the Santa Ynez Mountains," but they do not comment on the soil type (Keil and Holland, 1998). It has also been found in Miguelito Canyon (Smith, 1998). This species may occur in areas of scrub and woodland on sandy soils in the Project area, although the probability that it would occur at the elevation of the main Project sites is low; it was not seen during the surveys. This species may occur on the power line corridor.

Southern California Black Walnut (*Juglans californica*), CNPS 4

A disjunct population of this Southern California species recently was found on south VAFB near the Project area (D. Wilken, Personal Communication). It may grow in some of the wooded areas around the Project components within the LWEF site, but it was not found on any of those sites. It is unlikely on the LWEF site. This native tree may grow along the power line corridor.

Ocellated Humboldt Lily (*Lilium humboldtii* ssp. *ocellatum*), CNPS 4

This beautiful flower should occur in the Project area, but it would be tucked away in shaded woodland and stream channels. It has been found in the upper watersheds of both Honda and Miguelito Canyon (D. Wilken, Personal Communication). It was not seen on the LWEF site; however, suitable habitat is traversed on the old road between Signorelli and Scolari benches.

This species potentially could occur in the power line corridor, particularly where the line descends into shaded, moist, north-facing habitats.

Michael's Rein Orchid (*Piperia michaelii*), CNPS 4

This plant, also known as Purple-flowered Piperia, would be very unlikely in the grassland habitats where most facets of the Project will be located. Keil and Holland, who found it on VAFB, found it in dune swales and scrubby or tall grassy vegetation. They also found it in dune chaparral/scrub on south VAFB at lower elevations near Mesa Road (Keil and Holland, 1998). This species may grow at lower elevations or farther downstream in Honda Canyon, but the type of habitat where it has been found does not occur on the Project site. Depending on the selected route, this small orchid could be present along the power line corridor.

Santa Cruz Island Oak (*Quercus parvula* var. *parvula*), CNPS 4

This species of scrub oak has been reported as an associate of endemic manzanitas in chaparral at lower elevation in lower Sloan and La Salle Canyons, and near Mount Tranquillon. It may grow among the tanbark oaks and in thick coastal scrub, but no scrub oaks were noted on the areas where disturbance could occur on the LWEF site. It could grow along the power line corridor.

Hoffmann's Sanicle (*Sanicula hoffmannii*), CNPS 4

Hoffmann's sanicle is typically an understory species in woodland and scrub habitats. It may occur in the surrounding woodlands; it has been found on north VAFB (Keil and Holland, 1998), and near Point Sal (Smith, 1998). It has not been reported from the Miguelito Canyon area, although suitable habitat exists there. It was not seen, and is considered only moderately likely to occur, on the power line corridor portions of the LWEF where disturbance would occur.

3.5.4.2.3 Plant Species of Local Concern**Native Trees**

Native trees, including coast live oak (*Quercus agrifolia*), are protected under policies of the County of Santa Barbara. Forest habitat with oaks occurs just east of Sudden Bench - Northeast and north of the Project sites on Middle Corridor - North and Middle Corridor - Flank.

Lompoc Monkeyflower (*Mimulus aurantiacus*)

The form of monkey flower that grows around the Lompoc area has been considered by some to be a separate variety. It is quite common in the region and occurs along roads and in coastal scrub in the Project area.

Hoffmann's Nightshade (*Solanum xanti* var *hoffmannii*)

Most likely to be found with other shrubs and occasionally in shallow, grazed drainages, this form of nightshade has been reported within the Project area; but it was not found during the surveys.

**3.5.4.2.4 Plants with Fewer than 10 Occurrences in Santa Barbara County
(Central Coast Center for Plant Conservation, 2005)**

Several of the taxa that appear on this list of locally rare species may occur on the Project site; some were found in mesic habitats near the Project site. All seven plants discussed in this section are from the 2006 Olson and Rindlaub report.

Seaside Agoseris (*Agoseris apargioides*)

This species may occur in Middle Corridor, but the identification was doubtful. The elevation of the Project site may exceed the range for this species.

Seaside Heuchera (*Heuchera pilosissima*)

This species was found in two locations, one in a seep along a small stream between Scolari and Signorelli benches and another in coastal scrub in the Sudden Peak area. This plant may be found along the power line corridor.

Pacific Coast Iris (*Iris douglasiana*)

Pacific coast iris, near the southern limit of its range, is known from a site near Honda Canyon on VAFB with Bishop pines (Smith, 1998). It was not found during Project surveys, but could occur in cool, moist habitats crossed by the power line.

Sickle-leaved Rush (*Juncus falcatus* var *falcatus*)

A small population of this species was found in the grassland/coastal scrub mosaic down slope of a small seep in Middle Corridor - South, where it probably would be traversed by Middle South Road. The limits of the population were not ascertained. This species may also occur downslope of other seep areas in similar soils, such as upper Signorelli Corridor and Middle Corridor - West.

Douglas' Pogogyne (*Pogogyne douglasii*)

This small member of the mint family was recently found in heavy clay soil on a ridge northeast of Mount Tranquillon on VAFB (D. Wilken, Personal Communication). Smith notes another occurrence in serpentine near the head of Lompoc Canyon (Smith, 1998). Pogogyne was not found during the surveys, but could have been missed. It is at its southern distributional limit in the Project area and potentially occurs in poorly drained clay soils on the Project site, particularly those associated with wetland.

Canyon Gooseberry (*Ribes menziesii*)

Gooseberries that could not be identified with certainty may be this species, which has been found in the Project area. Gooseberries were found on the old road linking Scolari and Signorelli benches. This plant may be found along the power line corridor.

California Globemallow (*Sidalcea malvaefolia* ssp *californica*)

This species was recorded from south Middle Corridor - South, but no voucher was collected. Globemallows also were seen in South Corridor - Central and South Corridor - East.

Island Morning-glory (*Calystegia macrostegia*)

This species was not observed during field surveys but it may potentially occur in the Project area within grassland habitats. It could occur in both the LWEF and PG&E power line corridors.

3.5.4.3 Summary of Special-status Plant and Wildlife Occurrences

Special-status plant and wildlife species observed at the Project site during the various Project surveys are listed in Table 3.5-3.

TABLE 3.5-3
Summary of Special-status Species Observed in the Project Site

Name	2002	2005	2006
Plants			
Gaviota tarplant (<i>Dienandra increscens</i> ssp <i>villosa</i>)	X	X	X
Mesa horkelia (<i>Horkelia cuneata</i> ssp <i>puberula</i>)	X	X	
Kellogg's horkelia (<i>Horkelia cuneata</i> ssp <i>sericea</i>)	X	X	
Western dichondra (<i>Dichondra occidentalis</i>)	X	X	
Seaside agoseris (<i>Agoseris apargioides</i>)	X	X	
Sickle-leaved rush (<i>Juncus falcatus</i>)	X	X	
California globemallow (<i>Sidalcea malvaefolia</i> ssp <i>californica</i>)	X	X	
Birds			
White-tailed kite (<i>Elanus leucurus</i>)			X
Golden eagle (<i>Aquila chrysaetos</i>)	X	X	X
Northern harrier (<i>Circus cyaneus</i>)		X	X
Cooper's hawk (<i>Accipiter cooperii</i>)	X	X	X
Sharp-shinned hawk (<i>Accipiter striatus</i>)	X	X	

TABLE 3.5-3
Summary of Special-status Species Observed in the Project Site

Name	2002	2005	2006
Ferruginous hawk (<i>Buteo regalis</i>)			X
Peregrine falcon (<i>Falco peregrinus</i>)			X
California horned lark (<i>Eremophila alpestris actia</i>)	X	X	X
Loggerhead shrike (<i>Lanius ludovicianus</i>)			X
California rufous-crowned sparrow (<i>Aimophila ruficeps ruficeps</i>)	X	X	X
Bell's sage sparrow (<i>Amphispiza belli belli</i>)	X	X	X
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	X	X	X
Tricolored blackbird (<i>Agelaius tricolor</i>)	X		
Mammals			
American badger (<i>Taxidea taxus</i>); den and burrowing evidence	X	X	X

3.5.5 Regulatory Framework

3.5.5.1 Federal Regulations

Endangered Species Act of 1973

The federal Endangered Species Act (ESA) and implementing regulations, Title 16 United States Code (USC) §1531 et seq. (16 USC 1531 et seq.), Title 50 Code of Federal Regulations (CFR) §17.1 et seq. (50 CFR §17.1 et seq.), include provisions for the protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats. Section 7 of the ESA requires a permit to take threatened or endangered species during lawful project activities.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC §§703711) includes provisions for protection of migratory birds, including the nonpermitted take of migratory birds, under the authority of the USFWS.

Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act of 1940 (16 USC 668-668d, 54 Stat. 250) provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting,

except under certain specified conditions, the taking, possession, and commerce of such birds.

3.5.5.2 State Regulations

California Endangered Species Act of 1984

CESA and implementing regulations in the Fish and Game Code, §2050 through §2098, provide for the protection of rare, threatened, and endangered plants and animals, as recognized by CDFG, and prohibit the taking of such species without its authorization. CESA expanded upon protection afforded to rare, threatened, and endangered plants under the earlier California Native Plant Protection Act of 1977.

California Species Preservation Act 1970 (California Fish and Game Code §§900 – 903)

This law includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California, and is administered by the CDFG.

California Fully Protected Wildlife Species

(California Fish and Game Code §§3511, 4700, 5050, and 5515)

These sections of the Fish and Game Code prohibit the take or possession of any fully protected bird, mammal, reptile/amphibian, or fish.

California Fish and Game Code §§3503, and 3503.5

These sections of the Fish and Game Code prohibit the take, possession, or destruction of any birds in the orders *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird.

California Native Plant Protection Act of 1977

This act and implementing regulations in Section 1900 et seq. of the Fish and Game Code include provisions that prohibit the taking of listed rare or endangered plants from the wild and establish a salvage requirement for landowners.

3.5.5.3 Santa Barbara County

Projects within the County are subject to a number of plans, policies, and ordinances intended to protect biological resources, including those contained in the Comprehensive Plan elements, including the Conservation Element, Environmental Resource Management Element, and Land Use Element. Refer to Section 3.10 for a discussion of the consistency of the Project with these plans and policies.

Additionally, the Santa Barbara County Oak Tree Protection and Regeneration Ordinance¹ was adopted with the goals of sustaining and enhancing oak resources within the county with no net loss of native oak trees and of increasing the number of valley, blue, and live oaks within the county. It provides guidelines and lists permit requirements for oak tree removal and replacement for agricultural and nonagricultural purposes (County, 2005).

¹ Updated January 24, 2006

3.5.6 Project Impacts, Mitigation, and Residual Impacts

3.5.6.1 Impact Assessment Methodology

The significance of impacts to biological resources was assessed by comparing the potential changes resulting from the Project to the County significance thresholds, taking into consideration such factors as:

- Type of impact (Would the Project directly or indirectly adversely affect wildlife through mortality, injury, displacement, and habitat loss or adversely impact vegetation through native tree removal or destruction of a sensitive plant population?)
- Timing (Would the impact occur at a critical time in the life cycle of a special-status plant or animal, such as breeding, nesting, or flowering periods?)
- Whether the impact is temporary or permanent

Additionally, the potential for bird and bat fatalities resulting from collisions with WTGs and the significance of such an impact were based on the review of numerous reports on bird and bat baseline and monitoring studies, as well as risk and fatality assessments for various wind farms across the United States (Curry and Kerlinger, 2001; Erickson et al., 2000; Erickson et al., 2001; Johnson et al., 2000a; Johnson et al., 2000b; Johnson et al., 2002; Orloff and Flannery, 1992; Thelander and Rugge, 2001; West, Inc., 2002; West, Inc., 2004; Young et al., 2002; and W.P. Erickson, Personal Communication). These reports identified standards for bird impact assessments across the United States. The following guidelines also were reviewed to identify methods of mitigating potential Project-related impacts to bird and bat species:

- California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (California Energy Commission and CDFG, 2006, Preliminary Draft)
- Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California (California Bat Working Group, 2006)
- Avian Protection Plan (APP) Guidelines (Avian Power Line Interaction Committee [APLIC] of the Edison Institute and USFWS, 2005)
- Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines (USFWS, 2003)
- Mitigation Toolbox (National Wind Coordinating Collaborative [NWCC] and Jennie Rectenwald, 2007)

3.5.6.2 Thresholds of Significance

The County of Santa Barbara Environmental Thresholds and Guidance Manual (County, 2006) includes thresholds of significance for biological resources. According to this manual, disturbance to habitats or species may be significant, based on substantial evidence in the public record, if it would substantially affect significant resources in the following ways:

- Substantially reduce or eliminate species diversity or abundance
- Substantially reduce or eliminate quantity or quality of sensitive species nesting areas

- Substantially limit reproductive capacity through losses of individuals or habitat
- Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources
- Substantially limit or fragment the geographic range or dispersal routes of species
- Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends

Project-related impacts to biological resources would be considered less than significant where there is little or no significance attached to a given habitat. For example, disturbance to cultivated agricultural fields or small acreages of non-native, ruderal habitat would be considered less than significant, as would disturbance of small acreages of non-native grassland where wildlife values are low; individuals or stands of non-native trees if not used by important animal species such as raptors; and small pockets of habitats that are already significantly fragmented or isolated and degraded or disturbed.

Based on Appendix G of the CEQA Guidelines, the Project also would result in a significant impact if it would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFG or USFWS.

The Environmental Thresholds and Guidelines Manual also contains habitat-specific impact assessment guidelines.

For wetlands, the following types of impacts may be considered significant:

- Net loss of important wetland area or wetland habitat value, either through direct or indirect impacts to wetland vegetation, degradation of water quality, or threatening the continuity of wetland-dependent animal or plant species
- Substantial interruption of wildlife access, use, and dispersal in wetlands areas
- Loss of wetlands function and value due to changes in hydrology

For riparian areas, the following types of impacts may be considered significant:

- Direct removal of riparian vegetation
- Disruption of riparian wildlife habitat, particularly animal dispersal corridors and/or understory vegetation
- Intrusion into the upland edge of the riparian canopy (generally within 100 feet in rural areas), leading to potential disruption of animal migration, breeding, etc. through increased noise, light and glare, and human or domestic animal intrusion
- Disruption of a substantial amount of adjacent upland vegetation where such vegetation plays a critical role in supporting riparian-dependent wildlife species (for example, amphibians), or where such vegetation aids in stabilizing steep slopes adjacent to the riparian corridor, thereby reducing erosion and sedimentation potential

- Construction activity that disrupts critical time periods (nesting, breeding) for fish and other wildlife species

For purposes of resource evaluation in Santa Barbara County, native grassland is defined as an area where native grassland species comprise 10 percent or more of the total relative cover². Removal or severe disturbance to a patch or patches of native grasses less than 0.25 acres, which is clearly isolated and is not a part of a significant native grassland or an integral component of a larger ecosystem, is usually considered less than significant.

For oak woodlands and forests, the following types of impacts may be considered significant:

- Habitat fragmentation
- Removal of understory
- Alteration to drainage patterns
- Disruption of the canopy
- Removal of a significant number of trees that would cause a break in the canopy or disruption in animal movement in and through the woodland

For individual native trees, the following type of impact may be considered significant:

- The loss of 10 percent or more of the trees of biological value on a project site

3.5.6.3 Project Impacts

Overview of Construction Impacts

Direct impacts to biological resources from construction activities include the potential for wildlife injury and mortality, the temporary and permanent loss of individual plants, and the loss of habitat used by wildlife species. As shown in Table 2-5, approximately 54 acres would be temporarily disturbed, and approximately 34 acres would be permanently disturbed. Although the exact placement of WTGs and power poles is not known, as shown on Figures 3.5-2 and 3.5-3, most of the area that would be disturbed is composed of annual grasslands; therefore, most impacts would occur to this vegetation community, although others could be affected as well, depending on the ultimate placement of facilities.

Additionally, a small percentage of the soil seed bank would be lost to construction, grading, and paving. Areas that were disturbed during construction but would not be permanently used for Project components would be revegetated. Some temporarily impacted areas, particularly in annual grassland on flat terrain, likely would be returned to near pre-Project conditions fairly quickly. Other areas where temporary impacts would result from excavation, such as around WTG footings and along road cuts in shrubby vegetation or rocky terrain, would probably require more time to recover compared to the

² The CDFG uses the 10 percent relative cover figure in determining acreages of remaining native grasslands. (Relative cover is the cover of a particular species as a percentage of total plant cover of a given area). Native grasslands that are dominated by perennial bunch grasses tend to be patchy (the individual plants and groups of plants tend to be distributed in patches). Where a high density of small patches occurs in an area of 1 acre, the whole acre should be delineated if native grassland species comprise 10 percent or more of the total relative cover, rather than merely delineating the patches that would sum to less than one acre.

annual grassland. Indirect impacts to biological resources during construction could result from increased human activity, the introduction of non-native, invasive species, night lighting, dust, noise, and vehicle emissions.

Overview of Operation and Maintenance Impacts

Direct impacts include the loss of individual animals during the O&M phase primarily as a result of (1) collisions by birds and bats with power line poles, lines, WTGs, and WTG blades; and (2) being struck by vehicles. Direct impacts to vegetation include the minor, temporary loss of individual plants during road maintenance and facility repairs.

Additionally, some tree trimming may be required in the vicinity of power lines. Indirect impacts during the O&M phase would be similar to those occurring during construction, but would be less severe because less disturbance and vehicular traffic would occur, and fewer people would be present.

Impact No.	Impact Description	Phase	Impact Classification
BIO-1	Common and widely distributed vegetation communities may be disturbed and will be reseeded with native grasses.	Construction	Class III
	Areas with native perennial grasslands and herbs that qualify for special protection may be disturbed.	Construction	Class II
	Only minor disturbances to common vegetation are expected during O&M.	Operations	Class III

Impact BIO-1: Common Vegetation. Most impacts to vegetation would occur in grazed grasslands, which are dominated by annual grasslands. In the WTG corridors, for example, annual grasslands comprise approximately 70 percent of the vegetation, while native grasslands comprise only 4 percent. Portions of the WTG corridors, power line corridor, O&M facility, and roads also would be located in areas containing Central Coast scrub and Central Coast riparian scrub. Impacts to annual grasslands, Central Coast scrub, and Central Coast riparian scrub would be adverse, but less than significant (*Class III*), because these vegetation communities are common and widely distributed. Additionally, annual grasslands have been disturbed by cattle grazing and have a low habitat value. Areas of temporary disturbance would be reseeded, and the areas disturbed by WTG construction would be reseeded with native grasses, which would further reduce the potential for adverse impacts.

In a number of areas, native perennial grasslands and herbs are interspersed with invasive, non-native grasses, which are the dominant cover type. Some areas, however, support more diverse and numerous populations of native perennial grasslands and herbs (particularly in the southwest portion of the Signorelli property). In such cases, these associations may comprise a minimum of 10 percent of the cover and, thus, have higher habitat value. Based on the County Environmental Thresholds and Guidelines Manual, areas of native grasslands over 0.25 acres in size qualify for special protection. In such areas, the loss of native perennial grasslands and herbs would be a significant, but mitigable, impact (*Class II*). Only minor disturbances to common vegetation are expected during O&M; impacts from these would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-2	Tree trimming or removal may be required during transport of WTGs or power line installation. A small portion of proposed road would affect tree-dominated vegetation; power line construction would occur close to wooded areas.	Construction	Class II
	Only minor disturbances to common vegetation are expected from ongoing vegetation clearances for fire management and safety.	Operations	Class III

Impact BIO-2: Woodland and Forest. Construction activities in the WTG area generally would avoid tree-dominated vegetation, although a small portion of the road proposed for the Larsen property would affect such an area. Power line construction would occur close to wooded areas, particularly at lower elevations, where it would run along the margins of oak woodland in the lower east-facing, unnamed drainage and along San Miguelito Road. Tree trimming along San Miguelito Road may be required during transport of the WTGs to the Project site, especially where trees overhang the road. Depending on final load sizes and transport vehicles selected, some trees at the tighter curves along San Miguelito Road may need to be removed. Where feasible, power poles would be placed to avoid tree removal, and in some areas, including Larsen Ranch and San Miguelito Canyon, lines would be strung over dense oak stands in order to minimize both impacts to trees and trampling of vegetation by construction vehicles. However, some oak trees may need to be removed to allow power line installation.

Tree trimming, when performed by qualified personnel, likely would not result in the loss of oak trees or a significant loss of habitat values; however, excessive pruning could damage the trees. It is not likely that 10 percent of the trees of biological value on the Project site would be removed, but depending on the number of trees that would be removed during power line construction or to facilitate truck passage, the Project could result in habitat fragmentation and disruption of the canopy. The removal of oak trees during power line installation and excessive tree trimming could result in a significant, but mitigable impact (*Class II*).

Ongoing vegetation clearances for fire management and safety would include maintaining a 10-foot radial clearance of flammable fuels around the base of each wood power pole during fire season, as required under Public Resources Code Sec. 4292, and a minimum 15 feet of clearance between vegetation and conductors is required for safety and to minimize tree-related outages. Only minor disturbances to common vegetation are expected during vegetation clearances for fire management, which would result in an adverse, but less than significant impact (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-3	Direct loss of wetlands, seeps, and springs is not expected; however, there is potential for loss should the project configuration change. Additionally, soil erosion or spills could reduce water quality.	Construction	Class II

Impact BIO-3: Wetlands, Seeps, and Springs. The direct loss of wetlands, seeps, and springs is not expected under the current Project configuration, particularly since the environmental compliance program would identify, in advance, sensitive areas to be avoided. Since the final configuration of all Project elements has not been determined, there is a potential for the direct loss of these sensitive resources. Additionally, soil erosion from construction activities may be deposited within or near wetlands, seeps, and springs, reducing water quality during rainfall events. Accidental spills of hazardous materials used during construction also could diminish their water quality. Impacts would be significant, but mitigable (*Class II*). No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-4	A minor amount of riparian vegetation may need to be removed during bridge construction; soil erosion may result in minor impacts.	Construction	Class III

Impact BIO-4: Riparian Vegetation. A minor amount of riparian vegetation may need to be removed during construction of the bridge over Honda Creek, and construction activities may result in soil erosion, resulting in minor impacts to riparian vegetation such as exposing roots or burying annual plants. These potential minor impacts to this drainage from the bridge construction are considered adverse, but less than significant (*Class III*) because of the limited disturbance to the riparian vegetation. No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-5	Construction could result in the loss or disturbance of Gaviota tarplant.	Construction	Class II
	Occasional disturbance to small areas of Gaviota tarplant habitat may occur from time to time.	Operations	Class III

Impact BIO-5: Gaviota Tarplant. The construction of WTGs in portions of Middle Corridor, Sudden Corridor, North Corridor, and Signorelli Corridor could result in the loss or disturbance of Gaviota tarplant, as could construction of new roads or the widening of existing roads, particularly in the North Corridor parcel. Construction of the O&M facility and the nearby Project Substation also could similarly affect Gaviota tarplant, as could power line construction, depending on the placement of individual power poles in the vicinity of the site of its known location. It is estimated that approximately 102 acres of Gaviota tarplant are located in areas that could be temporarily or permanently disturbed.

The Project would, however, temporarily and permanently disturb approximately 54 and 34 acres, respectively, and as is evident from Figure 3.5-4, only part of the disturbance would occur in areas containing this plant species.

The Project would not substantially eliminate access to food sources or habitat for pollinators of the tarplant because the undisturbed habitat that would surround the finished Project components would continue to support a mixture of grassland, shrubland, and woodland habitats, and would thus continue to provide habitat for pollinators. The Project also would not substantially reduce or eliminate species diversity or abundance on a regional level. Recent surveys of the distribution of this species on private land conducted in 2002 near Point Sal, near Orcutt, on both north and south VAFB, and on the Bixby Ranch, documented new, large populations and demonstrated that the plant is probably distributed more-or-less continuously on suitable habitat between Point Sal and Gaviota (Olson and Rindlaub, 2006). Nonetheless, depending on the placement of individual Project structures, the Gaviota tarplant habitat could become more fragmented due to the elimination or disturbance of some populations, which would be a significant, but mitigable impact (*Class II*).

Occasional disturbance to small areas of Gaviota tarplant habitat may occur from time to time during the operations phase of the Project when maintenance and repairs necessitate work beyond the areas that were disturbed during construction. This impact would be adverse, but less than significant (*Class III*), because only minor areas would be affected.

Impact No.	Impact Description	Phase	Impact Classification
BIO-6	A number of other special-status species may be present in the power line corridor and could be lost during construction.	Construction	Class II

Impact BIO-6: Other Special-status Plant Species. As shown on Table 3.5-2, a number of special-status species that are not federally or state-listed have been found on the LWEF site, and some of these may be present in the power line corridor. Although construction may avoid these species, if populations were lost during construction, impacts would be significant, but mitigable (*Class II*) because, given their limited distribution, their loss could result in a substantial reduction or elimination of species diversity or abundance. No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-7	Individual animals could be injured or killed by vehicles, equipment, explosives, or large holes during construction.	Construction	Class III

Impact BIO-7: Common Wildlife. Impacts associated with potential collisions with WTGs, meteorological towers, and power lines are described under Impact BIO-10 and BIO-11. Individual animals could be injured or killed through collisions with vehicles and equipment during construction and maintenance activities. Due to the limited occurrence of wetland and aquatic habitats in the Project area, direct loss of fish is not expected, and direct loss of amphibians would involve a small number of common species, such as Pacific treefrog. Reptiles, birds, and mammals could be injured or killed by moving vehicles and

construction equipment. Those most susceptible to such effects are common terrestrial species, including Botta's pocket gopher, California ground squirrel, and brush rabbit. If explosives were required to construct WTG foundations, rock could be projected several hundred feet and injure or kill wildlife in the immediate area. Additionally, the large holes dug for the WTG foundations constitute potential pitfalls for wildlife that could become entrapped and perish. The Project site is composed primarily of annual grassland and coastal sage scrub, and the amount of habitat that would be temporarily or permanently disturbed (approximately 54 and 34 acres, respectively) would be small in relation to that in the overall area. Impacts would be adverse, but less than significant (*Class III*), because the Project would not substantially reduce local populations or substantially disrupt foraging areas and/or access to food sources.

Impact No.	Impact Description	Phase	Impact Classification
BIO-8	Nesting birds could potentially lose nests through destruction or abandonment.	Construction and Operations	Class II

Impact BIO-8: Nesting Birds. Ground- and tree-nesting birds, as well as those nesting in shrubs, could potentially lose nests through destruction or abandonment as a result of construction and maintenance activities. Similarly, some nests in trees could be lost if construction or maintenance required removal or trimming of trees. Nesting birds are considered a sensitive resource, because they are protected under the MBTA and several CDFG codes that prohibit their take. If construction occurred during the nesting season, impacts to nesting birds could be significant, but mitigable (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-9	Direct and indirect impacts may occur to special-status wildlife species. Those with higher potential for injury or fatalities by vehicles or equipment, loss of habitat, or disturbance of burrows and nests include reptiles, raptors, and passerines (<i>Class II</i>) and mammals (<i>Class III</i>).	Construction and Operations	Class II/Class III

Impact BIO-9: Construction and Maintenance Impacts to Special-status Wildlife Species.

Twenty-nine sensitive wildlife species have the potential to occur in the Project area, as described in Table 3.5-1. Based on site surveys and review of previously collected information, several species are not expected to occur in the Project area or may occur on rare to infrequent occasions. Due to the scarcity of expected occurrences, the Project is not expected to significantly affect the following species:

- California tiger salamander – Not expected in the Project area due to very limited amount of habitat and distance to nearest known occurrence.
- Western spadefoot toad – Not expected in the Project area due to limited amount of habitat and distance to nearest known occurrence.
- California red-legged frog – Not expected in the Project area due to a lack of permanent water.

- Southwestern pond turtle – Not expected in the Project area due to a lack of permanent water.
- Two-striped garter snake – Potential occurrence is limited due to limited habitat and distance to nearest known occurrence.
- Northern harrier – Expected to occur only on an infrequent basis. Not expected to nest in the Project area.
- Sharp-shinned hawk – Expected to occur only on an uncommon basis as a migrant and winter resident at the margins of grassland and woodland. Not expected to nest in the Project area.
- Ferruginous hawk – Expected to occur on a rare to uncommon basis during migration and winter. Not expected to nest in the Project area.
- Merlin – Expected to occur only on rare occasions during winter months. Not expected to nest in the Project area.
- Bell's sage sparrow – Potential occurrence is limited because the Project area lacks Burton Mesa chaparral, the vegetation type in which most observations of this species have been made.
- Western mastiff bat – Expected to occur in the Project area only on rare occasions during foraging.
- Townsend's big-eared bat – Due to a lack of cave habitat, this species is expected to occur only on an occasional basis during foraging.
- Red bat – Due to a lack of riparian habitat, this species is expected to occur in the Project area only on rare occasions.

The following describes potential impacts to other special-status species with a higher likelihood of occurrence, focusing on the potential for injury or fatalities resulting from collisions with vehicles or equipment, loss of habitat, disturbance of burrows, or impacts to nests. Impacts specifically associated with potential collisions with WTGs, meteorological towers, and power lines are described under Impacts BIO-10 and BIO-11.

Reptiles – Potential impacts to California horned lizards and silvery legless lizards include direct loss of individuals through collisions with vehicles or equipment and the temporary and permanent loss of habitat. The amount of habitat that would be temporarily or permanently disturbed (approximately 54 and 34 acres, respectively) would be small in relation to that in the overall area. The Project would not substantially reduce habitat, but could lead to habitat fragmentation and substantially reduce local populations. Impacts would be significant, but mitigable (*Class II*).

Raptors – Several special-status raptor species either were observed or have the potential to occur in the Project area, including white-tailed kite, golden eagle, peregrine falcon, Cooper's hawk, and western burrowing owl. The loss of nests and disruption of nesting behavior are not likely, because these species are not known to nest in the Project area. Additionally, most golden eagle nests are built in large trees, rock outcrops, or overhanging ledges. There are few wooded or outcrop areas that would be disturbed for the construction

and operation of this Project. Potential impacts to these species include direct loss of individuals due to strikes by vehicles and equipment and the permanent and temporary losses of foraging habitat. Additionally, these birds may be displaced, and foraging behavior may be altered. Potential impacts to burrowing owls could result from crushing while in burrows. Such impacts to these species would be significant, but mitigable (*Class II*).

Passerines - Several special-status passerine species were either observed or have the potential to occur in the Project area, including California horned lark, loggerhead shrike, California rufous-crowned sparrow, grasshopper sparrow, and tricolored blackbird. Potential impacts to these species include direct loss of individuals due to strikes by vehicles and equipment and permanent and temporary losses of foraging habitat due to construction. Additionally, these birds may be displaced, foraging and nesting behavior may be altered, and active nests may be destroyed during construction and maintenance. Impacts to these species would be significant, but mitigable (*Class II*)

Mammals - Three special-status mammal species may be present in the Project area. Pallid bats (*Antrozous pallidus*) may be present, but given the occasional use of the area by this species, they are not expected to be affected by construction and maintenance activities. Collisions with vehicles and equipment are not expected, nor is the loss of roost sites. Foraging behavior may be altered during construction.

San Diego desert woodrats and American badgers also may be present in the Project area. Potential direct impacts to these species during construction include loss of individuals due to strikes above-ground by vehicles and equipment, as well as crushing of burrows and loss of individuals in the burrows. Noise and ground disturbance from construction activities also could flush these animals from work areas and reduce woodrat and badger activity near construction sites. Loss of habitat also would occur.

Although no live-trapping was done as part of the surveys for this Project, San Diego desert woodrats potentially occur in Coastal Scrub habitat, particularly where overhanging rocks and rock outcrops occur. This type of habitat was noted along the lines of WTGs that included West Corridor and South Corridor - West. This species is likely to use the area along the drainage that separates the Signorelli and Scolari Benches, the slope that connects Scolari and Signorelli Corridors, and possibly along the North Corridor East and West roads. Populations are expected to be low, however. Based on survey results, badgers occur in the Project area, but in low densities. The Project would not have a substantial adverse effect on these species because of the low likelihood of their occurring onsite, and the amount of habitat lost would be small in relation to that available in the surrounding area. Direct impacts would be adverse, but less than significant (*Class III*).

Applicant-proposed measures to restrict the use of the Project site by ground squirrels may affect badgers in the immediate Project area, because squirrels are primary prey for this species, and they also could restrict use of the area by woodrats. Considerable amounts of similar habitat are available in adjacent areas, however, and these measures would not result in a substantial reduction in local populations of either badgers or woodrats. Indirect impacts from their implementation would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-10	Unknown but potentially substantial numbers of protected birds and bats are at risk of dying through collisions with the WTGs over the duration of the Project.	Operations	Class I

Impact BIO-10: Avian and Bat Collisions with WTGs. Wind power has been associated with avian fatalities caused by collisions with WTGs and other wind plant structures (Orloff and Flannery, 1992; Erickson et al., 2000; Erickson et al., 2001; Johnson et al., 2002; Bio Resource, 2004). Studies indicate that raptors and passerines appear to be the most susceptible to WTG collisions in the United States (AWEA, 1995). Although avian mortality associated with wind power development has been of primary concern, recent studies have found that bat mortality also occurs at wind plants (Erickson et al., 2000).

Groups of birds potentially at risk include raptors, migrating passerines, migrating seabirds, waterfowl, nocturnal species, and other resident species. Factors that affect the risk of the various groups to wind energy facilities, particularly WTGs, are:

- Relative level of use by avian species. (For example, in areas with greater raptor use, the risk to those species is higher.)
- Availability of prey species (such as the availability of California ground squirrels for golden eagles and red-tailed hawks).
- Availability of potential perches on the WTGs – Older style WTGs with structures that could be used as perches by raptors increased the susceptibility of raptor fatalities.
- WTG size and rotor height – Older style WTGs were shorter with rotors that were lower to the ground, which brought a greater percentage of raptors foraging in the area into the same height as the rotors. Larger, modern WTGs are taller with rotors higher off the ground; thus, foraging raptors are less likely to collide with rotors.
- Rotor blade tip speed and rotational speed – Newer WTGs with slower speeds appear to be associated with lower avian fatality rates.
- Operating time – Although not tested quantitatively, more continuous operating time would seem to increase the risk of avian species fatalities.
- Overall number of WTGs and design of placement – The modern, larger WTGs result in fewer WTGs overall, which reduces the number of potential bird collisions with WTGs. Because there are fewer WTGs, they are spaced at wider intervals, further reducing the number of potential collisions.
- Power line height and electrocution – Power lines hang within the foraging and flying altitudes of raptors and bats and may result in electrocution should these species contact the lines. Additionally, the poles may serve as perches or nest sites for raptors and other avian species.

Based on results of surveys and literature and database review conducted for this study, bird species put most at risk by the Project are raptors (primarily turkey vultures, red-tailed hawks, and American kestrels), migrating passerines, and other year-round resident species.

Based upon qualitative review of these studies that included evaluating the number of avian species observed, the number of raptors observed, and the total number of individual birds observed, it is expected that the Project area has low to moderate bird use as compared to other wind power sites (Olson, 2007; Erickson et al., 2003; Johnson et al., 2000). Due to a lack of suitable habitats, such as ponds and wetlands, other groups of birds, including waterfowl and shorebirds, are not expected to be significantly affected.

Raptors – Of the ten species of raptors utilizing the area, most of the sightings were of turkey vultures, red-tailed hawks, and American kestrels. Other species of raptors were observed less frequently. The red-tailed hawk, American kestrel, and red-shouldered hawk all nested in the vicinity of the Project area during 2002. Although red-shouldered hawks were found nesting in the vicinity of the Project area, they were only infrequently observed during surveys. Red-tailed hawks and kestrels are the raptors with the highest potential to collide with WTGs or wires.

Although they were the third most frequently observed raptor species in the Project area, turkey vultures are considered to have a lower mortality risk based on other studies, which indicate they are less likely to collide with WTGs compared to other raptor species (Orloff and Flannery, 1992). Based on the December 2006 point count surveys, the red-tailed hawk was the most abundant raptor in the Project area and, during winter months, is the raptor most at risk to collide with WTGs relative to other species, especially along the Sudden Bench/Quarry Ridge, Middle Corridor, and Signorelli Corridor/South Corridor areas (Figure 2-2).

Studies show that species such as the turkey vulture, red-tailed hawk, red-shouldered hawk, and ferruginous hawk, among others, may be in the Project area in higher numbers during the winter (Root, 1989). In many areas of California, the density of birds is greater during fall and winter than during spring and summer; and avian assemblages during the winter are typically different from other seasons. This variation in species composition can be especially true of raptors. Raptor populations take advantage of the high prey populations found in the more temperate climates during the winter. Some raptors use the Project area only during migration or winter. Others raptor numbers are augmented during those time periods by individuals traveling from elsewhere. The Northern harrier increases in numbers during winter. This species was observed on Middle, Sudden, Quarry, and Signorelli ridges (Olson and Rindlaub, 2006). The Ferruginous hawk (one individual) was observed on Middle Ridge during the Olson (2006) winter bird survey, but is not expected to be present in the Project area during breeding season.

In addition, Peregrine falcons are expected to be uncommon during migration and winter, but rare during breeding season. Two Peregrine falcons were observed (one each on North and Middle ridges) in December 2006 (Olson and Rindlaub, 2006).

Nesting golden eagles have been reported in recent years in the vicinity of the Project. Recent observations have included up to four pairs. During surveys conducted for the Project, one immature was noted in 2002 and one adult was observed in 2005 (Olson and Rindlaub, 2006).

An additional concern is that California condors (*Gymnogyps californianus*) have been released both south in Ventura County and north at the Pinnacles in San Benito County.

There is a possibility that condors could be found in the Project vicinity while traveling between the two population areas or while foraging, especially during fall and winter.

As noted above, mortality risk to raptors at newer wind energy projects is low due to newer WTG design and placement (Erickson et al., 2001; Young et al., 2002). Given the results of surveys for this Project and a review of the literature for newer projects with designs applicable to the Project, estimates of raptor mortality loss are expected to be low. Avian mortality studies at the Buffalo Ridge, Nine Canyon, and Vansycle wind energy generation sites found that raptor mortalities made up less than 2 percent of the bird species recovered during carcass removal (Erickson et al., 2000, Erickson et al., 2003; Johnson et al., 2000). Most of the raptor fatalities at the Altamont Pass Wind Resource Area consisted of red-tailed hawk, American kestrel, and golden eagle. The kestrel was three times more likely to be killed than predicted by abundance, the red-tailed hawk, six times more likely, and the golden eagle, nine times more likely to be killed than predicted. Other studies have shown species of passerines to be most frequently killed, with raptors quite low in fatalities (BioSystems Analysis, 1992). However, take of species protected by the Migratory Bird Treaty Act and California Fish and Game Code 3503.5 is prohibited. Golden eagles are protected under the Bald Eagle Protection Act of 1940.

Passerines – Passerines have comprised the vast majority of fatalities at previously studied wind energy projects (Erickson et al., 2000; Johnson et al., 2000; Young et al., 2002). At some sites, passerines have accounted for more than 80 percent of all fatalities. Horned larks (*Eremophila alpestris*) were the most commonly observed fatality at the Vansycle and Foote Creek Rim projects (Erickson et al., 2001; Young et al., 2002). Passerines made up a majority of sightings during surveys for this Project. Horned larks were quite common in the heavily grazed annual grassland (Olson and Rindlaub, 2006). During the December 2006 point count surveys, the western bluebird, yellow-rumped warbler, white-crowned sparrow, and golden-crowned sparrow represented the largest numbers of passerines (Olson, 2007).

Other migratory passerines, such as the Say's phoebe and Western bluebird may increase in numbers during the winter months. Say's phoebe were observed in high, open points with non-native grassland or Central Coast scrub on West and Scolari ridges during winter and were absent during breeding season. The Western bluebird increased in flock size over winter and was also observed during nesting season (Olson, 2007). This species was observed in mostly grassland areas near ridge tops (Signorelli and South Ridge) and "saddles" between ridges. Large flocks of golden-crowned and white crowned sparrows (up to 76 and 86 individuals, respectively) were observed during point count surveys in December 2006, sometimes in mixed flocks of both species. Sightings occurred on Sudden Bench, Quarry Ridge, Scolari Ridge, and West Ridge (Olson, 2007). Numbers of lark sparrows increased in winter, suggesting use of the area by migrating individuals. Up to 38 individuals were observed per survey along the grassland hillsides on Scolari and West Ridges. This species is known to nest in the area, but in smaller numbers. The Western meadowlark is a common nesting species in the project area, but was also observed in flocks during the December 2006 point count survey and in September 2002 and August 2005 (Olson 2007). This species was often observed on grassland hillsides, sometimes on grassland ridgetops and saddles (Sudden, Middle, Quarry, Signorelli, and South Ridges).

Limited observations of the American pipit were made in December 2006 as incidental sightings only (not during the timed counts). This species was observed in grassy areas that

were crossed by small drainages with a small amount of standing water, especially in the North Ridge area. This species was not observed during nesting season, indicating that it may be a transitory species in the area (Olson, 2007).

As such, fatalities of passerines in general and of California horned larks (*Eremophila alpestris actia*), in particular, are expected during the operation phase.

Bats – WTGs can cause bat fatalities; however, the potential for bat collisions varies among locations (Johnson et al., 2003 and 2004; Johnson, 2004), and the reasons for the collisions are poorly understood (Kunz, 2004). Bat mortality at wind farms has been documented in 11 states (Johnson, 2004 and 2005). Migratory species, such as hoary bat, red bat, and silver-haired bat, have comprised the vast majority of bat fatalities at previously studied wind energy projects; susceptibility appears to be highest in the fall. WTGs located on and near ridgelines would have the greatest potential to cause impacts to bats.

Studies at the Foote Creek Rim and Vansycle Ridge projects yielded estimates of 1.5 and 0.7 bat fatalities per WTG per year, respectively (Erickson et al., 2000; Young et al., 2002). A recently released monitoring report for the High Winds project in Solano County has documented 279 bat fatalities between 2004 and 2005 (Kerlinger et al., 2006). The actual number of fatalities at the Project could be lower or higher depending on use of the area, particularly by migrating bats.

Night lighting on the WTGs may disorient or distract nocturnal avian species and bats. Additionally, lighting may attract insects, which in turn, may attract bats to forage upon the insects, increasing the potential for collisions with the WTGs.

Impact Significance – As discussed in Section 3.5.3, a number of federal and state regulations prohibit the nonpermitted take of any migratory birds, golden eagles, or threatened or endangered species. Several bats are considered California species of special concern and are given consideration during the environmental review process by CDFG. Because unknown but potentially substantial numbers of protected birds and bats are at risk of dying through collisions with the WTGs over the duration of the Project, and currently there is no proven method to prevent such collisions, this impact is considered significant and unavoidable (*Class I*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-11	Birds and bats may collide with power poles and meteorological towers.	Operations	Class II

Impact BIO-11: Avian and Bat Collisions with Power Lines and Meteorological Towers. Birds may collide with power poles and meteorological towers, resulting in fatalities, or they may collide with power lines and become electrocuted. The susceptibility of bats to such collisions is not well understood. Collisions with power lines can occur when bat roosts are located nearby. Apparently, the strikes occur when bats first come out of the roost in large numbers (H. Johnson, Personal Communication). Because substantial losses could occur over the Project duration, the loss of birds and bats due to collisions with the power lines would be a significant, but mitigable impact (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-12	Birds with habitat within 100 to 180 meters of WTGs may be displaced.	Operations	Class III

Impact BIO-12: Avian Displacement from WTGs. Studies conducted in the United States, particularly at Buffalo Ridge, Minnesota, have shown displacement of some groups of birds at distances of 100 to 180 meters from WTGs. The birds affected included shorebirds, waterfowl, woodpeckers, and some passerines (Olson and Rindlaub, 2006; Leddy et al., 1999; Johnson et al., 2000a). Beyond the 100- to 180-meter distance, densities of birds evened out again. With a few exceptions such as mountain plovers (*Charadrius montanus*), no group of birds appeared to be displaced by the construction and operation of the Foote Creek Rim wind energy plant (Johnson et al., 2000b). No studies have shown apparent displacement of raptors due to wind energy projects (AWEA, 1995). Based on review of previous studies, displacement impacts to some groups of birds utilizing grassland and chaparral habitats, including passerines, are expected to be limited to areas within several hundred feet of the WTGs. This is considered a minor change given the amount of similar habitat in the Project vicinity and would not substantially affect the birds' ability to forage; therefore, the impact to birds from displacement is considered adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-13	Indirect impacts to wildlife during construction would result from a variety of sources, which could result in temporary displacement. During operations, increases to impacts compared to pre-Project levels would be minor.	Construction and Operations	Class III

Impact BIO-13: Indirect Impacts (Wildlife). Indirect impacts during construction would result from a variety of sources, including increases in human activity, noise, dust, and vehicle emissions, that could potentially result in the displacement of wildlife species. However, impacts would be temporary and localized and would not result in a significant disruption to wildlife, which would be expected to return upon the completion of construction. Temporary lighting may be required if construction occurred during nighttime hours. Spills of hazardous materials, such as diesel, oil, grease, and ethylene glycol, and eroded soil may be deposited into nearby surface water sources after rainfall events, leading to impacts to wildlife that depend on these sources of water. Construction equipment and O&M trucks would be properly maintained, however, to minimize leaks of motor oils, hydraulic fluids, and fuels. Major vehicle maintenance would be performed offsite at an appropriate facility. Gasoline and diesel powered vehicles and equipment would be refueled onsite at designated locations by a mobile fuel service truck. Handling of hazardous liquids would be subject to a Hazardous Materials Management Plan and Fire Protection Plan approved by the County Fire Department. Additionally, the environmental compliance program would cover avoidance of sensitive areas during construction, waste handling and storage, stormwater management, spill prevention and control, and other components required by state and county regulation.

These potential impacts would continue into the O&M phase; however, following construction, the number of site visits necessary for Project O&M would be small. Thus, increases compared to pre-Project levels would be minor.

Indirect impacts would be adverse, but less than significant (*Class III*), because they would not substantially reduce or eliminate species diversity or abundance.

Impact No.	Impact Description	Phase	Impact Classification
BIO-14	Invasive species carried from other work sites may displace native plant species, and topsoil removal would result in soils less likely to support vegetation.	Construction and Operations	Class II

Impact BIO-14: Indirect Impacts (Vegetation). Equipment and vehicles brought onto the Project site during construction and maintenance activities may harbor seeds of invasive plant species from other work sites, which may result in the introduction of these species to the Project site. These invasive species may displace native plant species and lower habitat values for wildlife. Topsoil also would be removed from some areas, resulting in soils that were less likely to support vegetation. These impacts would be significant, but mitigable (*Class II*).

3.5.6.4 Mitigation Assessment Methodology

Mitigation measures for impacts to biological resources were developed by reviewing the type of impacts identified (direct versus indirect and temporary versus permanent) and the timing of actions that would result in an impact to biological resources. Additionally, the Applicant-proposed mitigation measures are considered part of the Project description. They have been refined to reflect the County Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2002), including the addition of plan requirements, timing, and monitoring actions that will be required.

The Applicant-proposed mitigation measures are described in Section 3.5.6.5. Project-specific mitigation measures are described in Section 3.5.6.6. Residual impacts remaining after mitigation are included in Section 3.5.6.7.

3.5.6.5 Applicant-proposed Mitigation Measures

The Applicant-proposed measures are organized into the following categories: (1) education and awareness, (2) special-status wildlife, (3) general wildlife, (4) avian and bat collisions, (4) vegetation, (5) water resources, and (6) erosion control. The plan requirements, timing, and monitoring are identified for each measure. The measures shall be implemented by a County-approved biologist or botanist, or both, with demonstrated experience in construction monitoring and familiarity with the sensitive resources of concern at the Project site.

Education and Awareness Mitigation Measure

Mitigation Measure A-BIO-1: Worker Education and Awareness Program. The Applicant shall retain a County-approved biologist to develop and implement a worker education and awareness program (WEAP) specific to the Project. The program shall be presented to all

individuals involved in the construction and O&M phases of the Project. The program shall include information focused on sensitive habitats and species and shall include, but not be limited to, the following:

- a. The natural history, including sensitive species and habitats, shall be described as well as the current status, reasons for decline, and protection measures relevant to the species and habitats.
- b. Contact points shall be provided for workers to report sightings of sensitive biological resources such as Gaviota tarplant, active bird nests, badger dens, and roosting bats and raptors in the vicinity of Project facilities.
- c. Workers shall be provided with photographs of sensitive biological resources including sensitive wildlife and plant species, den and burrow entrances, and nest structures.
- d. Workers shall be informed verbally and in writing of the various Project tasks that require biological surveys and monitoring for resource protection.
- e. Workers shall be provided with a photograph or description of the markers for active bird nests, trees, salvaged topsoil piles and windrows, or other mitigation areas, so that they shall know these are not to be disturbed without a biological monitor present.
- f. Workers shall be provided with photographs of invasive weeds and instructed to report to the biologist any new populations observed near Project facilities.
- g. Workers shall be informed not to litter. All trash and litter shall be picked up and removed from the construction sites at the end of each day.
- h. Workers shall be informed to obey a speed limit of 15 miles per hour while traveling on the Project site to avoid collisions with wildlife.
- i. Workers shall avoid driving over or otherwise disturbing areas outside the designated construction areas.

Plan Requirements: The Applicant shall submit the WEAP to the County for review and approval 30 days prior to implementation. All workers, contractors, and visitors shall attend the WEAP prior to entering the Project site and performing any work. The Applicant shall provide copies of the training attendance sheets to County staff as a record of compliance with this measure on a monthly basis.

Timing: The WEAP shall be implemented prior to zoning clearance.

MONITORING: The County will ensure compliance with the WEAP throughout all phases of construction and operation by review of attendance sheets, inspection of the site, and interviewing workers, as appropriate (*Addresses Impact BIO-1 through BIO-9, BIO-13 through-14*).

Special-status Wildlife Mitigation Measures

Mitigation Measure A-BIO-2: California Horned Lizard. The Applicant shall retain a County-approved biologist to survey construction areas, including the sites of footings for WTGs and power poles, access roads, and staging, parking, and lay down areas, for California horned lizards. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. The survey may be done in

conjunction with surveys for ground-nesting birds. However, the survey for horned lizards shall be performed regardless of season of the year. If horned lizards are found, they shall be relocated to similar habitat at least 300 feet away from construction activity.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the monthly reports to ensure compliance with this measure, as appropriate (*Addresses Impact BIO-9*).

Mitigation Measure A-BIO-3: Silvery Legless Lizard. The Applicant shall retain a County-approved biologist to survey for silvery legless lizards that could potentially occur in areas with Central Coast scrub and annual grassland with a shrub component. The biologist shall work with the equipment operator during initial vegetation clearance to salvage and relocate exposed animals. The following technique shall be employed to avoid impacts to the silvery legless lizard:

- a. Following initial vegetation clearance in such areas, grading shall be done in two consecutive 6-inch layers.
- b. With each lift, the biologist shall check the areas for possible relocation of silvery legless lizards. If any are found, they shall be moved to similar habitat near shrubs at least 100 feet from the construction sites.
- c. Monitoring for legless lizards shall be discontinued when grading reaches depths greater than 12 inches.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on monitoring and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9*).

Mitigation Measure A-BIO-4: San Diego Desert Woodrat. The Applicant shall retain a County-approved biologist to survey the locations of WTGs and access routes prior to construction, as well as for a distance of 50 feet away for signs of the San Diego desert woodrat. The following technique shall be employed to avoid impacts to the San Diego desert woodrat:

- a. If signs of this species are found at or near the areas to be disturbed (such as a small stick nest within a rock overhang), it shall be evaluated for potential impact due to construction activities.

- b. If disturbance to a nest is likely to occur, the animal shall be live-trapped and relocated to a distance of 300 feet from Project activities and within similar habitat.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9*).

Mitigation Measure A-BIO-5: American Badger. The Applicant shall retain a County-approved biologist to survey, prior to construction, for badger dens in the Project area, including areas within 250 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year. If badger dens are found, each den shall be classified as inactive, potentially active, or definitely active.

- a. Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers.
- b. Potentially and definitely active dens shall be monitored for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next 3 to 5 nights to discourage the badger from continued use. The den shall then be excavated and backfilled by hand to ensure that no badgers are trapped in the den.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and burrow excavation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9*).

General Wildlife Mitigation Measures

Mitigation Measure A-BIO-6: Passerines and Other Ground-nesting Birds. A County-approved biologist shall conduct a study to assess the density of passerines and other ground-nesting birds in representative habitats in the Project area. Plots shall be established in various habitats and checked at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. The focus shall be on ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, and grasshopper sparrow. Based on survey results and literature review, burrowing owl nesting in the Project area is unlikely, but the other species are either known or likely. The surveys shall be conducted as long as birds are nesting in the Project area

between February 1 and August 31. The surveys shall be discontinued when it is apparent that nesting has ceased for the season.

If construction is to occur between February 1 and August 31, all sites to be disturbed shall be surveyed for ground-nesting and shrub-nesting birds prior to construction. The emphasis shall be on California horned lark, western burrowing owl, California rufous-crowned sparrow, and grasshopper sparrow. The survey shall occur at the sites of construction activity, as well as up to 300 feet away. If an active nest is found, no construction activity shall occur within 300 feet of the nest, which shall be monitored. Construction activities and timing may be modified to avoid impacts to nesting passerines or other ground-nesting birds.

Frequent disturbance (every few days) may be initiated in some Project areas just prior to the nesting season to discourage nesting in the construction corridor.

During both the construction and O&M phases, a speed limit of 15 mph shall be established and enforced. The speed limit shall reduce the potential for loss of bird species, including passerines, due to collisions with vehicles.

Plan Requirements: The requirements of this Applicant-proposed mitigation measure shall be incorporated in to mitigation measure BIO-3 (Section 3.5.6.6, Additional Mitigation Measures) (*Addresses Impact BIO- 8, 9, 10, 11, 12, and 13*).

Mitigation Measure A-BIO-7: Foraging Raptors and Bats. To minimize the likelihood of collisions with WTGs, power lines, poles, and guy wires, design features shall include the following:

- a. Underground (rather than overhead) power lines shall be used wherever feasible to minimize perching locations and electrocution hazards to birds.
- b. WTGs with low RPM and tubular towers shall be used.
- c. Permanent meteorological towers shall be either (1) guyed and equipped with bird flight diverters, or (2) unguyed.
- d. All overhead power lines shall be equipped with raptor perch guards.
- e. All overhead power lines shall be spaced to minimize the potential of raptor electrocution.

A County-approved biologist shall conduct a study to collect more detailed information on nesting and foraging raptors in the Project area. Areas of mixed evergreen forest within 300 feet of Project facilities shall be surveyed at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. Information shall also be collected on the use of perches and the relative amount of foraging by raptors in the Project area. Count locations shall also be established in areas of representative habitat to characterize the prey base for raptors. Counts shall be made of California ground squirrels, brush rabbits, black-tailed jackrabbits, and other small mammals observed during each visit.

If construction activities (including removal or trimming of trees and shrubs) are to take place between February 1 and August 31, a biologist shall survey for raptors nests prior to the start of construction. The survey shall occur at the sites of construction activity, as well

as up to 300 feet away. Those species most likely to nest in the Project area include red-tailed hawk, red-shouldered hawk, American kestrel, and golden eagle.

If an active raptor nest is found, no construction activity shall occur within 300 feet of the nest, which shall be monitored. Construction activities and timing may be modified to avoid impacts to nesting raptors.

Plan Requirements: The requirements of this Applicant-proposed mitigation measure shall be incorporated into mitigation measure BIO-3 (Section 3.5.6.6, Additional Mitigation Measures) (*Addresses Impact BIO- 8, 9, 10, 11, 12, and 13*).

Mitigation Measure A-BIO-8: Active Avian Nests and Roosting Bats. The Applicant shall retain a County-approved biologist to survey for active avian nests and roosting bats prior to the start of construction (including removal or trimming of trees and shrubs). The survey shall occur at the sites of construction activity, as well as up to 300 feet away. If an active raptor nest is found, no construction activity shall occur within 300 feet of the nest. If any other active avian species nest or roosting bats are found, construction activity shall be limited to within 150 feet of the area. The CDFG shall be consulted prior to any disturbance of bat maternity roosts. Active nests and roosts shall be temporarily marked with flagging to warn workers; and monitored by a biologist to ensure that construction activities do not impact these sites. Construction activities and timing shall be modified to avoid impacts to nesting avian species, and bat maternity roosts.

Plan Requirements: The Applicant shall consult and obtain any necessary permits from the appropriate regulatory agencies and provide copies to County staff. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and monitoring activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO- 8, 9, 12, and 13*).

Avian and Bat Collisions

Mitigation Measure A-BIO-9: Avian and Bat Collision. The Applicant shall employ the following design features to minimize the likelihood of avian and bat collisions with WTGs, meteorological towers, power lines, and poles:

WTGs

- WTGs with low rotational speed (approximately 10 to 23 revolutions per minute [RPM]) and tubular towers shall be used. WTG blades shall not rotate when the WTG is not in operation.

Meteorological Towers

- Meteorological towers that are not necessary during the operation phase shall be removed. Permanent meteorological towers shall be unguayed.

Power Lines and Poles

- a. Underground (rather than overhead) power lines shall be used wherever feasible to minimize perching locations and electrocution hazards to birds. All overhead power lines shall be equipped with raptor perch guards.
- b. All overhead power lines shall be appropriately spaced to minimize the potential of raptor electrocution using the latest APLIC (2005) recommended guidelines for line spacing.
- c. USFWS-approved bird flight diverters shall be installed on the new power line segment. The diverters shall be installed per manufacturer's specifications; replaced when damaged or deemed defective; and maintained for the full length of the transmission line for the life of the facility.

Plan Requirements: This condition shall be printed on all Project plans.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans prior to zoning clearance and site to ensure compliance with this measure (*Addresses Impact BIO-8, 9, 10, and 11*).

Mitigation Measure A-BIO-10: Avian and Bat Mortality Study. The Applicant shall retain a County-approved biologist to conduct an avian and bat mortality study prior to the start of construction and continuing for at least the first 2 years of operation. The study shall primarily document mortality of raptors and bats, but shall also generate data on mortality of all bird species in the Project area. The study shall generally follow the guidelines developed by the National Wind Coordinating Committee (Anderson et al., 1999) and include periodic searches for bird and bat carcasses at and near WTGs and poles. Information to be collected shall include descriptions of bird carcasses found relative to Project facilities and ongoing monitoring of nearby perching and nesting sites, as well as prey availability. Bat carcasses found shall also be described. Quarterly and annual reports shall be prepared that include presentation of data and analysis of Project design characteristics that may influence avian and bat susceptibility to mortality. Implementation of additional protection measures shall be developed or additional surveys performed based on the results of the post-construction study of avian and bat mortality.

Plan Requirements: The requirements of this Applicant-proposed mitigation measure shall be incorporated into mitigation measure BIO-4 (Section 3.5.6.6, Additional Mitigation Measures) (*Addresses Impact BIO-7, 9, 10, 11, 12, and 13*).

Mitigation Measure A-BIO-11: Small Mammal Control. The Applicant shall retain a County-approved biologist to conduct a program to reduce the densities of California ground squirrels, rabbits, and other small mammals in the Project area during the construction phase, continuing for at least 2 years of Project operation. Limiting the number of burrowing mammals is intended to reduce the attraction of raptors to the Project area, and thus lower the potential for mortality due to collisions with WTGs and power lines.

The program shall be developed by the biologist in cooperation with the County. At a minimum, it shall include the following elements:

- a. If feasible, a live-trapping program shall be conducted on a quarterly basis to manage squirrel and small mammal populations. Trapping shall be conducted for a minimum of 5 days, and traps shall be baited and checked daily.
- b. Monitoring WTG and power line tower pad locations for small mammal (including California ground squirrel) activity. If burrows are found at the pads, those holes shall be filled. Pad overhangs shall be filled with soil. Gravel shall be placed in a perimeter at least 5 feet out from the edges of the pad to discourage small mammals from burrowing.
- c. Removal of accumulated material under and near WTGs and power poles, such as piles of rocks from construction and extra equipment or parts. Such accumulated material may attract prey for raptors such as California ground squirrels and brush rabbits.
- d. Implementation of other feasible measures to control small mammal populations may be required by the County based on recommendations of the biologist and results of the Avian Mortality Study (BIO-4).

Plan Requirements: On a quarterly basis, the Applicant shall report compliance with this measure in writing to County staff on monitoring activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-10 and 11*).

Vegetation Mitigation Measures

Mitigation Measure A-BIO-12: Gaviota Tarplant Disturbance. The Applicant shall retain a qualified botanist approved by CDFG and the County to address impacts to Gaviota tarplant and oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat prior to ground disturbance. The Project design shall continue to be refined to minimize Gaviota tarplant habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss shall occur. A determination shall be made of the total areas of (1) permanent habitat loss, (2) temporary excavations, and (3) surface disturbance for the construction phase of the Project. Mitigation measures shall be developed, in consultation with CDFG botanists, to minimize the extent of habitat disturbance and to minimize potential "take" of individuals. Measures and procedures shall be developed that address potential future impacts during the operations phase of the Project. Areas of temporary disturbance shall be mitigated at 1:1 ratio using the measures described below.

Where construction activities may impact occupied Gaviota tarplant habitat during the growing season (between the first rain and the middle of September), standing drying plants that still have ripening seed during the late fall of the year shall be collected prior to construction. Plants shall be collected by hand or in a basket mounted behind a mower. The collected material shall be dried immediately and stored dry to preserve the seeds. The salvaged plant material shall be spread on restored habitat prior to final soil stabilization. The "triple-lift topsoil salvage" procedures described below shall be employed to conserve the soil profile and soil seed bank. All topsoil handling in Gaviota tarplant habitat shall be

monitored by a qualified botanist approved by CDFG and the County to work with Gaviota tarplant. Seedbank material shall be developed using the following procedures:

- a. All woody vegetation shall be cleared and stockpiled separately in a location where it shall be out of the way during construction.
- b. A 3- to 6-inch lift of soil shall be scraped from the area of Gaviota tarplant habitat where soil shall be excavated. The seedbank shall be stored in a location where it shall be out of the way during construction. The seedbank stockpile shall be clearly marked for identification and avoidance.
- c. A second 6- to 8-inch lift of the sandy soil horizon (shallower if bedrock or other soil type is encountered, such as clay) shall be scraped from the area. The topsoil lift shall be stockpiled in a location where it shall not be disturbed during construction and shall be clearly marked for identification and avoidance. The stockpiles shall be shaped to maximize water runoff.
- d. The stockpiled seedbank shall be kept dry and protected from wind erosion and disturbance per the measures for topsoil conservation throughout construction and until it is replaced on the restored sites. Water shall be sprayed on the stockpiles to crust the soil and reduce loss to wind erosion, but the spray shall not be heavy enough to soak into the pile (to avoid soaking seeds and triggering seed germination).
- e. If the salvaged seedbank is being eroded by the wind, it shall be stabilized by spraying it with an organic soil binder used for hydroseeding.

Following excavations and other types of temporary ground disturbance in Gaviota tarplant habitat, the soil profile shall be rebuilt using salvaged and stockpiled materials by replacing them in reverse order as described below. The salvaged and dried Gaviota tarplants shall be spread on top. Procedures to be followed are:

- a. The layers beneath the final seedbank layer shall be well compacted.
- b. The seedbank layer shall be more loosely compacted by spreading it dry or with minimal water. Tracking, rather than spraying, shall be used to pack the seedbank layer into place.
- c. Soil stabilization shall follow immediately.
- d. The replacement of seedbank and topsoil stockpiles shall be monitored by a botanist acceptable to CDFG and the County for work with Gaviota tarplant.

Restored Gaviota tarplant sites shall be stabilized with a hydraulically applied mixture of biodegradable soil binder and wood fiber. The mulch shall be minimized so that light shall not be blocked from the tarplant seeds in the salvaged and replaced seed bank. No seed is required since the top layer on the restored site shall be composed of salvaged seed bank.

Permanent Gaviota tarplant habitat loss shall be mitigated by continuing to contribute toward the understanding of the taxonomy and ecology of this species by:

- a. Contributing to the accumulation of additional data on the range and size of subpopulations.

- b. Contributing to taxonomic research to clarify limits and relationships of Gaviota tarplant populations versus close relatives.
- c. Requesting that CDFG review the status of this species in light of recent discoveries of extensive populations.
- d. Contributing to baseline ecological research, such as germination or pollinator studies, that shall be useful for future management decisions.

Plan Requirements: The detailed grading plan, showing the limits of the grading shall be reviewed and approved by County staff prior to approval of the final plans. The Applicant shall prepare a detailed mitigation plan that conforms to the above requirement and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration. A separate mitigation plan for Gaviota tarplant is likely to be required by the CDFG. That mitigation plan should address ongoing impacts during the operations phase of the Project as well as the more extensive impacts that will result from Project construction.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will ensure the flagging of the perimeter of all approved work areas in Gaviota tarplant habitat prior to ground disturbance and will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-5 and 14*).

Mitigation Measure A-BIO-13: Pre-construction Plant Surveys. The Applicant shall retain a County-approved botanist to conduct appropriately timed pre-construction surveys for sensitive native plant species in all areas to be disturbed, including power line pole locations and access roads. If a "stand" of CNPS-listed or locally rare species shall be removed for the Project, the loss will be mitigated by collection of seeds or other propagules from the plants, which shall be used for restoration in the immediate area (if suitable habitat continues to be present) or on a nearby, suitable location. The upper 3 to 6 inches of soil (topsoil and seedbank) shall be salvaged in all areas where the terrain shall allow it. Topsoil shall be windrowed and marked to keep it separated from other spoil. Topsoil piles shall be stabilized by crusting with sprayed water to protect the soil from wind erosion. Salvaged topsoil shall be spread over all restored areas.

Plan Requirements: The detailed grading plan, showing the limits of the grading, shall be reviewed and approved by County staff prior to approval of the tentative Project map. If surveys indicate that replacement of sensitive native plants is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will

monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-1 and 6*).

Mitigation Measure A-BIO-14: Kellogg's and Mesa Horkelia Habitats. The Applicant shall track over Kellogg's and Mesa Horkelia habitat, where the terrain shall safely allow it, rather than widening roads beyond the permanent road width to minimize plant removal. The seedbank shall be salvaged and stockpiled separately from other spoil along roads and adjacent to other facilities constructed in Kellogg's and Mesa Horkelia habitat as described for Gaviota tarplant. Salvaged stockpiles shall be sprayed with water to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank shall be spread over restored areas as described for Gaviota tarplant except that a normal mixture of mulch and binder shall be used. If the area is within Gaviota tarplant habitat, methods for the latter shall be used.

Plan Requirements: The detailed grading plan, showing the limits of the grading will be reviewed and approved by County staff prior to approval of the tentative Project map. If surveys indicate that replacement of Horkelia is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff shall inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff shall monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-6*).

Mitigation Measure A-BIO-15: Native Perennial Bunchgrass. The Applicant shall retain a County-approved botanist to determine the total area with at least 10 percent cover by native perennial bunchgrasses that shall be permanently removed for the Project versus the total area of native perennial bunchgrasses within the Project area. If the total area of permanent removal of native grassland is less than 10 percent of the total area of native grassland within the Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia.

If the total area with at least 10 percent cover by native perennial bunchgrasses that shall be permanently removed for the Project exceeds 10 percent of the total area of native grassland within the Project area, seed shall be collected from the populations of native grasses on the Project sites prior to the start of construction. The seed shall be stored dry and included in the seed mixture applied to the restored areas. Drill seeding shall be performed for mixtures that include native grass seed.

Plan Requirements: The detailed grading plan, showing the limits of the grading will be reviewed and approved by County staff. If surveys indicate that replacement of native perennial bunchgrass is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-1*).

Mitigation Measure A-BIO-16: Site Restoration Plan. The Applicant shall retain a County-approved botanist to prepare and implement a site restoration plan. The plan shall include the following requirements and other provisions as appropriate:

Top soil, and the seed bank it contains, shall be conserved on areas where soil is excavated such as WTG sites, access roads, and transmission pole locations. Salvage shall be accomplished by:

- a. Woody material shall be removed from the soil surface and piled in an area out that will be of the way during construction. The upper 6 to 8 inches of soil shall be scraped from the disturbance footprint and piled into a windrow in an area that will not be disturbed during construction.
- b. Topsoil stockpiles shall be clearly marked for avoidance.
- c. Windrows shall be immediately sprayed with water to set up a crust that shall protect the pile from wind erosion. Wind erosion protection shall be renewed as needed.
- d. Salvaged topsoil shall be respread on areas that will be revegetated following construction. Salvaged topsoil versus subsoil shall be used for this purpose unless the location is very weedy.

At final grade, the last few inches shall not be compacted to more than 75 percent to facilitate penetration by plant roots. Salvaged topsoil shall be spread over the finish grade. The grade shall not be completely smoothed. Small ridges shall be provided for seedling wind protection and to collect moisture from rain and fog. The surface shall be sprayed with water to crust the soil and reduce loss to wind erosion. Hydroseed with soil stabilization seed mixture shall be applied between October 1 and mid-November. Native plant seeds shall be added to the hydroseed mixture or hand broadcasted onto the site just prior to hydroseeding.

The restoration areas shall be monitored for a minimum of 3 years by a qualified botanist. Weed control shall be started within 3 months of planting, or earlier if weeds have begun to flower. Weeding shall proceed as frequently as necessary to prevent weeds from spreading off the Project site into the adjacent area and to prevent seed set. An effort shall be made to cut weeds before they develop seeds to minimize the spread of invasive weeds. Cut mustard shall be hauled off the site and disposed of where the toxins in the stems shall not affect other plants. Any new weed species not present in the Project area prior to construction shall be eradicated.

Plan Requirements: The detailed grading plan, showing the limits of the grading, will be reviewed and approved by the County staff prior to approval of the tentative Project map. The Applicant shall prepare a restoration plan and submit it to County staff for approval. The plan shall be designed to address restoration during all phases of development of the site. The Applicant shall file a performance security with the County to complete restoration.

Timing: The plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases. The plan shall be implemented during and after construction.

MONITORING: County staff will inspect the Project plans and site as well as review the restoration plan for compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-1, 2, 5, and 6*).

Mitigation Measure A-BIO-17: Tree Protection and Replacement Plan. The Applicant shall retain a County-approved botanist or arborist to design and implement a tree protection and replacement plan in order to protect existing native trees and minimize adverse effects of grading and construction. No ground disturbance, including grading for buildings, access ways, easements, and subsurface grading, shall occur within the critical root zone of any native tree unless specifically authorized by the approved tree protection and replacement plan. The tree protection and replacement plan shall include the following:

- a. An exhibit showing the location, diameter at breast height (DBH), and critical root zone of all native and specimen trees that are potentially subject to disturbance due to Project construction and operational activities, including transport of large loads on San Miguelito Road or onsite access roads.
- b. The tree protection plan shall clearly identify any areas where grading, trenching, or other construction related activities would encroach within the critical root zone of any native or specimen tree and within 6 feet of the drip line for blue oaks and valley oaks. All encroachment is subject to review and approval by the County.
- c. Fencing of all native and specimen trees to be protected at or outside of the critical root zone. (All onsite oaks shall be fenced outside of the critical root zone and all blue oaks and valley oaks shall be fenced at least 6 feet beyond the drip line). Fencing shall be at least 3 feet in height of chain link or other material acceptable to the County and shall be staked every 6 feet. The Applicant shall place signs stating "tree protection area" at 15-foot intervals on the fence. Fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to zoning clearance, and shall remain in place throughout all grading and construction activities.
- d. Any encroachment within the critical root zone of native trees and within 6 feet of the drip line for blue oaks and valley oaks shall adhere to the following standards:
 - i. Any paving shall be of pervious material (gravel, brick without mortar, or turf block).
 - ii. Any trenching required within the critical root zone of a protected tree shall be done by hand.
 - iii. Any roots 1 inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.
- e. Construction equipment staging and storage areas shall be located in designated staging and lay-down areas depicted on Project plans submitted for zoning clearance. No construction equipment shall be parked, stored, or operated within the protected areas.

No fill soil, rocks, or construction materials shall be stored or placed within the protected area.

- f. All utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are minimized.
- g. Any tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the critical root zone of all native trees and 6 feet beyond the drip line for blue oaks and valley oaks unless specifically authorized by the County.
- h. Access routes for equipment shall be checked for clearance prior to bringing any equipment onto the site. All trees and shrubs that require limbing or pruning shall be prepared at least 2 days prior to the arrival of the equipment and adhere to the following standards:
 - i. All limbing shall be done under the supervision of a licensed arborist or qualified biologist.
 - ii. Any inadvertently broken limbs shall be cleanly cut under the direction of a licensed arborist or qualified biologist.
 - iii. In the event that damage to a native tree is so severe that its survival is compromised, the tree shall be replaced in kind as mentioned below for native trees.
- i. Only trees designated for removal on the approved tree protection plan shall be removed. Any native trees which are removed, relocated, or damaged (more than 20 percent encroachment into the critical root zone or drip line for blue oaks and valley oaks) shall be replaced on a 10:1 (15:1 for blue oak and valley oak trees) basis with 1 gallon size saplings of the same species grown from seed obtained from the same watershed as the Project site. Where it is necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. A drip irrigation system with a timer shall be installed. No permanent irrigation shall occur within the critical root zone of any native or specimen tree and within 6 feet of the drip line of blue oak and valley oak trees. Drainage plans shall be designed so that tree trunk areas are properly drained to avoid ponding. Trees shall be planted, irrigated, and maintained until established (up to 5 years). The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing, and gopher fencing during the maintenance period.
- j. Any unanticipated damage that occurs to trees resulting from construction activities shall be mitigated in a manner approved by the County. This mitigation shall include, but is not limited to, posting of a performance security, replacing native trees on a 10:1 (15:1 for blue oak and valley oak trees) ratio, and hiring a County-qualified arborist/biologist to evaluate all proposed native tree and shrub removals within 25 feet of potential ground disturbances. The arborist/biologist report shall present biologically favorable options for access roads, utilities, drainages, and structure placement, taking into account native tree and shrub species, age, and health with an emphasis on preservation. All development and potential ground disturbances shall be designed to

avoid the maximum number of native trees feasible. The required mitigation shall be undertaken immediately under the direction of the County, and a specific and detailed plan for replacement of all affected trees, including location and timing, shall be approved by the County prior to any further work occurring on site. Any performance securities required for installation and maintenance of replacement trees shall be released by the County after its inspection and approval of such installation.

Plan Requirements: This requirement shall be recorded with the final Project plans. The Applicant shall submit grading plans, building plans, and the tree protection and replacement plan to the County for review and approval. All aspects of the plan shall be implemented as approved. The Applicant shall post a performance security that is acceptable to the County to guarantee tree replacement.

Timing: The Tree Protection and Replacement Plan shall be approved by the County, and evidence of having obtained the performance security shall be provided to the County prior to zoning clearance for the first and all subsequent Project phases. Timing on each measure shall be stated where applicable; where not otherwise stated, all measures must be in place throughout all grading, construction, and operational activities.

MONITORING: The County will inspect the plans and site throughout all phases of development to ensure compliance with and evaluation of all tree protection and replacement measures (*Addresses Impact BIO-2 and 4*).

Mitigation Measure A-BIO-18: Ground Disturbance. The Applicant shall minimize the amount of disturbance to the extent feasible including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Construction activities shall avoid sensitive areas, such as riparian zones, wetlands, forests, etc., where feasible. Parking, lay down, storage areas, and other sites of superficial disturbance shall be located in previously disturbed areas or in annual grassland (except in Gaviota tarplant habitat). Permanent access roads shall follow routes used for construction access to reduce the amount of new road construction. Vehicles and equipment access shall follow marked routes. Indiscriminant cross-country vehicle travel shall not be allowed.

Plan Requirements: The detailed plans, showing the limits of the grading and installation of facilities will be reviewed and approved by County staff.

Timing: The plans shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the restoration plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-1, 2, 3, 4, 5, 6, 7, 8, 9, 13, and 14*).

Water Resources Mitigation Measures

Mitigation Measure A-BIO-19: Protection of Creeks, Springs, and Wetlands. The Applicant shall make every effort to minimize the area and degree of impact to wetlands. The Applicant shall consult with a wetland hydrologist to design construction, so that the hydrological conditions supporting the wetland shall be conserved or restored to minimize wetland loss.

If any wetland is permanently lost, it shall be mitigated by the creation of the same type of wetland in the Project area at an areal ratio of 2:1. If any wetland is temporarily disturbed, it shall be restored to its former condition at an areal ratio of 1:1. All wetland areas within 50 feet of ground disturbance shall be protected from siltation by placement of silt fence, straw bales (composed of certified weed-free straw), or other barriers. Barriers shall be in place prior to ground disturbance.

No fueling of vehicles or equipment shall occur within 50 feet of the top of any creek bank or within 50 feet of any seep or spring. In the event that petroleum products escape into a creek, seep, or spring, every effort will be made to immediately remove the material using plastic sheets, absorbent blankets, or other materials, as necessary.

Runoff from concrete shall be directed away from the top of any creek bank and from any seep or spring into a plastic-lined hollow. Dried concrete scraps will be removed.

All trash and litter shall be picked up and removed from the construction sites at the end of each day.

Plan Requirements: The detailed grading plan, showing the limits of the grading will be reviewed and approved by County staff prior to approval of the tentative Project map. If surveys indicate that wetlands are permanently lost or temporarily disturbed, the Applicant shall prepare a mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration. This condition shall be printed on all Project plans.

Timing: Site-specific wetland creation/restoration plans shall be developed within 1 year and in consultation with CDFG and County staff. This measure shall be implemented throughout the first and all subsequent Project phases.

MONITORING: County will inspect the Project plans and site, as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-3 and 4*).

Erosion Control Mitigation Measures

Mitigation Measure A-BIO-20: Erosion Control Seed Mixture Augmentation. The Applicant shall augment the erosion control seed mixture with native coastal scrub seed collected from the Project region. Species may include goldenbush, California sagebrush, black sage, coyote brush, small-leaved buckwheat, Lompoc monkeyflower, and the perennials *Horkelia* and *Agoseris*. Appropriate seed mixtures for use on grassland and coastal scrub areas shall be developed in consultation with and approved by CDFG and County staff using seed native to the area between the Santa Ynez River and Hollister Ranch, and inland as far as SR-1. Commercially grown seed may be used if sterile or previously introduced to the Project area by the County, California Department of Transportation, or VAFB.

Plan Requirements: This measure shall be implemented as part of the Site Restoration Plan. Seed application shall occur between October 1 and mid-November.

Timing: This measure shall be implemented during the first and all subsequent Project phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the restoration plan to ensure compliance with this measure as appropriate (*Addresses Impact BIO-1, 5, 6, and 14*).

Environmental Monitoring

Mitigation Measure A-BIO-21: Environmental Monitor. The Applicant shall employ a qualified Environmental Monitor during Project construction to monitor construction activities and ensure compliance with all mitigation measures.

Plan Requirements: The Environmental Monitor shall work closely and cooperatively with County staff and County's consultants on a daily basis or as needed.

Timing: The Environmental Monitor shall be designated prior to the start of construction and shall be retained throughout all construction phases.

MONITORING: County staff will confirm that the Environmental Monitor is employed prior to start of construction and continues throughout all construction phases (*Addresses Impacts BIO-1 through BIO-9 and BIO-14*).

3.5.6.6 Additional Mitigation Measures

In addition to the Applicant-proposed mitigation measures, the following mitigation measures will be implemented to mitigate some impacts to less than significant levels.

Mitigation Measure BIO-1: Pre-construction Wildlife Surveys. The Applicant shall retain a County-approved biologist to perform a wildlife survey prior to the excavation of the WTG sites. The biologist shall survey the surrounding area out to a 300-foot radius from the WTG site prior to the use of any explosives. A biological monitor shall be present during construction of the WTG sites. The biologist shall ensure that wildlife do not become entrapped in the excavations during installation of the WTGs. Safeguards shall be implemented during daytime periods of nonactivity and overnight, such as a placing a platform over the entire excavation site, flush with the ground surface, or exclusionary fencing. A form of egress (such as a ramp) shall be placed within the excavated area to provide an exit to accidentally trapped wildlife. The biologist shall be responsible for ensuring these safeguards are in place on a daily basis.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on surveying and monitoring activities.

Timing: This measure shall be implemented during the first and all subsequent Project phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports for compliance with this measure as appropriate (*Addresses Impact BIO-7 and 9 and supplements Mitigation Measure A-BIO-2, 3, 4, and 5*).

Mitigation Measure BIO-2: Riparian Habitat Restoration. During consultation with the United States Army Corps of Engineers and CDFG for impacts to Honda Creek, a determination will be made regarding whether a riparian habitat restoration plan will be required. If so, the Applicant shall retain a qualified ecologist to prepare and implement a creek restoration

plan for those creeks that may be disturbed, such as Honda Creek. The plan shall include, but not be limited to, the following elements:

- a. Restoration shall include native riparian species from locally obtained plants and seed stock.
- b. The new plantings shall be monitored for a period of 2 to 3 years to ensure successful establishment. Dead plants shall be replaced in kind.
- c. The new plantings shall be irrigated with drip irrigation on a timer and shall be weaned off of irrigation when root zones are established.
- d. Removal of native species in the creek shall be prohibited.
- e. Non-native species shall be removed from the creek.

Plan Requirements: The Applicant shall submit a creek restoration plan to County staff for review and approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The plan shall be approved by the County prior to zoning clearance for the first and all subsequent Project phases.

MONITORING: County staff will inspect the Project plans and site as well as review the restoration plan for compliance with this measure as appropriate. The County staff will monitor plan implementation to ensure compliance. Permit compliance signature is required for performance security release (*Addresses Impact BIO-4 and 14 and supplements Mitigation Measure A-BIO-17*).

Mitigation Measure BIO-3: Avian Monitoring. A detailed avian monitoring plan shall be developed and implemented by a County-approved biologist in cooperation with County staff as soon as practicable after Project discretionary permit approval. All costs to develop and implement the plan shall be paid for by the Applicant. The plan shall include, but not be limited to, the following elements:

- a. Establish point count survey locations covering all proposed WTG corridors approved for the first and subsequent Project phases. Locations should be established in areas of potential use by birds, such as ridge tops, midslope areas where birds might upslope to ridge tops, and near springs.
- b. Conduct monthly point count surveys during spring, fall, and winter to capture resident and migratory bird use of the Project area. A minimum of 20 minutes should be spent at each point count location collecting data.
- c. Data collected should include:
 - Weather conditions and time of day
 - Number of individuals observed
 - Distance from the point count location to the bird, in meters
 - Height the bird was above the ground, in meters

- Direction of the bird from the point count location
- Bird behavior (foraging, flying, vocalizing, etc.)
- Description of the natural community, topography, and incline in which the observation was made
- Duration of time the bird was observed during the point count.

Areas of mixed evergreen forest within 300 feet of Project facilities will be surveyed at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. Information will also be collected on the use of perches and the relative amount of foraging by raptors in the Project area. Count locations will also be established in areas of representative habitat to characterize the prey base for raptors. Counts will be made of California ground squirrels, brush rabbits, black-tailed jackrabbits, and other small mammals observed during each visit.

If construction activities (including removal or trimming of trees and shrubs) are to take place between February 1 and August 31, a biologist will survey for raptors nests prior to the start of construction. The survey will occur at the sites of construction activity, as well as up to 300 feet away.

Plan Requirements: The Applicant shall submit the avian monitoring plan to County staff for review and approval prior to zoning clearance. Avian monitoring of the entire Project site shall begin prior to the start of operations (that is, first delivery of power). Monitoring shall continue for a minimum of 2 years after the start of operations. For subsequent Project phases, monitoring of the area developed for that phase shall continue for a minimum additional period of 2 years after the start of operations for that phase. The biologist shall submit quarterly and annual reports to the County summarizing the data and observations, including suggestions or recommendations if appropriate.

Timing: The plan shall be approved by the County prior to zoning clearance for the first Project phase, and subsequent phases if necessary, as determined by the County.

MONITORING: County staff shall review the reports and inspect the site for compliance, as appropriate. County staff shall coordinate the annual study assessment (*Addresses Impact BIO-7, 8, 9, 10 and 11; supplements Mitigation Measures A-BIO-6 and 7*).

Mitigation Measure BIO-4: Avian and Bat Mortality Study. The applicant shall retain a County-approved biologist to conduct an avian and bat mortality study. The study shall continue for at least the first 2 years of operation (following first delivery of power). The study shall primarily document mortality of raptors and bats, but shall also generate data on mortality of all bird species in the Project area. The study shall follow the guidelines developed by the National Wind Coordinating Committee (Anderson et al., 1999) and include periodic (at least biweekly) searches for bird and bat carcasses at and near WTGs, power poles, and meteorological towers. Quarterly and annual reports shall be prepared that include sufficient information (such as description of each carcass; its location in relation to Project facilities; availability of raptor prey; and nearby perching and nesting sites) to allow evaluation of WTG design characteristics and locational factors that contribute to mortality. The County shall form a technical advisory committee to review and

assess the annual reports. Based on this review, the committee shall provide recommendations on whether additional measures to protect birds or bats are warranted. (Refer to Mitigation Measure BIO-5). The committee shall be composed of County staff; the biologist in charge of implementing the mortality study; a representative of the Project owner or operator; and other experts the County deems necessary, which could include representatives of state and federal agencies. The Applicant shall fund the mortality study and annual assessment.

Plan Requirements: The Applicant shall submit the avian mortality study plan to County staff for review and approval prior to zoning clearance. Carcass searches shall begin prior to the start of operations (that is, first delivery of power). Monitoring shall continue for a minimum of 2 years after the start of operations. For subsequent Project phases, monitoring of the area developed for that phase shall begin with the start of operations and continue for a minimum of 2 years. The biologist shall submit quarterly and annual reports to the County summarizing the data and observations, including suggestions or recommendations if appropriate.

Timing: the first phase and all subsequent Project phases of Project development.

MONITORING: County staff shall review the reports and inspect the site for compliance, as appropriate. County staff shall coordinate the annual study assessment (*Addresses Impact BIO-7, 8, 9, 10, 11, and 12; supplements Mitigation Measures A-BIO-10*).

Mitigation Measure BIO-5: Additional Measures to Protect Birds and Bats. This measure is intended to provide a mechanism to take additional protective steps if either of the following is true:

- a. Bird or bat deaths caused by operating WTGs (or other Project facilities) proves excessive (as defined below), based on the Avian and Bat Mortality Study (Mitigation Measure BIO-4)
- b. Analysis of that study and the Avian Monitoring Program (Mitigation Measure BIO-3) indicates a high probability of excessive mortality at WTG or power pole locations approved for future Project phases, but not yet constructed

The measures may include blade painting and dummy WTGs, treatments to reduce prey beneath WTGs (for example, cropping grass), changes in lighting plans acceptable to the Federal Aviation Administration or other measures, provided that they must: (1) be reasonably feasible, economically and technically; (2) have been shown to be effective in reducing bird mortality at other, comparable wind Projects; and (3) not generate significant environmental impacts.

To mitigate unanticipated, extreme impacts (such as many deaths of protected bird or bat species), limited curtailment of the operation of specific, problem WTGs may be required during periods when risk to those species is established to be high.

For WTG locations approved for future Project phases but not constructed during the first phase, measures may additionally include restriction of WTG siting locations if: (1) the studies demonstrate excessive bird or bat mortality resulting from existing operations, and (2) the potential for excessive mortality in certain areas planned for development is judged to be high, based on the site characteristics, the avian monitoring studies, and the experience provided by the mortality studies of the already-operating portion of the Project.

For the purposes of this measure, *excessive mortality* shall mean either of the following:

- a. More than one death of a threatened or endangered avian or bat species or golden eagle is documented to have resulted from the combined Project operations during 1 year of monitoring.
- b. The annual death rate attributable to the Project for all birds combined, or raptors considered separately, or bats, is more than twice the average rate documented for other comparable wind projects. (The mortality rate shall be expressed as death per megawatt (MW) of WTG nameplate electrical generation capacity, adjusted for searcher efficiency and scavenger removal. The average rate shall be based on projects in California for which data is available at the time an assessment for this Project is conducted. *Comparable wind project* means a project with over 50 MW generating capacity, using modern WTGs with a nameplate electrical generation capacity greater than 1 MW, operating at approximately 15 to 25 RPM, mounted on tubular towers, with total WTG height greater than approximately 300 feet.)

Plan Requirements: If, based on recommendations of the technical advisory committee convened in accordance with Mitigation Measure BIO-4, the County determines that additional protective measures are warranted, it may require such measures to be implemented by the Applicant as soon as feasible.

Timing: Throughout all Project phases.

MONITORING: County staff shall review the recommendations provided annually by the technical advisory committee (See Mitigation Measure BIO-4). If additional mitigation measures are required due to excessive mortality, County staff shall ensure that the measures are implemented as soon as feasible (*Addresses Impact BIO-7, 8, 9, 10, 11, and 12; supplements Mitigation Measures A-BIO-6 and 7*).

3.5.6.7 Residual Impacts

Implementation of mitigation measures described above would reduce most impacts to biological resources to less than significant levels, with the exception of Impact BIO-10, Avian and Bat Collisions with WTGs, which is considered significant and unavoidable (*Class I*).