Chapter 7—Biological Resources

7.1 Introduction

This chapter describes biological resources in the project area and identifies potential impacts to habitats and species that could result from implementation of the proposed project. Reconnaissance level surveys were conducted during the fall of 1998 and the spring and summer of 1999. Further surveys are planned for the spring of 2000 to determine the presence or absence of special status species in the project area. Construction of the project could result in potentially significant impacts to botanical resources and wildlife and aquatic species. These impacts will be mitigated to less than significant levels through avoidance of resources or through implementation of mitigation measures described in this chapter.

7.1.1 Regulatory Background

Federal Endangered Species Act. The Federal Endangered Species Act (FESA) aims to conserve the nation's natural heritage for the enjoyment and benefit of current and future generations. The U.S. Fish and Wildlife Service (USFWS) coordinates FESA activities for terrestrial and freshwater species. The FESA provides for the conservation of species that are in danger of extinction throughout all or a significant portion of their range. Section 9 of the FESA prohibits the "taking" of any listed species, including damaging or altering species habitat. The FESA protects species that are classified as endangered or threatened from activities that "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct, "and are protected from some types of "significant habitat modification or degradation" as well. Section 7 of the FESA requires any federal agency to consult with the USFWS before undertaking any action that might adversely affect a listed species. Before the U.S. Army Corps of Engineers (Corps) can issue a Clean Water Act Section 404 permit for a project that could impact a listed species, the Corps must obtain a "Biological Opinion" from USFWS stating that authorization of the project will "not jeopardize the continued existence of that species." PG&E would initiate the Section 7 process if construction or ongoing maintenance activities were anticipated to have an adverse effect on federally listed species. Because surveys have not yet been completed, it is unknown at this time whether Section 7 consultation would be required.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code.

California Endangered Species Act. The California Endangered Species Act (CESA) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, CESA applies the take prohibitions to species petitioned for listing (state candidates). Section 2080

of the California Department of Fish and Game (CDFG) Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. CESA does not expressly include habitat degradation or modification in its definition of take, however, the "killing of a member of a species which is the proximate result of habitat modification" is considered take under CESA.

7.1.2 Methodology

Habitat Types

Habitat types in the project area were mapped using 1:7,200 (1 inch = 600 feet) scale color aerial photographs taken in 1998 and 1999, and are based on reconnaissance-level field surveys that were conducted on foot and by vehicle between November 1998 and May 1999. Habitat designations follow Holland (1986).

Special Status Species Surveys

Preliminary investigations included site visits, literature, and database searches, including California Natural Diversity Database (CNDDB) records within a 10-mile radius of the project area, communications with local experts and academic institutions, and examination of aerial photographs to identify potential habitats for special status species. A comprehensive list of special status species based on literature and database searches was refined using the results of site visits.

The comprehensive list of special status species included all species in the project region that were:

- Listed as endangered or threatened, proposed for listing, or candidates for listing under the federal Endangered Species Act (U.S. Fish and Wildlife Service, 1999 and National Marine Fisheries Service, 1999)
- Listed as endangered or threatened or candidates for listing under the California Endangered Species Act (CDFG, 1999)
- Included in one of the CDFG publications on species of special concern (Jennings and Hayes, 1994; Moyle et al., 1989; Remsen, 1978; Williams, 1986)
- Federal species of special concern, that is, included on the former "Candidate 2" list (USFWS, 1991; USFWS, 1996)
- "Fully protected" by the State of California (Fish and Game Code Sections 355, 3503, 3511, 4700, 5050)
- Protected under the Migratory Bird Treaty Act (MBTA)
- Included in the California Native Plant Society's compilation (1994)

Reconnaissance-level field surveys were conducted on foot and by vehicle between November 1998 and May 1999 to determine habitat suitability for special status plant, wildlife, and aquatic species. A videotape of habitat conditions along the proposed transmission line routes was made during a helicopter flight in January 1999. Suitable

habitat for special status species was determined by the presence of diagnostic habitat elements. In doubtful cases, habitat was assumed to be at least marginally suitable. Based on the field surveys, a target species list containing special status species that could potentially occur along the proposed transmission line routes and at substation sites was developed from the comprehensive list.

Special Status Plant Species. Following completion of the target species list, herbaria investigations were conducted to obtain taxonomic and habitat information on each target species. In addition, visits were made to known locations of target species in the Tri-Valley area. Field surveys to document the presence of special status plant species in the North Area were conducted from April through July 1999 following protocols developed by the California Native Plant Society (Nelson, 1994). Proposed transmission line routes and both substation sites were surveyed on foot in a meandering fashion to visually assess all areas of potential disturbance. Multiple surveys were required to allow for detection of all target species during appropriate flowering periods. All plants encountered were identified to the extent necessary to determine their status as rare, threatened, or endangered. Surveys for the South Area and all access roads will be conducted in 2000.

Special Status Wildlife Species. Information obtained from the USFWS and CNDDB, as well as pertinent literature such as Peterson 1961, Burt 1976, Williams 1997, and other environmental documents and reports pertaining to the Tri-Valley area, were used to supplement information known about the project area. Using the original comprehensive list, a preliminary edit was performed using the California Statewide Wildlife Habitat Relationships System (CDFG, 1990). Habitat suitability for all species on the list was evaluated within the proposed project area. Reconnaissance level field surveys were conducted both by vehicle and on foot.

The North Area portion of the project was surveyed from November 1998 through May 1999 where access was available. Approximately 250 feet from the centerline of the transmission line right-of-way was surveyed in a meandering fashion by two biologists to gather reconnaissance level information and to assess habitat suitability for special status species. Observations of wildlife species and/or their sign during these surveys were recorded and mapped. Surveys will continue during 2000. Protocol level surveys will be performed for species requiring such surveys (such as the San Joaquin kit fox and the burrowing owl) for the North and South Areas.

Special Status Aquatic Species. Data obtained from the USFWS, the CDFG, and regional environmental documents were used to supplement existing information on aquatic species within the project area. All species that could potentially occur in the Tri-Valley area were evaluated according to their specific habitat requirements, and an evaluation was made as to whether suitable habitat may be present within the project area. Habitat requirements for each of the potential species were obtained from life history information and personal communications with local experts. A target list of aquatic species was then developed that included those species for which appropriate habitat was present within the project area.

Known and historical locations of special status aquatic species were delineated on a field map, and the approximate distance from proposed project features was determined. Aerial photographs were used to identify all potential aquatic habitats (intermittent and ephemeral streams, natural ponds, stock ponds and lakes, springs, seeps, and seasonal pools) within

1 km (0.6 mi.) of the proposed project features. Field visits were made to locations containing special status aquatic species to obtain information regarding habitat characteristics. Aquatic habitat assessments and some species surveys were conducted from January through April 1999. Night surveys were also conducted for some target species to obtain information on their presence in the project area.

7.2 Existing Conditions

7.2.1 Habitat Types

Habitat types present within the project area include non-native grassland, emergent wetland, valley oak woodland, blue oak woodland, and alkali meadow, as well as agricultural and developed lands.

Non-Native Grassland. This habitat type is characterized by a dense to sparse cover of introduced annual grasses associated with numerous species of annual forbs. Species common to this habitat type include soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), wild oats (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), star thistle (*Centaurea solstitialis*), white stem filaree (*Erodium moschatum*), sow thistle (*Sonchus asper*), bristly ox tongue (*Picris echioides*), and prickly lettuce (*Lactuca serriola*). Portions of this habitat type are underlain by alkali-rich soils. In these areas, several additional species indicative of alkaline conditions are commonly present including salt grass (*Distichlis spicata*), Mediterranean barley (*Hordeum geniculatum*), and alkali mallow (*Sida hederacea*). Within the project area, most areas of non-native grassland are currently moderately to heavily grazed by cattle.

Grasslands generally support a relatively low diversity and abundance of wildlife species compared to other natural habitats. Wildlife species characteristic of grasslands within the project area include the California ground squirrel (*Spermophilus beecheyi*), western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), burrowing owl (*Athene cunicularia*), and black-tailed jackrabbit (*Lepus californicus*).

Numerous ephemeral drainages and several perennial drainages are present within the grasslands in the project area. Many of the ephemeral drainages have been impounded, creating stock ponds. Perennial ponds and drainages comprise some of the few areas within this habitat type that provide year-round habitat for both aquatic and terrestrial species.

Emergent Wetland. This habitat type is characterized by perennial, emergent monocots up to 15 feet in height. Dominant species include tule (*Scirpus acutus*) and common cat tail (*Typha latifolia*). Within the project area, this habitat type occurs within the channels of both perennial and ephemeral watercourses. Representative wildlife species favoring this habitat include redwing blackbird (*Agelaius phoeniceus*), Pacific treefrog (*Hyla regilla*), and various waterfowl. This habitat type is subject to U.S. Army Corps of Engineers wetlands jurisdiction. Occurrences of this habitat type are presented in Table 7-1.

TABLE 7-1
Wetland Areas

Milepost	Wetland Type	Comments
North Area – Phase 1		
B12.59 – B12.60	Emergent Wetland	Cayetano Creek
B13.16 – B13.17	Emergent Wetland	Unnamed watercourse
B14.09 – B14.10	Emergent Wetland	Unnamed watercourse
B14.78 – B14.79	Emergent Wetland	Collier Canyon Creek
B16.05 – B16.06	Emergent Wetland	Cottonwood Creek
B17.25 – B17.26	Emergent Wetland	Unnamed watercourse
North Area – Phase 2		
C3.53 – C3.61	Emergent Wetland	Mountain House Creek
C5.63 – C5.64	Emergent Wetland	Altamont Creek
W2.53 – W2.60	Alkali Meadow	Rare plant habitat
South Area		
MX0.05 – MX0.06	Emergent Wetland	Vallecitos Creek
MX0.10 – MX0.11	Emergent Wetland	Vallecitos Creek
M5.14 – M5.17	Emergent Wetland	Arroyo Valle

Valley Oak Woodland. This habitat type is characterized by a partially open canopy of valley oak (*Quercus lobata*) with an understory of non-native grasses and forbs. Other species commonly occurring within this habitat type include coast live oak (*Quercus agrifolia*), blue oak (*Quercus douglasii*), and sycamore (*Platanus racemosa*). Within the project area, this habitat type is generally restricted to drainages and adjacent slopes.

Wildlife species utilizing this habitat include cavity-nesting birds and small mammals such as Nuttall's woodpecker (*Dendrocopos nuttalli*), western bluebird (*Sialia mexicana*), and bats (*Eumops* spp.). The tree canopy provides habitat for ruby-crowned kinglet (*Regulus calendula*), orange-crowned warbler (*Vermivora celata*), and warbling vireo (*Vireo gilvus*).

Blue Oak Woodland. This habitat type is characterized by a partially closed to mostly open canopy dominated by blue oak (*Quercus douglasii*). Other tree species commonly present within this habitat type include valley oak, coast live oak, and California buckeye (*Aesculus californica*). Understory species common to this habitat type include toyon (*Heteromeles arbutifolia*) and poison oak (*Toxicodendron diversilobum*), as well as numerous non-native annual grasses. Within the project area, this habitat type is primarily found on the rolling hills of the South Area.

Blue oak woodland provides important foraging and breeding habitat for many wildlife species including western fence lizard (*Sceloporus occidentalis*), western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), red-tailed hawk (*Buteo jamaiceusis*), western gray squirrel (*Sciurus griseus*), and coyote (*Canis latrans*).

Alkali Meadow. This habitat type is characterized by a dense to fairly open growth of perennial grasses and sedges. Species common to this habitat type include saltgrass (*Distichlis spicata*), alkali heath (*Frankenia salina*), alkali bulrush (*Scirpus robustus*), and common spikeweed (*Hemizonia pungens*). Within the project area, this habitat type occurs in drainages of the Altamont Pass area and is subject to U.S. Army Corps of Engineers wetlands jurisdiction. Occurrences of this habitat type are presented in Table 7-1.

Alkali meadow habitat supports many wildlife species that occur in nearby upland sites. When these areas flood, the meadows attract waterfowl and shorebirds. During dry periods, alkali meadows provide habitat for upland bird species such as western meadowlarks (*Sturnella neglecta*) and loggerhead shrikes (*Lanius ludovicianus*).

Agricultural Land. Principal agricultural land uses in the project area include hay production in the North Area and vineyards in the South Area. These lands are used by a variety of wildlife for foraging and breeding habitat. Wildlife species common to this habitat type include mourning dove (*Zenaida macroura*), common crow (*Corvus brachyrhynchos*), California ground squirrel (*Spermophilus beecheyi*), and Brewer's blackbird (*Euphagus cyanocephalus*).

Developed Land. Portions of the project area are developed and support primarily horticultural vegetation in landscaped areas or are essentially devoid of vegetation. No habitat type descriptions apply to these areas. Starling (*Sturnus vulgaris*), mourning dove (*Zenaidura macroura*), and the house mouse (*Mus musculus*) commonly use developed lands.

7.2.2 Special Status Species

Based on literature review and field surveys, PG&E biologists compiled a target species list with 19 special status plant species, 28 special status wildlife species, and 8 special status aquatic species that could potentially occur within the project area. The species, their habitat requirements, federal and state listing status, and the potential of their presence in the project area are summarized in Table 7-2. Of the 28 terrestrial wildlife species, 18 are presumed to occur within or in close proximity of the project impact area either because of known records, presence of breeding habitat, or use of the area as important foraging habitat.

Only one of the species, the San Joaquin kit fox, is listed as federally endangered and California threatened. The others are listed as "Species of Special Concern" or "Protected Species" in California. These species are not formally listed under the FESA, or CESA, but have small, declining, and/or vulnerable populations. Most of these species are protected by laws such as the federal Migratory Bird Treaty Act, and in addition, some are protected by CDFG codes (for example, 3503.5, 3513, and 3800). For most of the California Species of Special Concern and Protected Species, permanent habitat loss is not considered a significant impact requiring mitigation unless extensive areas of suitable habitat are degraded or somehow made unsuitable because of construction, or unless impacted areas support a large proportion of the species' population.

Table 7-2 – 1 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 2 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 3 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 4 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 5 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 6 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 7 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 8 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 9 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 10 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 11 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 12 of 19

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Table 7-2 – 13 of 13

Special Status Species Potentially Occurring in the Tri-Valley Project Area

Raptors could be significantly impacted by project implementation if they occurred in close proximity to the project area. Although these species are not on any formal lists of rare or threatened species, their populations are small enough to warrant measures to minimize project-related impacts. They are protected under both federal and state laws and regulations. In addition to special status raptors identified in Table 7-2, the red-tailed hawk and American kestrel are observed commonly within the project area and may have limited breeding habitat in the North Area. Opportunities exist for nesting along the South Area route. Surveys to be conducted in 2000 will provide additional information on abundance and distribution of raptors. For these select terrestrial wildlife species, brief descriptions are provided below.

Endangered Species

San Joaquin Kit Fox (***Vulpes macrotis mutica***)**.** The home range of the San Joaquin kit fox occurs primarily in the San Joaquin Valley but also extends north to Byron and west to the Dougherty Hills in Contra Costa County. The CNDDB (1999) indicates that the San Joaquin kit fox range includes areas shown on the Diablo, Dublin, Clayton, Tassajara, Antioch South, Livermore, Altamont, and Midway U.S. Geological Survey (USGS) 7.5 minute quadrangle maps.

CNDDB records indicate that San Joaquin kit fox has been sighted within the project area most recently in 1986 in the northeast Livermore area. There is a record of a kit fox den in Doolan Canyon (Morrell, 1975) and at the Altamont Speedway (1992).

Two observations of kit fox along Laughlin Road, east of Vasco Road in the northeast Livermore area, were made by Harvey & Associates (1992). These sightings were approximately 4.0 miles south of the proposed North Area Phase 2 transmission line route. Harvey & Associates (1997) again surveyed the North Livermore Area extensively in 1996 and observed one kit fox while spotlighting on Morgan Territory Road, approximately 2.0 miles north of the route. During 1991, two San Joaquin kit fox were sighted at the Altamont Sanitary Landfill expansion (Alameda County, 1993), approximately 1.5 miles from the proposed transmission line. An observation of an alleged San Joaquin kit fox carcass along Interstate 580 near Livermore has not been conclusively identified even though numerous interviews with witnesses have been conducted (Harvey & Associates, 1998).

Suitable habitat for denning and foraging is present in the North Area along the Phase 1 and Phase 2 transmission line route; however, rapid urban development between the North Livermore Valley and the Altamont Hills may present a barrier to fox movement across the Altamont Hills in the near future.

The red fox (*Vulpes vulpes*), an introduced species, is also present within the project area. A dead red fox was found during reconnaissance level surveys along the North Area Phase 1 route. Various small mammal burrows were observed in grassland habitat, many of them of a size and confirmation suitable for either fox species. Only one burrow contained scat at the entrance, but the scat could not be attributed to a species. Surveys during 2000 will determine the presence or absence of the San Joaquin kit fox. The proposed South Area transmission line route lies outside the historic home range of the San Joaquin kit fox.

Federal and State Species of Special Concern

San Joaquin Pocket Mouse (*Perognathus inornatus*). This species of special concern occurs in dry, open grasslands or in scrub areas with fine textured or sandy soils in the Central Valley and also in the Salinas Valley. The mouse digs burrows for cover. It is known to occur in the Altamont area (Alameda County, 1993) through which the North Area Phase 2 transmission line is routed, and also in Corral Hollow, approximately 4.0 miles from route (CNDDB, 1999). Habitat is not suitable for the San Joaquin pocket mouse in the South Area. Surveys during 2000 will determine if suitable habitat will be impacted by the construction of roads or the placement of towers.

American Badger (*Taxidea taxus*). Grassland habitat is suitable for the badger along the North Area transmission line route and in portions of the South Area. The badger is known to occur at the Camp Parks Military Reserve area in the general vicinity of the North Area route. During reconnaissance level surveys, a dead adult male badger was found alongside North Livermore Road near the North Livermore Substation site. Surveys during 2000 will determine the presence or absence of the badger.

White-Tailed Kite (*Elanus caeruleus*). Extremely limited nesting habitat occurs in the North Area for the white-tailed kite; however, the non-native grassland areas provide suitable foraging habitat. The kite is a common resident along the proposed North Area transmission line route. This species is documented to occur approximately 2.5 miles from the South Area transmission line route in the south Pleasanton area (Alameda County, 1993). Surveys conducted in 2000 will determine the presence or absence of the white-tailed kite.

Northern Harrier (*Circus cyaneus*). The northern harrier was frequently observed during reconnaissance surveys. Suitable foraging habitat occurs in portions of the North and South Areas. Marginal nesting habitat occurs along the North Area route. Suitable nesting habitat is present approximately 2.5 to 3.0 miles from the South Area route in the vicinity of the gravel pits along Stanley Boulevard and also along portions of Arroyo Valle. Surveys during 2000 will determine the presence or absence of the northern harrier.

Sharp-Shinned Hawk (*Accipiter striatus*). Only isolated trees occur along the North Area route and the habitat is not considered suitable for nesting. Sharp-shinned hawks may use the annual grasslands along the North Area route for foraging during the winter. Open woodland vegetation is present along the South Area route, and may provide limited nesting opportunities. The closest recorded incidence of sharp-shinned hawks occur in the Sunol Regional Wilderness, approximately 6 miles from the South Area transmission line route (CNDDB, 1999). Surveys conducted in 2000 will determine the presence or absence of the sharp-shinned hawk.

Cooper's Hawk (*Accipiter cooperi*). Suitable winter foraging habitat is present in the annual grasslands of the North Area; however, its value is diminished by the lack of trees along the transmission line route. Habitat conditions are favorable for breeding and nesting along the South Area route, particularly in the riparian habitat along Arroyo Valle. The South Area route provides foraging habitat. The closest recorded incidence of Cooper's hawk occur in the Sunol Regional Wilderness, approximately 6 miles from the proposed South Area route

(CNDDB, 1999). Surveys to be conducted in 2000 will determine the presence or absence of the cooper's hawk.

Golden Eagle (*Aquila chrysaetos*). The golden eagle has been observed foraging during reconnaissance level surveys in the Altamont Pass area and in the grasslands in the North and South Areas of the project. Ground squirrel populations are abundant within the project area and serve as a prey base. The nearest known nesting golden eagle site in the project area is located in east Dublin just west of Doolan Canyon (Roberts, 1992), approximately 1.0 mile from the proposed North Area transmission line route; however, the pair was unsuccessful in hatching any young (Contra Costa County, 1997). Golden eagle nests have also been recorded in the general area of San Antonio Reservoir, approximately 1.5 miles from the proposed transmission line route in the South Area (CNDDB, 1999). Grassland areas along both proposed routes are considered good quality foraging habitat for the eagle. The general area around Livermore is considered to have one of the densest nesting concentrations of golden eagles in the world. (Hunt, personal communication, 1999). Surveys conducted in 2000 will determine the presence or absence of the golden eagle.

Burrowing Owl (*Speotylo cunicularia*). The burrowing owl has no legal status under the federal or state Endangered Species Acts, but it is protected under the provisions of the Migratory Bird Treaty Act and is considered a species of special concern by the CDFG. Empirical data indicates that burrowing owl populations, in particular the San Francisco Bay population, have been steadily declining over the past several decades as a result of habitat modification and disturbance. CNDDB records for the owl are concentrated in the area west of Tracy, near PG&E's Tesla Substation. Other records note the owl very near the proposed North Livermore Substation site and also in the North Livermore area. No records of the burrowing owl occur in the South Area. However, a portion of the route in this area may contain suitable habitat for the burrowing owl.

Reconnaissance level surveys resulted in direct observations of the owl in the North Area, particularly east of Vasco Road and extending over the Altamont Pass to Tesla Substation. Habitat for the burrowing owl is considered marginal, or better, on the non-native grasslands along the proposed transmission line route. Surveys conducted during 2000 will determine the presence or absence of the burrowing owl.

Short-Eared Owl (*Asio flammeus*). A short-eared owl was observed during late winter during preconstruction surveys in the general area of Tesla Substation. No CNDDB records of this species exists; however, the proposed project area provides limited potential nesting habitat for this species. Surveys during 2000 will confirm habitat suitability and determine if the short-eared owl nests within the proposed project boundaries.

Lewis' Woodpecker (*Melanerpes lewis*). The oak woodland along portions of the South Area route may provide breeding and foraging habitat for this species. No observations or records of this species are available in the existing environmental literature. Habitat along the North Area route is not suitable for the Lewis' woodpecker.

California Horned Lark (*Eremophila alpestris actica*). Habitat is considered suitable for the horned lark in the grasslands of the North Area and along a portion of the South Area transmission line route. This species was not observed during reconnaissance surveys; however, CNDDB records document a 1992 occurrence of the horned lark near Tassajara

Road, approximately 1.0 mile from the North Area transmission line route. Surveys during 2000 will determine the presence or absence of the California horned lark.

Bewick's Wren (*Thryomanes bewickii*). The riparian woodlands along Arroyo Valle provide nesting habitat for the Bewick's Wren (East Bay Regional Park District, 1989). No observations or records of this species are available in the existing environmental literature. Habitat along the North Area route is not suitable for the Bewick's Wren.

Loggerhead Shrike (*Lanius ludovicianus*). The CNDDB has no record of loggerhead shrike observations within the project area. However, this species was commonly observed during reconnaissance level surveys in the North Area. Limited breeding habitat occurs along the North Area route and may occur along the South Area route. Surveys during 2000 will determine the presence or absence of loggerhead shrike.

Yellow Warbler (*Dendroica petechia*). The sycamore woodland and willow riparian habitat along Arroyo Valle in the South Area may provide suitable breeding habitat for the yellow warbler. An observation of a foraging yellow warbler occurred approximately 0.5 miles west of the North Area route (Contra Costa County, 1997). No nesting habitat was identified during reconnaissance level surveys along the North Area route. In 2000, surveys will determine whether the yellow warbler is present.

Lark Sparrow (*Chondestes grammacus*). The lark sparrow is a common resident in the lowlands and foothills throughout much of California. This species is most common around the margins of the Central Valley. Preferred breeding habitat consisting of scattered shrubs, logs, or rocks is extremely limited throughout the project area; however, surveys performed during 2000 will determine presence or absence of the lark sparrow.

Grasshopper Sparrow (*Ammodramus savannarum*). Grasslands within the project area are considered suitable for grasshopper sparrow in the North Area and in a portion of the South Area. The grasshopper sparrow has not been observed, and no records identify the grasshopper sparrow within the project area. In 2000, surveys will be conducted to determine whether the grasshopper sparrow is present in the project area.

Tricolored Blackbird (*Agelaius tricolor*). CNDDB records this species within the project area along Altamont Pass Road, approximately 0.5 miles from the North Area Phase 2 transmission line route. It is also documented at San Antonio Creek, approximately 3.0 miles from the South Area route.

Typically, this species nests in dense colonies of 50 or more pair. Reconnaissance level surveys indicate that a marsh large enough to support 50 breeding tricolored pair was not identified in close proximity to the proposed transmission line route in the North Area; however, surveys are necessary to conclude the species is not using the emergent vegetation. The majority of creeks and intermittent streams in the North Area contain little emergent vegetation and have been heavily impacted by livestock. A tricolored blackbird was observed in Collier Canyon during reconnaissance surveys, and suitable foraging habitat is present in the emergent wetlands of the North Area. Known nesting areas in the South Area are along Arroyo Valle at Vineyard and Isabel Streets, and at the gravel pits along Stanley Boulevard. Surveys conducted during 2000 will confirm habitat suitability and determine whether the bird nests within the proposed project boundaries.

7.2.3 North Area—Phase 1

7.2.3.1 Botanical Resources

Transmission Line

Habitat Types. Habitat types traversed by the proposed Phase 1 transmission line route are listed in Table 7-3 and are illustrated in Figure 7-1.

TABLE 7-3
Habitat Type Locations. North Area—Phase 1 Transmission Line Route

Milepost	Habitat Type	Comments
B10.42 – B11.17	Non-Native Grassland	Moderately grazed, firebreak
B11.17 – B11.18	Developed Lands	Dagnino Road
B11.18 – B11.34	Agricultural Lands	Hay production
B11.34 – B11.92	Non-Native Grassland	Moderately grazed, disked
B11.92 – B12.42	Agricultural Lands	Barley crop
B12.42 – B12.43	Developed Lands	North Livermore Road
B12.43 – B12.59	Non-Native Grassland	Moderately grazed, horses
B12.59 – B12.60	Emergent Wetland	Cayetano Creek
B12.60 – B13.16	Non-Native Grassland	Moderately grazed
B13.16 – B13.17	Emergent Wetland	Unnamed watercourse
B13.17 – B14.09	Non-Native Grassland	Moderately grazed
B14.09 – B14.10	Emergent Wetland	Unnamed watercourse
B14.10 – B14.74	Non-Native Grassland	Moderately grazed
B14.74 – B14.78	Developed Lands	Slabough Ranch
B14.78 – B14.79	Emergent Wetland	Collier Canyon Creek
B14.79 – B14.80	Developed Lands	Collier Canyon Road
B14.80 – B16.05	Non-Native Grassland	Moderately grazed
B16.05 – B16.06	Emergent Wetland	Cottonwood Creek
B16.06 – B16.08	Non-native Grassland	Heavily grazed, alkaline soils
B16.08 – B16.09	Developed Lands	Doolan Canyon Road
B16.09 – B17.25	Non-Native Grassland	Moderately grazed
B17.25 – B17.26	Emergent Wetland	Unnamed watercourse
B17.26 – B17.28	Non-Native Grassland	Moderately grazed
V0.00 – V1.04	Non-Native Grassland	Moderately grazed, disked

Special Status Plant Species. No special status plant species were observed along the North Area transmission line route during surveys conducted in April through July 1999. Special status plant species surveys for access roads will be conducted in 2000.

Figure 7-1 Vegetation Habitat Types

(11 x 17 color)

Figure 7-1 Vegetation Habitat Types

(11 x 17 color)

Even page

Substations

Dublin Substation

Habitat Types. Non-native grassland is the only habitat type present within the 5-acre Dublin Substation site. The site is currently moderately grazed.

Special Status Plant Species. No special status plant species were observed within the Dublin Substation site during surveys conducted in April through July 1999.

North Livermore Substation

Habitat Types. Non-native grassland is the only habitat type present within North Livermore Substation site. The site is currently grazed and has been recently disked.

Special Status Plant Species. No special status plant species were observed within the North Livermore Substation site during surveys conducted in April through July 1999.

7.2.3.2 Wildlife Resources

Suitable breeding and foraging habitat for the San Joaquin kit fox, burrowing owl, American badger, grasshopper sparrow, California horned lark, and the loggerhead shrike is present either within or in close proximity to the North Area transmission line route. Suitable breeding and foraging habitat may be present for the lark sparrow and the tricolored blackbird, but each of the preferred habitat types is present in very limited amounts (see Table 7-2).

Suitable foraging habitat within the grasslands is present for the pallid bat, greater western mastiff bat, Yuma myotis, golden eagle, prairie falcon, American peregrine falcon, ferruginous hawk, merlin, Cooper's hawk, sharp-shinned hawk, northern harrier, white-tailed kite, and short-eared owl.

Transmission Line

Table 7-4 includes observations recorded during reconnaissance level surveys along the North Area Phase 1 transmission line route.

TABLE 7-4
Reconnaissance Level Wildlife Survey Results. North Area—Phase 1 Transmission Line Route

Milepost	Observation
B10.4 – B10.5	Ground squirrel colony (potential San Joaquin kit fox den) Great horned owl pellets
B10.5 – B10.6	Red fox carcass
B13.2 – B13.3	Potential San Joaquin kit fox den
B13.6	Ground squirrel colony (potential San Joaquin kit fox dens)
B14.3 – B14.4	Burrowing owl observation (burrow not located)
B14.5 – B14.6	Ground squirrel colony (potential San Joaquin kit fox dens)
B14.7 – B14.8	Northern harrier observation
B15.1 – B15.2	Tricolored blackbird observation
B15.2 – B15.3	Ground squirrel colony (potential San Joaquin kit fox dens)
B15.7 – B15.8	Burrowing owl. Burrow with prey remains observed
V.0 – V.1.0	American badger carcass (roadkill)

Substations

Dublin Substation

Special Status Wildlife Species. No special status wildlife species were observed during two site visits to the area. Although numerous burrows are present, they are not large enough for San Joaquin kit fox (that is, greater than 4 inches diameter), and seed, scat, and other observations confirm that small mammals including deer mice (*Peromyscus maniculatus*) and ground squirrels (*Spermophilus beechyi*) are present. One large burrow measuring approximately 18 inches in diameter, with claw marks alongside the interior wall, was noted approximately 300 yards from the substation site along a ridge top. No scat, track, or sign was present.

North Livermore Substation

Special Status Wildlife Species. Disked agricultural lands predominate within the substation site and surrounding areas. As such, the area at this time is unsuitable for badger, burrowing owl, and the San Joaquin kit fox. No burrows or dens have been observed in this general area on two site visits. However, a dead adult male American badger, probably a roadkill, was observed on May 19, 1999 approximately 0.4 mile from the substation site alongside North Livermore Avenue.

7.2.3.3 Aquatic Resources

Transmission Line

Aquatic Habitat. Aquatic habitats in the vicinity of the proposed North Area Phase 1 transmission line route are listed in Table 7-5.

TABLE 7-5
Aquatic Habitat. North Area—Phase 1 Transmission Line Route

Milepost	Aquatic Habitat Type	Quality of Habitat	Distance/Orientation From Right-of-Way (ROW)	Occurrence of Special-Status Aquatic Species
B10.42	Ephemeral Drainage	Dispersal	400 ft E/Downslope	CTS Historical (1982)
B10.42	Perennial Stock Pond	High	2,000 ft NE/ 2 Drainages Over	CRLF & CTS
B10.50	Perennial Stock Pond	Moderate–High	125 ft N/Lateral	CTS Breeding Habitat
B11.00	Perennial Stock Pond	Moderate–High	2,000 ft S/Downslope	CRLF Breeding Habitat
B11.45	Ephemeral Drainage	Low/Dispersal	In ROW	Unknown
B12.70	Ephemeral Drainage	Low/Dispersal	In ROW	Unknown
B12.80	Perennial Stock Pond	Moderate–High	1,900 ft N/Upslope	CRLF Breeding Habitat
B13.18	Ephemeral Drainage	Moderate–High	In ROW	CRLF Breeding Habitat
B14.10	Ephemeral Drainage	Low–Moderate/ Dispersal	In ROW	Unknown
B14.50	Perennial Stock Pond	High	600 ft S/Upslope	CRLF Breeding Habitat
B14.58	Perennial Stock Pond	Moderate	300 ft N/Downslope	Unknown

TABLE 7-5
Aquatic Habitat. North Area—Phase 1 Transmission Line Route

Milepost	Aquatic Habitat Type	Quality of Habitat	Distance/Orientation From Right-of-Way (ROW)	Occurrence of Special-Status Aquatic Species
B14.79	Ephemeral Drainage	Low–Moderate/ Dispersal	In ROW	Unknown
B15.12	Perennial Stock Pond	High	900 ft S/Downslope	CRLF
B15.12	Perennial Stock Pond	High	1,000 ft S/Downslope	CRLF
B15.25	Perennial Stock Pond	Moderate	400 ft S/Adjacent Slope	CRLF Breeding habitat
B15.30	Perennial Stock Pond	Moderate	700 ft S/Downslope	Unknown
B15.30	Perennial Stock Pond	Moderate	1,200 ft S/Downslope	Unknown
B15.35	Perennial Stock Pond	Low	700 ft S/Downslope	Unknown
B15.38	Perennial Stock Pond	Moderate	In ROW	CTS Breeding Habitat
B15.38	Perennial Stock Pond	Moderate	1,000 ft S/ Adjacent Slope	Unknown
B15.38	Perennial Stock Pond	Moderate	1,400 ft S/ Adjacent Slope	Unknown
B15.45	Seasonal Pool	Moderate–High	100 ft S/Downslope	Unknown
B15.46	Seasonal Pool	Moderate–High	100 ft S/Downslope	Unknown
B15.80	Perennial Stock Pond	High	800 ft S/ Adjacent Drainage	CRLF & CTS Breeding Habitat
B15.82	Perennial Stock Pond	High	1,000 ft N/Downslope	Unknown
B15.82	Seasonal Pool	Moderate–High	200 ft S/Lateral	Unknown
B15.95	Seasonal Pool	Moderate–High	100 ft S/Adjacent	Unknown
B15.99	Seasonal Pool	Moderate–High	100 ft N/Adjacent	Unknown
B16.00	Perennial Stock Lake	Low–Moderate	200 ft N/Downslope	Unknown
B16.00	Perennial Stock Pond	Moderate–High	2,000 ft N/Lateral	Unknown
B16.05	Ephemeral Drainage	Moderate/Dispersal	In ROW	CRLF
B16.14	Perennial Stock Pond	High	200 ft S/Downslope	CRLF & CTS
B16.38	Perennial Stock Pond	Moderate–High	900 ft N/Downslope	CRLF Historical (1992)
B16.60	Perennial Stock Pond	High	800 ft S/Downslope	CTS Breeding Habitat
B16.88	Ephemeral Drainage	Low–Moderate	300 ft S/Downslope	Unknown
B17.28	Ephemeral Drainage	Moderate	50 ft N/Lateral	WPT & CRLF Historical (1992,1994)

CTS = California tiger salamander
CRLF = California red-legged frog
WPT = Western pond turtle

Special Status Aquatic Species. Special status aquatic species were observed or documented at 17 aquatic sites within 0.6 mile of the North Area Phase 1 transmission line route. California red-legged frog (CRLF) (*Rana aurora draytonii*) were observed at 11 sites and California tiger salamander (CTS) (*Ambystoma califori*) were observed at six sites during 1999 field surveys. In addition, historical records showed two sites where CRLF occurred, one site where CTS was present, and western pond turtles (WPT) (*Clemmys marmorata*) were found at one site. Numerous other aquatic sites (listed in Table 7-5) were identified during the 1999 field surveys as potential CRLF, CTS, and WPT habitat. Many of these sites were considered to be moderate to high quality habitat for these species. In addition, some of these ponds provided appropriate habitat for the curved-foot hygrotus diving beetle and western spadefoot toad. Seasonal pools were also relatively common along portions of the corridor, but only those within 300 feet of the right-of-way were evaluated in the 1999 field surveys. None of the five seasonal pools located within 300 feet were sampled in 1999, but they are considered to be moderate to high quality habitat for two special status species of freshwater shrimp: the longhorn fairy shrimp (*Branchinecta longiantenna*) and the vernal pool fairy shrimp (*Branchinecta lynchi*).

Substations

Dublin Substation

Aquatic Habitat. Adjacent to the proposed substation site is an ephemeral drainage typical of other similar drainages along the transmission line route. The drainage is characterized by long shallow stretches with very little aquatic vegetation, and occasional persistent pools with minor stands of aquatic vegetation. The channel banks are moderately sloping and grass covered except where active erosion is occurring. Much of the erosion is the result of trampling by cattle that use the creek as a water source. A habitat assessment, conducted during the 1999 field surveys, showed moderate to high quality habitat for CRLF in relatively close proximity to the substation site.

Special Status Aquatic Species. Special status aquatic species were not observed in the vicinity of the proposed substation site during 1999 field surveys. However, historical records documented the presence of both CRLF and WPT in the drainage above the substation site. Since suitable habitat for CRLF is present, this species may occur in the area even though none were observed during the 1999 surveys. Based on the lack of suitable habitat for WPT in the general area, the WPT siting was likely a dispersing animal that had moved up the drainage from more suitable habitat.

North Livermore Substation

Aquatic Habitat. There is no aquatic habitat in the immediate vicinity of the proposed substation site. The nearest aquatic habitats are approximately 2,000 feet west and southwest of the site.

Special Status Aquatic Species. No special status aquatic species were observed in the vicinity of the North Livermore Substation site during field surveys conducted in 1999.

7.2.4 North Area—Phase 2 Transmission Line

7.2.4.1 Botanical Resources

Habitat Types. Habitat types traversed by the North Area Phase 2 transmission line route are listed in Table 7-6 and are illustrated in Figure 7-1.

TABLE 7-6
Habitat Type Locations. North Area—Phase 2 Transmission Line Route

Milepost	Habitat Type	Comments
A0.00 – A0.21	Non-Native Grassland	Moderately grazed, wind farm
C0.00 – C3.53	Non-Native Grassland	Moderately grazed, wind farm
C3.53 – C3.61	Emergent Wetland	Mountain House Creek
C3.61 – C3.65	Developed Lands	Interstate 580, east
C3.65 – C3.70	Non-Native Grassland	Interstate 580, median
C3.70 – C3.74	Developed Lands	Interstate 580, west
C3.74 – C4.11	Non-Native Grassland	Moderately grazed, wind farm
C4.11 – C4.15	Developed Lands	Stock Pond
C4.15 – C5.58	Non-Native Grassland	Moderately grazed, wind farm
C5.58 – C5.60	Developed Lands	Altamont Pass Road
C5.60 – C5.63	Non-Native Grassland	Moderately grazed
C5.63 – C5.64	Emergent Wetland	Altamont Creek
C5.64 – C5.67	Developed Lands	Railroad right-of-way
C5.67 – C7.83	Non-Native Grassland	Moderately grazed, wind farm
W2.47 – W2.53	Non-Native Grassland	Moderately grazed
W2.53 – W2.60	Alkali Meadow	Habitat for San Joaqin saltbush
W2.60 – W2.61	Developed Lands	Laughlin Road
W2.61 – W3.05	Non-Native Grassland	Moderately grazed
W3.05 – W3.09	Developed Lands	Browning-Ferris Industries
W3.09 – W3.13	Non-Native Grassland	Moderately grazed
W3.13 – W3.14	Developed Lands	Browning-Ferris Industries
W3.14 – W3.81	Non-Native Grassland	Moderately grazed
B10.13 – B10.34	Non-Native Grassland	Moderately grazed
B10.34 – B10.35	Developed Lands	Vasco Road
B10.35 – B10.42	Non-Native Grassland	Moderately grazed

Special Status Plant Species. San Joaqin saltbush (*Atriplex joaquiniana*) was observed within the transmission corridor at Mileposts W2.53-W2.60 during surveys conducted in May through June 1999. Approximately 10,000 plants were present between these mileposts. No other special status plant species were observed within the North Area Phase 2 transmission line corridor during surveys conducted in April through July 1999. Special status plant species surveys for Phase 2 access roads will be conducted in 2000.

7.2.4.2 Wildlife Resources

Habitat along the transmission line route is considered suitable for breeding and foraging for the San Joaquin kit fox, American badger, burrowing owl, loggerhead shrike, grasshopper sparrow, and California horned lark. Suitable breeding habitat may be present

for the San Joaquin pocket mouse, lark sparrow, northern harrier, and tricolored blackbird, but the preferred habitat types are present in limited amounts (see Table 7-2). Likewise, limited breeding habitat is present for the common red-tailed hawk and American kestrel.

Foraging habitat within the annual grasslands is suitable for the pallid bat, Greater western mastiff bat, Yuma myotis, San Joaquin pocket mouse, mountain plover, lark sparrow, golden eagle, and various raptors including the white-tailed kite, ferruginous hawk, merlin, northern harrier, and short-earned owl. Limited foraging opportunity is available for the tricolored blackbird in emergent wetlands and grasslands along this route.

Table 7-7 includes field observations recorded during reconnaissance surveys.

TABLE 7-7
Reconnaissance Level Wildlife Survey Results. North Area—Phase 2 Transmission Line Route

Milepost	Observation
CO.4 – CO.5	Potential San Joaquin kit fox dens (multiple burrows)
CO.6	Burrowing Owl. Two separate observations
CO.7 – CO.8	Potential San Joaquin kit fox dens (2)
C1.1 – C1.2	Ground squirrel colony (potential San Joaquin kit fox dens)
C1.5 – C1.6	Potential San Joaquin kit fox dens (3)
C1.7 – C1.8	Burrowing Owl. Pair observed
C2.0	Ground squirrel colony (potential San Joaquin kit fox dens)
C2.1 – C2.2	Potential San Joaquin kit fox den Burrowing owl burrow. Excrement “whitewash,” pellet, feathers Burrowing owl burrow. Excrement “whitewash,” feathers
C2.2 – C2.3	Burrowing owl. Pair of owls observed
C2.7 – C2.8	Ground squirrel colony (potential San Joaquin kit fox dens)
C2.9 – C2.10	Ground squirrel colony (potential San Joaquin kit fox dens)
C4.2	Burrowing owl observation. Ground squirrel burrows (potential San Joaquin kit fox dens)
C5.1	Burrowing owl observation Golden eagle observation
C6.6 – C6.7	Ground squirrel colony (potential San Joaquin kit fox dens)
C7.7 – C7.8	Potential San Joaquin kit fox den (1) Inhabited ground squirrel burrow (potential San Joaquin kit fox den) Ground squirrel colony (potential San Joaquin kit fox den)

7.2.4.3 Aquatic Resources

Aquatic Habitat. Aquatic habitats in the vicinity of the proposed North Area Phase 2 transmission line route are listed in Table 7-8.

TABLE 7-8
Aquatic Habitat. North Area—Phase 2 Transmission Line Route

Milepost	Aquatic Habitat Type	Quality of Habitat	Distance/Orientation From ROW	Occurrence of Special-Status Aquatic Species
A0.00	Perennial Drainage	Dispersal	in ROW	Unknown
C0.65	Perennial Stock Pond	Moderate–High	900 ft S/ Adjacent Drainage	CTS Breeding Habitat
C0.90	Perennial Stock Pond	Moderate–High	900 ft S/ Adjacent Drainage	CTS Breeding Habitat
C1.58	Ephemeral Drainage	Low–Moderate	800 ft S/Downslope	Unknown
C2.32	Perennial Stock Pond	Low	1,000 ft N/Downslope	Unknown
C2.81	Ephemeral Stock Pond	Low	1,400 ft N/Downslope	Unknown
C2.89	Perennial Stock Pond	Moderate	200 ft N/Downslope	CTS Breeding Habitat
C3.48	Ephemeral Drainage	Moderate	in ROW	Unknown
C4.12	Perennial Stock Pond	Moderate	in ROW	Unknown
C4.12	Perennial Stock Pond	Moderate	300 ft S/Downslope	Unknown
C5.09	Perennial Stock Pond	Low–Moderate	400 ft N/Downslope	Unknown
C5.62	Perennial Drainage	Moderate	in ROW	CTS Historical (1995)
C5.88	Ephemeral Stock Pond	Moderate–High	1,200 ft N/ Adjacent Drainage	CTS Breeding Habitat
W2.48	Perennial Wetland	Low–Moderate	300 ft N/Downslope	CRLF Breeding Habitat
W2.57	Perennial Stock Pond	Moderate–High	900 ft N/Downslope	CRLF Breeding Habitat
W3.13	Ephemeral Stock Pond	Moderate–High	1,900 ft W/Adjacent Drainage	CTS Breeding Habitat
W3.13-W3.81	Ephemeral Drainage	Dispersal	1,400 ft W/Downslope	CTS Historical (1982)
B10.16	Perennial Stock Pond	High	1,400 ft N/Downslope	CRLF & CTS Monk (1998)
B10.32	Ephemeral Drainage	Dispersal	in ROW	CTS Historical (1982)
B10.42	Perennial Stock Pond	High	500 ft NW/ Adjacent Drainage	CTS Breeding Habitat

CTS = California tiger salamander
CRLF = California red-legged frog

Special Status Aquatic Species. Special status aquatic species were observed or documented at twelve aquatic sites within 0.6 mile of the Phase 2 transmission line route. CRLF were observed at two aquatic sites, and CTS were observed at six aquatic sites during 1999 field surveys. In addition, historical records showed one location where CRLF occurred and four sites where CTS was present. Numerous other aquatic sites were identified during the 1999

field surveys as potential CRLF and CTS habitat. Many of these sites were considered to be moderate to high quality habitat for CTS, and some were also suitable sites for CRLF. In addition, some of these ponds provide appropriate habitat for the curved-foot hygrotus diving beetle (*Hygrotus curvipes*) and western spadefoot toad (*Scaphiopus hammondii*). Suitable aquatic habitat for WPT was limited along this route, due primarily to the lack of vegetation and basking sites.

7.2.5 South Area Transmission Line

7.2.5.1 Botanical Resources

Habitat Types. Habitat types traversed by the proposed South Area transmission line route are listed in Table 7-9 and are illustrated in Figure 7-1.

TABLE 7-9
Habitat Type Locations. South Area Transmission Line Route

Milepost	Habitat Type	Comments
MX0.00 – MX0.21	Non-Native Grassland	Moderately grazed
MX0.21 – MX0.23	Developed Lands	State Route 84
MX0.23 – MX0.24	Emergent Wetland	Vallecitos Creek
MX0.24 – MX0.84	Non-Native Grassland	Moderately grazed
MX0.84 – MX0.85	Emergent Wetland	Unnamed watercourse
MX0.85 – MX0.97	Non-Native Grassland	Moderately grazed
MX0.97 – MX0.98	Emergent Wetland	Unnamed watercourse
MX0.98 – MX1.07	Non-Native Grassland	Moderately grazed
MX1.07 – MX1.08	Emergent Wetland	Unnamed watercourse
MX1.08 – MX1.71	Non-Native Grassland	Moderately grazed
MX1.50 – MX1.75	Non-Native Grassland	Moderately grazed
MX1.75 – M2.20	Blue Oak Woodland	Moderately open canopy
M2.20 – M2.47	Non-native Grassland	Moderately grazed
M2.47 – M2.79	Blue Oak Woodland	Moderately open canopy
M2.79 – M3.00	Non-Native Grassland	Moderately grazed
MA0.00 – MA0.43	Blue Oak Woodland	Moderately open canopy
MA0.43 – MA0.76	Non-Native Grassland	Moderately grazed
M3.90 – M4.34	Developed Lands	Hearst Drive
M4.34 – M5.14	Developed Lands	Bernal Avenue
M5.14 – M5.17	Emergent Wetland	Arroyo Valle
M5.17 – M5.30	Developed Lands	Vineyard Substation area

Special Status Plant Species. Special status plant species surveys for the South Area transmission line route and access roads will be conducted in 2000.

7.2.5.2 Wildlife Resources

Because access along the South Area transmission line route only recently became available, information regarding this route has been obtained from aerial photo interpretation, existing

environmental literature near the project area, and the California Wildlife Habitat Relationships Database (CDFG, 1999). Field surveys will occur during 2000.

Suitable nesting and foraging habitat may be present along portions of the South Area transmission line for northern harrier, Cooper's hawk, sharp-shinned hawk, American badger, grasshopper sparrow, horned lark, white-tailed kite, loggerhead shrike, Lewis' woodpecker, short-eared owl, and burrowing owl. The common red-tailed hawk and American kestrel may nest along this route. Emergent wetland and riparian habitat present at Arroyo Valle may be suitable for nesting tricolored blackbird and yellow warbler, respectively.

Foraging habitat is suitable within the annual grasslands along the route for the pallid bat, greater western mastiff bat, Yuma myotis, Townsend's western big-eared bat, golden eagle, ferruginous hawk, peregrine falcon, prairie falcon, Bewick's wren, lark sparrow, Allen's hummingbird, and red-breasted sapsucker.

7.2.5.3 Aquatic Resources

Aquatic Habitat. Aquatic habitats in the vicinity of the proposed South Area transmission line route are listed in Table 7-10.

TABLE 7-10
Aquatic Habitat. South Area Transmission Line Route

Milepost	Aquatic Habitat Type	Quality of Habitat	Distance/ Orientation From ROW	Occurrence of Special-Status Aquatic Species
MX0.20 – MX0.22	Ephemeral Drainage	Moderate	In ROW	CTS Historical (1991)
MX0.53	Perennial Stock Pond	High	200 ft SW/Downslope	CRLF Breeding Habitat
MX0.87	Perennial Stock Pond	High	1000 ft SW/Downslope	CRLF Breeding Habitat
MX1.63	Ephemeral Stock Pond	Moderate–High	300 ft S/Downslope	Unknown
MX1.70	Perennial Stock Pond	High	In ROW	CRLF Breeding Habitat
MX1.80 – M2.60	Ephemeral Drainage	Unknown	In ROW—200 ft E/Downslope	Unknown
M1.88	Two Seasonal Pools	Moderate–High	Approx. 200 ft W/Downslope	Unknown
MA0.15	Stock Pond [1]	Unknown	800 ft W/Downslope	Unknown
MA0.34	Stock Pond [1]	Unknown	1,000 ft E/Downslope	Unknown

[1] Access to site not available. Habitat information based on aerial photographs.
CTS = California tiger salamander
CRLF = California red-legged frog

Special Status Aquatic Species. Special status aquatic species were observed or documented at four aquatic sites within 0.6 mile of the South Area transmission line route. CRLF were observed at three aquatic sites during 1999 field surveys. In addition, historical records showed one site where CTS occurred. Other aquatic sites were identified during 1999 field surveys as potential CRLF, CTS, and WPT habitat. Many of these sites were considered to be moderate to high quality habitat for these species. Some of these ponds provided appropriate habitat for the curved-foot hygrotus diving beetle and western spadefoot toad. Several seasonal pools occurred along this corridor, but only those within 300 feet of the right-of-way were evaluated in the 1999 field surveys. At least two seasonal pools are located within 300 feet, but were not sampled in 1999. These pools are considered to be moderate to high quality habitat for two species of freshwater shrimp: the longhorn fairy shrimp and the vernal pool fairy shrimp.

7.3 Potential Impacts

Impacts to biological resources are separated into those likely to occur from construction (both short-term and long-term impacts) and those that could occur as a result of transmission line and substation operation. Potential impacts to wetlands, federal and state listed species, candidate species, and species of special concern and their habitats are discussed.

7.3.1 Significance Criteria

A project is considered to have potentially significant biological impacts if it would:

- Substantially diminish habitat for fish, wildlife, or plants
- Cause a fish or wildlife population to drop below self-sustaining levels
- Interfere substantially with the movement of any resident or migratory fish or wildlife species
- Reduce the number or restrict the range of a rare or endangered plant or animal
- Adversely affect species under the protection of the Migratory Bird Treaty Act (burrowing owls, nesting raptors, passerines)
- Threaten to eliminate a plant or animal community
- Substantially affect a rare or endangered species of animal or plant or the habitat of that species
- Create a net loss in area, function, or value of wetland habitats

Significant impacts to biological resources are not limited to projects affecting only state or federally listed endangered species. A species that is not listed will also be considered rare or endangered if it can be shown to meet the following criteria: when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, or it is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment deteriorates, or it is likely to become endangered within the

foreseeable future throughout all or a significant portion of its range (CEQA Guidelines Section 15380).

Impacts to terrestrial and aquatic resources resulting from the construction of transmission towers, access roads, laydown areas, and pull sites depend primarily on the proximity, orientation, and quality of the habitat; the presence of special status species; the presence of breeding habitat; and the effectiveness of measures instituted to protect these habitats from direct or indirect exposure to project activities. Assessment of biological impacts for conductor stringing are based on sock lines being pulled by helicopter only.

- Direct impacts from construction activities include the loss of special status species, the loss of habitat, negative affects to breeding activities of special status species, disruption of migration corridors, or the destruction of estivation habitat.
- Indirect impacts resulting from construction activities include: potential introduction of contaminants from construction equipment, degradation of habitat and/or water quality, and sedimentation due to erosion from access roads, laydown areas, or pull sites.

Habitat assessments were conducted at all aquatic sites within 0.6 miles of the project area. However, only those sites within about 2,000 feet of transmission line rights-of-way were included in the impact assessment unless there was a potential hydrologic connection between the right-of-way and the aquatic site. Suitable estivation habitat within 0.6 miles of known California red-legged frog and California tiger salamander breeding sites was also included in the impact assessment.

7.3.2 Construction

7.3.2.1 North Area—Phase 1

Botanical Resources

Impact 7.1. Non-Native Grassland. The loss of approximately 9.5 acres of non-native grassland would result from the construction of tower footings, access roads, and laydown areas. Non-native grasslands are common throughout the region, and the loss of a small amount of this habitat is considered a less than significant impact. However, as part of PG&E's standard construction practice, all areas, except tower footings, will be re-vegetated with an appropriate seed mix.

Impact 7.2. Emergent Wetlands. The permanent loss of as much as 1,000 square feet (along a linear distance of approximately 24 feet) of emergent wetland could result from the construction of access roads. This impact would be considered significant. Once the location of access roads have been staked in the field, a wetland delineation will be conducted to determine the extent of the impact. Implementation of Mitigation Measure 7.1 will reduce any impacts to a less than significant level.

Impact 7.3. Special Status Plant Species. If special status plants are determined to be present based on surveys conducted in 2000 along all North Area Phase 1 access roads, impacts from road construction activities could be potentially significant. Implementation of Mitigation Measure 7.2 will reduce impacts to a less than significant level.

Wildlife Resources

Impact 7.4. Harm or Harrassment of a Federal Listed Endangered Species, *San Joaquin Kit Fox*. While direct impacts to the federally listed endangered and state threatened San Joaquin kit fox can be avoided, construction-related disturbances could have a negative effect upon its habitat. A permanent loss of breeding and foraging habitat could occur as a result of construction of access roads and the permanent placement of tower footings. Although anticipated permanent loss of grasslands is very low throughout the project area (less than 10 acres), this loss is considered significant because of the rapid reduction in suitable kit fox habitat due to urbanization of the Central Valley and the Tri-Valley area. While literature review reveals that intensive surveys for the kit fox have failed to detect denning sites, and few observations have been made west of Vasco Road (Jones and Stokes, 1983; ESA 1986; Harvey & Associates, 1987, 1991, 1992, 1997; Biosystems 1989; Wesco 1991; LSA 1992; EIP 1992; Mori et al. 1992), increased traffic and human presence in the area could adversely impact the kit fox. Mitigation Measure 7.3 will reduce any significant impacts to a less than significant level.

Construction of the project would not impact access of the kit fox to, or limit their movements to and from, remnant suitable habitat.

Impact 7.5. Interruption of Breeding and Nesting Activities of Raptors and Other Avian Species. Impacts to avian species resulting from the project include the potential for destruction of individuals, if present, and the loss of suitable habitat. Nearby suitable habitat may be indirectly impacted by more frequent human disturbance or incidental intrusion by construction personnel or equipment. Sensitive raptors, including the burrowing owl, common raptors such as the red-tailed hawk and American kestrel, and avian species listed in Table 7-11 could abandon nesting activity if disturbed during the breeding season.

Construction-related disturbance leading to impacts could occur if work activities were to occur within a 250-foot radius of an active nest. Species covered under the Migratory Bird Treaty Act are protected, and nest abandonment would be considered a significant impact. Species would include all raptors, migratory waterfowl, shorebirds, passerines and other sensitive bird species within the project area.

Impacts to avian species could occur if they moved into the construction zone during nesting season prior to the start of construction or during construction. There is the potential for individual raptors, their young, and their eggs to be destroyed or nests abandoned. Implementation of Mitigation Measure 7.4 and 7.4(a) will reduce impacts to a less than significant level. Implementation of Mitigation Measure 7.3(a), the replacement of permanent habitat loss for the endangered San Joaquin kit fox at a 3:1 ratio, is expected to benefit the burrowing owl and other avian species utilizing annual grassland habitat for nesting/breeding.

Impact 7.6. Interruption of Breeding/Denning Activities of Sensitive Wildlife Mammals. Significant impacts to sensitive species of mammals as listed in Table 7-11 could occur if breeding and/or denning were interrupted by construction activity. This would be a significant impact. Implementation of Mitigation Measure 7.5 will ensure avoidance of suitable habitat and thus reduce impacts to a less than significant level. Mitigation Measure 7.3(a), the replacement of permanent habitat loss for the endangered San Joaquin kit fox at a 3:1 ratio, is expected to benefit the American badger and the San Joaquin pocket mouse.

Impact 7.7. Loss of Grassland Foraging Habitat. Temporary loss of grasslands due to the use of cross country routes would be a less than significant impact because the area would naturally revegetate. Mitigation is not required. The permanent loss of annual grasslands providing foraging habitat would result from the construction of substations and transmission towers. This is expected to be a less than significant impact because of the extensive amount of grassland habitat available throughout the project area and surrounding vicinity, and the very abundant prey base observed throughout most of the project area. Only impacts to foraging habitat of the San Joaquin kit fox are potentially significant. The species is endangered and its range is shrinking because of rapid development. Implementation of Mitigation Measure 7.3(a) will reduce these impacts to less than significant levels. This mitigation measure is likewise expected to benefit all species utilizing annual grassland habitat.

Species that potentially forage in annual grasslands within the project area include: pallid bat, greater western mastiff bat, Yuma myotis, San Joaquin kit fox, American badger, burrowing owl, grasshopper sparrow, California horned lark, lark sparrow, tri-colored blackbird, golden eagle, prairie falcon, American peregrine falcon, ferruginous hawk, merlin, Cooper's hawk, sharp-shinned hawk, northern harrier, white-tailed kite, short-eared owl, mountain plover, San Joaquin pocket mouse, Bewick's wren, and to a lesser extent, Lewis' woodpecker and the red-breasted sapsucker. (For a detailed inventory along each route refer to Sections 7.2.3.2, 7.2.4.2, and 7.2.5.2).

Impact 7.8. Loss of Emergent Wetland Habitat. The permanent loss of 1,000 square feet of emergent wetland habitat due to construction of access roads will not have a significant impact on wildlife species. The wetlands are highly degraded ephemeral streams that contain very little wetland vegetation, certainly not enough to support breeding or foraging opportunities for tricolored blackbirds. The square footage will decrease the amount of watering holes and cool resting places for a variety of wildlife species. Implementation of Mitigation Measure 7.1 will reduce any impacts to a less than significant level and will enhance wetland habitat in the project area.

TABLE 7-11
Sensitive Nesting/Breeding Species Potentially Impacted by Construction Activities

	North Route		South Route
Species	**Phase 1**	**Phase 2**	
San Joaquin pocket mouse		X	
San Joaquin kit fox	X	X	
American badger	X	X	X
Cooper's hawk			X
Sharp-shinned hawk			X
Tri-colored blackbird	X	X	X
Grasshopper sparrow	X	X	X
Short-eared owl	X	X	X
Northern harrier	X	X	X
Yellow warbler			X
White-tailed kite	X	X	X
California horned lark	X	X	X
Lark sparrow	X	X	X
Lewis' woodpecker			X
Loggerhead shrike	X	X	X
Burrowing owl	X	X	X

Note: X = potential impact

Impact 7.9 Temporary Displacement of Wildlife During Construction. Noise and activity associated with use of access roads and construction of transmission towers or substations during the non-nesting season could disturb sensitive species of wildlife and cause them to temporarily avoid the construction area. This would be a less than significant impact because of the abundance of suitable habitat in the area. Mitigation is not required.

Aquatic Resources

Impact 7.10. California Red-Legged Frog (CRLF). Construction activities in the vicinity of stock ponds, permanent seeps, drainage crossings, migration corridors, and estivation habitat could potentially disturb or remove habitat occupied or potentially occupied by this frog species. Construction activities for access roads could result in the loss of eggs, tadpoles, juveniles, and adults. Breeding habitat was not found within the North Area transmission line right-of-way. The permanent loss of estivation habitat may occur in numerous locations along the transmission line route as a result of construction of access roads and transmission towers. Temporary loss of estivation habitat could occur at laydown areas and pull sites. Temporary impacts to the ephemeral drainage at Milepost B17.28 (historical CRLF habitat and potential breeding habitat) could occur from the construction of a temporary access road across this drainage. Permanent impacts to the ephemeral drainages at Milepost B13.18 (CRLF breeding habitat) and at Milepost B16.05 (potential CRLF breeding habitat) could occur from the construction of permanent access roads (with culvert) across these drainages. Removal or disturbance of small drainages, stock ponds, and estivation and breeding habitat would be a significant impact. Implementation of Mitigation Measure 7.6 will reduce the impacts to a less than significant level.

Impact 7.11. California Tiger Salamander (CTS). Construction activities in the vicinity of stock ponds, seasonal pools, drainage crossings, and estivation habitat may disturb or remove habitat occupied or potentially occupied by this salamander species. The permanent loss of estivation habitat could occur in numerous locations in the project area as a result of construction of access roads and towers. The temporary loss of estivation habitat could occur at laydown areas and pull sites. Permanent impacts to potential tiger salamander breeding habitat could occur at Milepost B13.18 from construction of a permanent access road across this ephemeral drainage. Removal or disturbance of small drainages, stock ponds, and estivation and breeding habitat is considered a significant impact. Implementation of Mitigation Measure 7.7 will reduce these impacts to a less than significant level.

Impact 7.12. Western Pond Turtle (WPT). Construction activities near stock ponds and drainage crossings may disturb or remove habitat occupied or potentially occupied by this turtle species. Construction activities for access roads near streams could result in the loss of adults and/or hatchlings. The WPT is a species of concern; therefore, removal of potential aquatic turtle habitat would be considered a significant impact. Implementation of Mitigation Measure 7.8 will reduce impacts to a less than significant level.

Impact 7.13. Western Spadefoot Toad (WST). Western spadefoot toads were not observed during the 1999 field surveys, and there are no known occurrences of this species in the area of the North Area Phase 1 transmission line route. However, based on information collected during the 1999 field surveys, breeding and estivation habitat for this species may be present. Construction activities near quiet streams, temporary pools, and estivation habitat

may disturb or remove habitat occupied or potentially occupied by WST. The permanent loss of estivation habitat could occur along this route as a result of construction of access roads and towers. The temporary loss of estivation/breeding habitat could also occur at laydown areas and pull sites. Because WST is a species of special concern, removal of aquatic habitats potentially occupied by this species would be considered a significant impact. Implementation of Mitigation Measure 7.9 will reduce this impact to a less than significant level.

Impact 7.14. Vernal Pool Fairy Shrimp (VPFS) and Longhorn Fairy Shrimp (LFS). Potential habitat for these species has been documented at five locations within 300 feet of the North Area Phase 1 transmission line right-of-way. The USFWS considers that ground disturbing activity within 250 feet of any pools has the potential to indirectly impact fairy shrimp and tadpole shrimp habitat (USFWS, 1995). Removal of or disturbance to aquatic habitats potentially occupied by vernal pool fairy shrimp or longhorn fairy shrimp as a result of the construction activities would be a significant impact. Implementation of Mitigation Measure 7.10 will reduce this impact to a less than significant level.

Impact 7.15. Curved-Foot Hygrotus Diving Beetle. The curved-foot hygrotus diving beetle was not field surveyed in 1999. There are no known occurrences of this species in the vicinity of the North Area route. However, habitat for this species is present at some of the stock ponds in the area. Removal of or disturbance to aquatic habitats potentially occupied by this species is considered a significant impact. Implementation of Mitigation Measure 7.11 will reduce this impact to a less than significant level.

Impact 7.16. Ricksecker's Water Scavenger Beetle. Ricksecker's water scavenger beetle was not field surveyed in 1999, and there are no known occurrences of this species in the region. Habitat for this species may be present in some of the seasonal pools, ephemeral drainages, or stock ponds in the North Area; however, based on the known current distribution of this species, its presence is unlikely. Removal of or disturbance to aquatic habitats potentially occupied by this species would be a significant impact. Implementation of Mitigation Measure 7.11 will reduce this impact to a less than significant level.

7.3.2.2 North Area—Phase 2 Transmission Line

Botanical Resources

Impact 7.17. Non-Native Grassland. The loss of approximately 7.7 acres of non-native grassland will result from the construction of tower footings, access roads, and laydown areas. Non-native grasslands are common throughout the region, and the loss of a small amount of this habitat is considered a less than significant impact. However, as part of PG&E's standard construction practice, all areas except tower footings will be re-vegetated with an appropriate seed mix.

Impact 7.18. San Joaqin saltbush. Impacts to the San Joaqin saltbush (*Atriplex joaquiniana*) population at Milepost W2.53-W2.60 could result from construction of the transmission line. These impacts would be potentially significant. Implementation of Mitigation Measures 7.12 (avoidance) and 7.2 (mitigation) will reduce this impact to a less than significant level.

Impact 7.19. Special Status Plant Species. Special status plant surveys will be conducted in 2000 along the Phase 2 transmission line access roads. If special status plants are found to be

present, impacts from road construction activities would be potentially significant. Implementation of Mitigation Measure 7.2 will reduce any such impact to a less than significant level.

Wildlife Resources

Potential impacts to wildlife resources along the Phase 2 transmission line route would be similar to those for the Phase 1 route. See Section 7.3.2.1, Impacts 7.4 through 7.9 for a discussion of potential impacts to wildlife resources.

Aquatic Resources

Impact 7.20. California Red-Legged Frog (CRLF). Impacts to the CRLF would be the same as those described for Impact 7.10. Implementation of Mitigation Measure 7.6 will reduce impacts to a less than significant level.

Impact 7.21. California Tiger Salamander (CTS). Impacts to the CTS would be the same as those described for Impact 7.11 Implementation of Mitigation Measure 7.7 will reduce these impacts to a less than significant level.

Impact 7.22. Western Pond Turtle (WPT). Impacts to this species will be the same as those described under Impact 7.12. Implementation of Mitigation Measure 7.8 will reduce these impacts to a less than significant level.

Impact 7.23. Western Spadefoot Toad (WST). Impacts to this species will be the same as those described under Impact 7.13. Implementation of Mitigation Measure 7.9 will reduce these impacts to a less than significant level.

Impact 7.24. Vernal Pool Fairy Shrimp (VPFS) and Longhorn Fairy Shrimp (LFS). Impacts to this species will be the same as those described under Impact 7.14. Implementation of Mitigation Measure 7.10 will reduce these impacts to a less than significant level.

Impact 7.25. Curved-Foot Hygrotus Diving Beetle. Impacts to this species would be the same as those described under Impact 7.15. Implementation of Mitigation Measure 7.11 will reduce these impacts to a less than significant level.

Impact 7.26. Ricksecker's Water Scavenger Beetle. Impacts to this species would be the same as those described under Impact 7.16. Implementation of Mitigation Measure 7.11 will reduce these impacts to a less than significant level.

7.3.2.3 South Area

Botanical Resources

Impact 7.27. Non-Native Grassland. The loss of approximately 7.6 acres of non-native grassland will result from the construction of tower footings, access roads, and laydown areas. Non-native grasslands are common throughout the region, and the loss of a small amount of this habitat would be considered a less than significant impact. However, as part of PG&E's standard construction practice, all areas except tower footings will be re-vegetated with an appropriate seed mix.

Impact 7.28. Emergent Wetland. The permanent loss of as much as 2,000 square feet (along a linear distance of approximately 48 feet) of emergent wetland may result from the construction of access roads. This impact would be considered significant. Once the

locations of access roads have been staked in the field, a wetland delineation will be conducted to determine the potential impact. Implementation of Mitigation Measure 7.1 will reduce potential impacts to a less than significant level.

Impact 7.29. Special Status Plant Species. Special status plant surveys will be conducted in 2000 along the South Area transmission line corridor and in areas planned for access roads. If special status plants are found to be present, impacts from road construction activities would be potentially significant. Implementation of Mitigation Measure 7.2 will reduce this impact to a less than significant level.

Wildlife Resources

Potential impacts to wildlife resources in the South Area would be similar to those for the North Area. See Section 7.3.2.1, Impacts 7.4 through 7.7 and 7.9 for a discussion of potential impacts to wildlife resources.

Impact 7.30. Loss of Emergent Wetland. The permanent loss of 2,000 square feet of emergent wetland due to construction of access roads will not impact wildlife species significantly. The affected wetlands are highly degraded ephemeral streams that contain very little wetland vegetation, certainly not enough to support breeding or foraging opportunities for tricolored blackbirds. The square footage will decrease the amount of watering holes and cool resting places for a variety of wildlife species. Mitigation Measure 7.1 will enhance wetland habitat in the project area.

Aquatic Resources

Impact 7.31. California Red-Legged Frog (CRLF). Impacts to this species would be the same as those described for Impact 7.10. Implementation of Mitigation Measure 7.6 will reduce these impacts to a less than significant level.

Impact 7.32. California Tiger Salamander (CTS). Impacts to the CTS would be the same as those described for Impact 7.11. Implementation of Mitigation Measure 7.7 will reduce these impacts to a less than significant level.

Impact 7.33. Western Pond Turtle (WPT). Impacts to this species will be the same as those described for Impact 7.12. Implementation of Mitigation Measure 7.8 will reduce these impacts to a less than significant level.

Impact 7.34. Western Spadefoot Toad (WST). Impacts to this species will be the same as those described for Impact 7.13. Implementation of Mitigation Measure 7.9 will reduce these impacts to a less than significant level.

Impact 7.35. Curved-Foot Hygrotus Diving Beetle. Impacts to this species would be the same as those described for Impact 7.15. Implementation of Mitigation Measure 7.11 will reduce these impacts to a less than significant level.

Impact 7.36. Ricksecker's Water Scavenger Beetle. Impacts to this species would be the same as those described for Impact 7.16. Implementation of Mitigation Measure 7.11 will reduce these impacts to a less than significant level.

7.3.3 Operation

7.3.3.1 North Area—Phase 1

Botanical Resources

Impacts to botanical resources resulting from operation of transmission lines and substations for the North Area are not anticipated.

Wildlife Resources

Impact 7.37. Predation. Construction of new transmission towers could increase the opportunity for raptors to prey on general wildlife along the proposed route by providing new perch sites. This is considered a less than significant impact. There is a potential for raptors to perch on new towers and prey on sensitive species such as burrowing owls or their young, causing a localized decline. Neither the burrowing owl population nor the number of raptors is large; however, any decrease in burrowing owls would be a significant impact. Implementation of Mitigation Measure 7.13 will reduce these impacts to a less than significant level.

Impact 7.38. Electrocution of Wildlife Species. Electrocutions only occur when a bird simultaneously contacts two conductors of different phases or contacts a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these elements. On a 230 kV transmission line, all clearances between conductors or between conductors and ground are sufficient to protect even the largest birds (APLIC, 1996) and no impacts are expected; therefore, mitigation is not required.

Although the non-energized metal structures in a substation are grounded, birds and climbing animals can be electrocuted by reaching energized conductors from grounded equipment. Several recent surveys report on bird and animal-caused substation outages in the United States (NRECA 1996; Nobel et al., 1996; Boland and Williams, 1994). These surveys focus on problems that wildlife causes to substations, but indicate that most problems in substations are caused by tree squirrels, raccoons, domestic cats, and birds, especially starlings, blackbirds, and pigeons. Raptors are rarely electrocuted at substations, other than an occasional hawk or owl attempting to roost or feed on the equipment (APLIC, 1996). In a qualitative survey of animal-caused outages at PG&E substations, squirrels, raccoons, and birds (pigeons, starlings, and blackbirds) were identified as the primary wildlife in substations (Boland and Williams, 1994). Electrocutions of wildlife at the proposed substations are expected to be very rare. Impacts will be less than significant and mitigation is not required. However, because substation outages are expensive, PG&E's customary practice is to correct any problem at a substation causing repeated outages. Solutions to wildlife-caused outages at substations are specific to the equipment and species involved. Some potential solutions are discussed in NRECA (1996) and *Electrical World* (1996).

Aquatic Resources

Impacts to aquatic resources resulting from operation of the North Area Project Phase 1 are not anticipated.

7.3.3.2 North Area—Phase 2 Transmission Line

Botanical Resources

Impacts to botanical resources resulting from operation of the North Area Phase 2 transmission line are not anticipated.

Wildlife Resources

Impact 7.39. Predation. Construction of new transmission towers could increase the opportunity for raptors to prey on general wildlife along the proposed route by providing new perch sites. This is considered a less than significant impact. There is a potential for raptors to perch on new towers, in addition to the existing wind turbines in the Altamont Pass area, and prey on sensitive species such as burrowing owls, their young, or San Joaquin pocket mouse. A decrease in the burrowing owl population could result in a localized decline, and this would be a significant impact. Implementation of Mitigation Measure 7.13 will reduce these impacts to a less than significant level.

Impact 7.40. Bird Collisions. Bird collisions with man-made structures have been reported in the scientific literature for over a century (see Avery et al., 1980 and Herbert and Reese, 1995 for extensive annotated bibliographies). A number of bird collision studies have been done at transmission lines. Many of these are of limited scope, but several studies have been both well designed and complete (Hartman et al., 1992; Faanes, 1987; Pearson, 1993). These studies indicate that the primary factor in determining the number of birds colliding with a transmission line is the number of birds flying through the area. An abundant prey base in the Livermore and Altamont Pass areas may also prove to be a factor in collision incidence. The placement and visibility of the line will also influence the amount of collision mortality.

It is impossible to predict the magnitude of bird mortality from the transmission line without extensive information on bird species and movements in the project vicinity. However, it is possible to make some qualitative predictions based on previous studies. It is generally expected that collision mortality will be greatest where the movements of susceptible species are the greatest. Because of the density of golden eagle populations in the Livermore and Altamont Pass areas, collisions for this species may occur. Added to mortality from collisions in the wind farm areas (Orloff and Flannery, 1996; Hunt, 1999), cumulative impacts to the golden eagle could be significant.

Implementation of Mitigation Measure 7.14 will institute a monitoring program to determine the extent of the impact and to initiate appropriate mitigative actions based on the monitoring results following consultation with the resource agencies. Impacts are potentially significant.

Aquatic Resources

Impacts to aquatic resources resulting from operation of the North Area Phase 2 are not anticipated.

7.3.3.3 South Area

Botanical Resources

Impacts to botanical resources resulting from operation of the South Area project components are not anticipated.

Wildlife Resources

Impact 7.41. Predation. Construction of new transmission towers could increase the opportunity for raptors to prey on general wildlife along the proposed route by providing new perch sites. This is considered a less than significant impact. There is a potential for raptors to perch on new towers and prey on sensitive species such as burrowing owls or their young, causing a localized decline. Neither the burrowing owl population nor the number of raptors is large; however, any decrease in burrowing owls would be a significant impact. Implementation of Mitigation Measure 7.13 will reduce these impacts to a less than significant impact.

Aquatic Resources

Impacts to aquatic resources resulting from operation of the South Area project components are not anticipated.

7.4 Mitigation Measures

As part of PG&E's standard construction practice, the following mitigation measures will be incorporated into the project and will be implemented to avoid or minimize impacts to biological resources:

- An ongoing environmental education program for construction crews will be conducted by a qualified biologist(s) before beginning site work and during construction activities. Sessions will include information about the federal and state Endangered Species Acts, the consequences of noncompliance with these acts, identification of sensitive species and wetland habitats, and review of mitigation requirements.
- An educational brochure will be produced for construction crews working on the project. Color photos of sensitive species will be included, as well as a discussion of protective measures agreed to by PG&E and the resource agencies.
- Vehicles will be confined to established roadways.
- Sensitive resource areas such as rare plant populations, habitat for listed species, and active nests of protected bird in the project vicinity will be mapped and marked in the field.
- A biological monitor will be onsite during any construction activity near sensitive habitat and will ensure implementation of, and compliance with, mitigation measures. The monitor has the authority to stop work and determine alternative work practices in consultation with construction personnel if construction activities are likely to impact sensitive biological resources.

- Photo-documentation of all habitat before and after construction will be prepared and will be part of the project report submitted to the resource agencies no later than 90 days following completion of construction.
- PG&E will make diligent efforts to protect the existing plant community and to keep temporary impacts to a minimum. However, temporary impacts to habitat will be addressed through a revegetation/restoration plan prepared in conjunction with the resource agencies.
- The biological monitor will document monitoring activities and prepare a report within 90 days of completion of construction.
- Trash dumping, firearms, open fires (such as barbecues), hunting, and pets will be prohibited in the project area.

The following mitigation measures will be implemented to reduce specific identified potential environmental impacts to less than significant levels.

7.4.1 Construction

7.4.1.1 North Area—Phase 1

Botanical Resources

Mitigation Measure 7.1. Emergent Wetlands. Any permanent loss of emergent wetlands resulting from the construction of access roads will be mitigated at a ratio of 1:1 through:

- The purchase, restoration and protection of severely degraded wetlands in the vicinity of the project,
- The creation of new emergent wetland from upland habitat within the vicinity of the project, and/or
- The purchase from a mitigation bank of similar wetlands in the vicinity of the project.

Mitigation Measure 7.2. Special Status Plant Species. Following the completion of all special status plant surveys, if it is determined that they occur within the project area, PG&E will modify the project to avoid impacts to the identified species. If identified special status plant species cannot be avoided, PG&E will:

- Modify the project to minimize impacts to identified species
- Acquire suitable habitat for identified species within the project vicinity
- Develop a long term habitat enhancement plan (HEP) for identified species
- Monitor the implementation of and the compliance with mitigation measures as outlined in the HEP

Wildlife Resources

Mitigation Measure 7.3. Harm or Harassment of a Federal Listed Endangered Species.

San Joaquin Kit Fox. PG&E will comply with the USFWS's "Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior To or During Ground Disturbance," (USFWS, April 1, 1997). This document includes measures for preconstruction surveys and measures to minimize or eliminate mortality, harm, or harassment resulting from construction activity.

- All surveys and den excavations will be conducted by a qualified biologist.
- Preconstruction / preactivity surveys will be conducted in the proposed active phase area no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and / or construction activities that are likely to impact the San Joaquin Kit Fox.
- Any potential den will be monitored for evidence of kit fox use by placing a tracking medium at den entrances for at least 3 consecutive nights. If a den is determined to be occupied, progressive plugging of the den may be employed to discourage use, and the den closed after it is determined to be unoccupied for a minimum of 3 consecutive nights (USFWS, 1997).
- Potential dens that can be avoided during ground disturbing activities will have an exclusion zone established around them. The radius of the exclusion zone will be 100 feet for known dens and 50 feet for potential and atypical dens.
- Project-related vehicles will observe a 20-mph speed limit in project areas deemed to provide kit fox habitat (as per Construction and Operational Requirements, USFWS 1997), except as posted on county roads, and state and federal highways. Nighttime construction will be minimized. Vehicles will be limited to the designated project area to avoid kit fox habitat.
- The use of rodenticides and herbicides will be restricted by PG&E within project boundaries.
- To prevent accidental entrapment of kit fox during construction, all excavated holes or trenches will be covered at the end of each work day with plywood or similar materials. Before such holes are filled, they will be thoroughly inspected for trapped animals. In the event of a trapped animal, ramps or other structures will be installed immediately to allow the animal to escape, or the USFWS will be contacted for advice.
- PG&E will appoint a representative who will notify the USFWS and CDFG immediately in the event of an accidental death or injury to a kit fox during project-related activities, and a follow-up letter will be submitted within 3 working days of the accident.
- All temporary disturbance areas will be recontoured, if necessary, and revegetated to promote restoration of the area to pre-project conditions.

Mitigation Measure 7.3 (a). Replacement of Denning and Foraging Habitat for the San Joaquin Kit Fox. All foraging and denning habitat that could be lost due to construction activities will be calculated and reported to the USFWS and CDFG. This acreage will be mitigated at a 3:1 ratio with the purchase of habitat credits or the purchase of offsite mitigation land.

Mitigation Measure 7.4. Interruption of Breeding and Nesting Activities of Avian Species. If occupied habitat is detected either within the right-of-way or 250 feet from the project-impact area, measures to avoid, minimize, or if necessary, mitigate impacts will be incorporated into the project. For burrowing owl (known to be present), specific mitigation measures are suggested by CDFG (Burrowing Owl Consortium, 1993) and are discussed separately under Mitigation Measure 4(a).

All species and subspecies of the families listed in the Migratory Bird Treaty Act and their nests are protected. In addition, the golden eagle is protected under the Bald Eagle Protection Act. Take of individual animals will be avoided by conducting preconstruction surveys before the spring breeding season (and prior to start of construction). A survey of the construction area for potential avian species will be performed by a qualified biologist. It is expected that if construction occurs in suitable habitat before the onset of breeding season, the construction disturbance would cause bird species to seek alternate sites for breeding and nest construction.

The following measures will reduce the likelihood of impacting either sensitive habitat or directly impacting birds that could be nesting.

- To the extent possible, transmission line towers and access roads will avoid sensitive habitat. Flexibility exists in the exact placement of these features.
- To the extent possible, breeding season (February to September) will be avoided; however, if avoidance of active nests is not practicable, a construction-free buffer of at least 250 feet around the nest will be maintained to protect breeding birds.
- A biological monitor will remain onsite to monitor the activity of the nesting birds during work to determine if work could continue without causing significant disturbance to the birds and to ensure implementation of and compliance with all avoidance and mitigation measures.
- Wetland habitat will be spanned by the transmission line. At Arroyo Valle, a dry bore will be made under the riverbed. These methods are included to avoid direct impacts to breeding habitat.
- Should nest abandonment during breeding occur, the biological monitors will notify the appropriate resource agencies.

Mitigation Measure 7.4 (a). Burrowing Owl. A preconstruction survey will be conducted by a qualified biologist in all areas providing suitable habitat at least 30 days prior to construction according to the most recent Burrowing Owl Survey Protocol and Mitigation Guidelines (Burrowing Owl Consortium, 1993), and as suggested by CDFG. Surveys will cover grassland areas within a 500-foot buffer along the proposed transmission line routes and substations, and they will include areas designated for temporary laydown areas and access roads. The survey will include checking for the burrowing owl and owl sign. If owls are found to be using the site and avoidance is not feasible, a passive relocation effort (displacing the owls from the site) may be conducted as described below, subject to the approval of the CDFG.

If occupied habitat is found on or adjacent to the proposed project features, measures to avoid, minimize, or mitigate impacts to burrowing owls will be incorporated into the project. They will include:

- Confirmed unoccupied burrows along the route may be collapsed.
- Establish areas around the occupied burrows where no disturbance may occur. The sensitive areas shall extend 160 feet around the occupied burrows during the non-breeding season of September 1 through January 31, and shall extend 250 feet around occupied burrows during the breeding season from February 1 through August 31. A barrier fence will be erected during breeding season around occupied burrows. If this avoidance method is not possible, passive relocation of the owls may occur but only during the non-breeding season. Passive relocation would include installing one-way doors on the entrances of burrows located within 250 feet of the proposed project features. The one-way doors shall be left in for 48 hours to ensure the owls have vacated the nest. Owls would not be relocated during the breeding season.
- For each active burrow that will be excavated by project construction, one natural or artificial burrow will be provided outside of the 250-foot buffer. These alternate burrows will be monitored daily for 1 week to ensure the owls have successfully moved.
- Burrows within the construction area shall be excavated under the supervision of a biological monitor using hand tools and then refilled to prevent reoccupation. If any burrowing owls are discovered during excavation, the excavation shall cease and the owl allowed to escape. Excavation may be completed when the biological monitor confirms that the burrow is empty.
- All work will be coordinated with CDFG.

Mitigation Measure 7.5. Interruption of Breeding/Denning Activities of Sensitive Wildlife Mammals.

- Before the spring breeding season (and prior to start of construction), a survey of the construction area for potential sensitive habitat will be performed by a qualified biologist. It is expected that if construction occurs in suitable habitat before the onset of breeding season, the construction disturbance would cause mammal species to seek alternate sites for breeding and denning.
- To the extent possible, sensitive habitat, including burrows, would be avoided by moving the location of the transmission pole or the location of access roads. Some flexibility exists in the exact placement of these features along the route.
- A biological monitor will be present to ensure implementation of, and compliance with, these mitigation measures.
- A minimum buffer of at least 300 feet will be maintained around known dens of the American badger during the breeding season (March to September) to avoid direct loss of individuals.
- Vehicular speeds will be kept to 20 mph in sensitive wildlife habitat.
- If sensitive species are located prior to construction, PG&E will consult with the USFWS and CDFG to coordinate avoidance.

Aquatic Resources

Mitigation Measure 7.6. California Red-Legged Frog (CRLF). Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds and drainages in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area.

To minimize impacts to the ephemeral drainage at Milepost B13.18, appropriate construction techniques will be employed to minimize disturbance of stream channels and banks. If significant impacts occur to breeding or estivation habitat of the California red-legged frog, PG&E will replace the habitat at a ratio negotiated with USFWS.

The permanent loss of estivation habitat (upland impacts) due to construction of access roads and towers could be considered a significant impact by the USFWS and could require a replacement ratio of 1:1. However, this would vary depending on the abundance of suitable habitat in the project vicinity.

In the unlikely event that excavation activities occur in wetlands identified as suitable CRLF habitat, PG&E will enter into formal consultation with the USFWS and implement the avoidance and minimization measures outlined in a Biological Assessment prepared for the CRLF. Avoidance and minimization measures that the USFWS would likely require include the following:

- Prior to the initial site investigation and subsequent ground-disturbing activities, a qualified biologist would instruct all project personnel in environmental training, including recognition of CRLF and their habitat. Under this program, workers shall be informed about the presence of CRLF and habitat associated with the species, and that unlawful take of the animal or destruction of its habitat is a violation of the federal Endangered Species Act. The biologist shall instruct all construction personnel regarding the life history of CRLF, the importance of marshes / wetlands to the frog, and the terms and conditions of the Biological Opinion.
- A qualified biologist would be present during construction activities to monitor and determine the extent of potential ground-disturbing activities within 30 feet of suitable habitat.
- Ground-disturbing activities within 30 feet of suitable habitat could only occur between May 1 and October 31.
- Between November 1 and April 30, ground-disturbing activities will not occur within 30 feet of suitable habitat.
- Between May 1 and October 31, equipment will not be allowed within 30 feet of suitable habitat until a qualified biologist inspects the site to ensure the route was clear of CRLF.

- Clearing of wetland vegetation will be confined to the minimal area necessary. Excavation activities will be accomplished by using equipment located on and operated from the side of the drainage with the least interference practical for emergent vegetation.
- If a CRLF is encountered during excavations, activities would cease until the frog was removed and relocated by a USFWS approved biologist.

After completion of construction activities, any debris will be removed and, wherever feasible, disturbed areas will be restored to pre-project conditions. A restoration plan will be prepared for those sites where emergent vegetation is removed. The following elements will be included in the restoration plan:

- Prior to all construction activities, the site will be photographed to establish the pre-project condition.
- After completion of construction activities, the site will be regraded to the pre-existing contour or a contour that would improve the restoration potential of the site.
- The site will be replanted and hydro-seeded. Recommended plantings consist of wetland emergents, low-growing cover on or adjacent to banks, and upland plantings / hydro-seeding to encourage use by other wildlife. Replanting should involve the same species removed during construction. Plantings should be at least the same density and compositions as the pre-project level.
- The restoration plan will identify success criteria for the restoration.
- Habitat restoration will be monitored for 1 year from implementation. Monitoring reports documenting the restoration effort will be submitted to the USFWS upon completion of the restoration implementation and 1 year from restoration implementation. Monitoring reports will include photo documentation, the date restoration was completed, and the species used for plantings. Monitoring reports will also include recommendations for remedial actions; approval from the USFWS, if necessary; and justification from release of any further monitoring, if requested.

Mitigation Measure 7.7. California Tiger Salamander (CTS). Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds and drainages in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. If significant impacts occur to CTS estivation or breeding habitat, PG&E will replace the habitat at a ratio negotiated with CDFG.

The permanent loss of estivation habitat usually requires a replacement ratio of 1:1; however, this may vary if estivation habitat is abundant in the general vicinity. In the unlikely event that excavation activities occur in wetlands identified as suitable CTS habitat,

PG&E will enter into formal consultation with CDFG and USFWS and will implement avoidance and minimization measures. These measures could include the following:

- Before construction begins, a qualified biologist will instruct all project personnel in environmental awareness training, including recognition of CTS and their habitat. Under this program, workers will be informed about the presence of CTS and habitat associated with the species, and that unlawful "take" of the animal or destruction of its habitat would be a violation under state law. The biologist will instruct all construction personnel regarding the life history of CTS and the importance of wetlands to the salamander.
- A qualified biologist will be present during construction activities to monitor and determine the extent of potential ground-disturbing activities within 30 feet of suitable habitat.
- Ground disturbing activities within 30 feet of suitable habitat could only occur between May 1 and October 31.
- Between November 1 and April 30, ground disturbing activities will not occur within 200 feet of suitable habitat.
- Clearing of wetland vegetation will be confined to the minimal area necessary. Excavation activities will be accomplished by using equipment located on and operated from the side of the drainage, with the least interference practical for emergent vegetation.
- Before allowing equipment within 30 feet of suitable habitat, a qualified biologist will inspect the site to ensure the route to the site is clear of CTS.
- If a CTS is encountered during excavations, activities would cease until the salamander was removed and relocated by a CDFG-approved biologist.
- After completion of construction activities, any construction debris will be removed; wherever feasible, disturbed areas shall be restored to pre-project conditions.

Mitigation Measure 7.8. Western Pond Turtle (WPT). Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone will be established around all ponds in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. This buffer zone will be a minimum of 30 feet during the dry season (May to October) and a minimum of 200 feet during the wet season (November to April).

Mitigation Measure 7.9. Western Spadefoot Toad (WST). Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established

around all ponds in the project area that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area.

Mitigation Measure 7.10. Vernal Pool Fairy Shrimp (VPFS) and Longhorn Fairy Shrimp (LFS). Prior to construction, surveys will be performed at aquatic sites that could potentially be impacted by project activities and for which presence or absence of the species has not yet been determined. To avoid potential construction impacts to aquatic habitats, a buffer zone will be established around all ponds and drainages in the project vicinity that contain this species and could potentially be impacted by project activities. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area. A 250-foot buffer will be maintained during the wet season (first substantial rainfall after October 31 until May 15), and a 100-foot buffer will be maintained during the remainder of the year.

Construction monitoring will be done at each seasonal wetland with the potential to support listed shrimp. Monitoring of each site will occur during all construction activities within 250 feet of potential habitat. If the areas of potential shrimp habitat can be avoided, no additional mitigation measures are required. If the wetlands cannot be avoided, formal consultation with USFWS would be required, and a Biological Assessment would need to be prepared.

Mitigation Measure 7.11. Curved-Foot Hygrotus Diving Beetle and Ricksecker's Water Scavenger Beetle. To avoid potential construction impacts to aquatic habitats, a buffer zone of 30 feet during the dry season (May to October) and 200 feet during the wet season (November to April) will be established around all ponds in the project area. Buffers are work exclusion areas. If work must be conducted in buffer zones, the type and duration of the work will be negotiated with the appropriate resource agency prior to construction in the area.

7.4.1.2 North Area—Phase 2

Botanical Resources

Mitigation Measure 7.12. San Joaqin saltbush. Neither towers nor access roads will be located within the San Joaqin saltbush population present at Milepost W2.53 to W2.60. Sock line stringing will be done by helicopter, and a monitor will be present during construction to ensure that impacts to the population are reduced to less than significant levels.

Wildlife Resources

Construction impacts to wildlife resources will be mitigated as described under Mitigation Measures 7.3 and 7.4 under Section 7.4.1.1 North Area Phase 1.

7.4.1.3 South Area

Botanical Resources

Construction impacts to botanical resources will be mitigated as described under Mitigation Measures 7.1 and 7.2 under Section 7.4.1.1 North Area Phase 1.

Wildlife Resources

Construction impacts to wildlife resources will be mitigated as described under Mitigation Measures 7.3 and 7.4 under Section 7.4.1.1 North Area Phase 1.

7.4.2 Operation

7.4.2.1 North Area—Phase 1

Wildlife Resources

Mitigation Measure 7.13. Predation. The following mitigation measure will be implemented to reduce perching and predation opportunities:

- Tubular steel poles will be used extensively throughout the project area to minimize perching and predation opportunities.
- Predation opportunities will be further reduced through the use of deterrents such as bird guards (Nixalite®) to discourage perching of raptors at all tower locations within areas containing habitat suitable for burrowing owls. This deterrent consists of rows of spring-tempered nickel stainless-steel prongs with sharp points extending outward at all angles, except where affixed, on potential perches on new poles.

7.4.2.2 North Area—Phase 2

Wildlife Resources

Mitigation measures for predation will be implemented as described under Mitigation Measure 7.13 in Section 7.4.2.1.

Mitigation Measure 7.14. Bird Collisions. No major flyways along the North Area Phase 2 route have been identified in the existing literature. However, bird flight patterns and collision mortality will be monitored for 3 years after construction on portions of the line where the potential for mortality is considered moderate to high (such as the Altamont Pass area). The purpose of the monitoring is to determine where problems might occur. This information would be necessary prior to discussing the need for appropriate mitigation methods and further action with the USFWS. All monitoring data, and the need for any further action, will be shared with the USFWS.

7.4.2.3 South Area

Wildlife Resources

Mitigation measures for predation will be implemented as described under Mitigation Measure 7.13 in Section 7.4.2.1.

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