

MANAGEMENT INDICATOR SPECIES ANALYSIS

1. INTRODUCTION

The purpose of this assessment is to evaluate the potential effects of the Sunrise Powerlink Project on Management Indicator Species (MIS) identified in the Land Management Plan (LMP) for the southern California forests (US Department of Agriculture [USDA], 2005). Five alternatives and three options of the Sunrise Powerlink project cross the Cleveland National Forest (CNF) and are assessed in this report.

2. PROJECT DESCRIPTION

San Diego Gas and Electric (SDG&E) proposes the Sunrise Powerlink Project that would extend approximately 150 miles between the existing Imperial Valley Substation in El Centro and the Penasquitos Substation in the City of San Diego. The project would also include a new Central East Substation and other system modifications.

Although the proposed project would not occur within the CNF, five project alternatives (Interstate 8, BCD, Route D, Modified Route D, and CNF Existing 69kV), three options to the Interstate 8 Alternative (West Buckman Springs, Buckman Springs Underground, and South Buckman Springs), one option to the BCD Alternative (BCD South), and one option to the Modified Route D Alternative (Star Valley) would occur partially within the CNF. These alternatives are as follows:

Interstate 8 Alternative – This alternative generally follows the Interstate 8 (I-8) corridor, which runs on an east-west path across the southern Imperial and San Diego Counties. This alternative was developed in response to public and agency concerns requesting use of the existing Interstate 8 corridor, rather than creating a new major corridor in less developed areas (especially Anza-Borrego Desert State Park). This alternative would enter the CNF just west of the La Posta Indian Reservation, roughly follow I-8 to the west, and finally exit the CNF near the Viejas Indian Reservation. Along its length, the I-8 Alternative includes aboveground and underground portions, but only aboveground portions are proposed within the CNF.

Interstate 8: West Buckman Springs Option - This option was designed to minimize hang gliding and paragliding impacts by moving the transmission line to a location west of Buckman Springs valley, rather than along I-8. It is located entirely within the boundaries of the CNF. The route would cross to the south side of Interstate 8 heading west and crossing the Pacific Crest National Scenic Trail to follow the west side of Buckman Springs Road north for approximately 4 miles, passing just west of the Boulder Oaks Campground and within two miles northeast of the Morena Reservoir.

Interstate 8: Buckman Springs Underground Option - The Buckman Springs Underground Option is approximately 2 miles long and is located entirely within the CNF, just east of Interstate 8 off Buckman Springs Road exit. It includes an underground 500kV cable system to

match the capacity of the overhead transmission line. The transmission cables would be installed in concrete-encased duct banks and covered with up to 8 feet of backfill. Total construction impact width of the underground duct bank packages with the access road is estimated to be approximately 80 feet in width for the length of the route. A permanent access road (approximately 14 feet in width) would be graded along the path of the duct banks. An underground-to-overhead transition station would be required at each end of the underground transmission line segment. Each transition station would be located on a 2 to 3 acre area and would require structures approximately 80 feet in height.

Interstate 8: South Buckman Springs Option - This option was designed to avoid backcountry non-motorized land use zones within the CNF to the north and east of Interstate 8. The route would split from the I-8: Alternative along the southern boundary of the CNF just west of the Campo Indian Reservation, and follow the existing SDG&E 69 kV corridor parallel to I-8 for 6.5 miles. It would cross Cameron Valley, pass through the Narrows, turn north through the southern portion of Cottonwood Valley, and join the West Buckman Springs Option approximately 1 mile west of Interstate 8.

BCD Alternative - This 19.5-mile 500 kV alternative would split from the Interstate 8 Alternative southeast of Boulevard, where it would head north-northwest, generally paralleling McCain Valley Road, head west on BLM land southwest of the Carrizo Overlook and within two miles of the Cottonwood Campground. The route would enter the CNF near the northern end of Simmons Canyon, south of Thing Valley. It would cross Thing Valley Road (La Posta Truck Trail), Fred Canyon Road, and the Pacific Crest National Scenic Trail, passing within one mile of Cibbets Flat Campground. The route would cross Kitchen Creek Road three times and Sheephead Mountain Road once before crossing I-8 and joining the I-8 Alternative in Cottonwood Valley. The BCD segment would include 6.5 miles within the CNF, 11 miles on BLM land, 0.2 miles on State of California conservation land, and 1.8 miles on private lands.

BCD Alternative: South Option - The BCD South Option would only be used in combination with the BCD Alternative, diverging south near Thing Valley Road. The option is 5.4 miles long and would connect with the Modified Route D Alternative south of La Posta Ranch and east of La Posta Road.

Route D Alternative - This alternative would split from the Interstate 8 Alternative in the CNF approximately 1 mile east of East Willows Road and run north, crossing King, Conejos, Boulder, Cedar, and Ritchie Creeks, as well as the San Diego River before joining the Proposed Project route at the proposed Central South Substation near Ramona. The majority of this alternative is on CNF lands.

Modified Route D Alternative - This route splits from the Interstate 8 Alternative several miles east of Campo, runs generally west to Barrett Lake, and then runs generally north to merge with the Interstate 8 Alternative in the vicinity of East Willows Road near Alpine.

Modified Route D Alternative: Star Valley Option - The Star Valley Option would only be used in combination with the Modified Route D Alternative, diverging from the Modified Route D Substation Alternative approximately 1.5 miles north of Japatul Valley. The option would run west and north for approximately 3 miles, replacing 2.2 miles of the Modified Route D Alternative and 2.3 miles of the I-8 Alternative. Roughly 0.4 mile of this option would be underground along Star Valley Road, where it would join the Interstate 8 Alternative.

CNF Existing 69kV Alternative – This alternative is a short (approximately 1.5 miles) route located just southeast of Highway 78, west of Dye Mountain. It would split from the Proposed Project and run in a southwesterly direction, and cross into the CNF for a distance of less than one mile, and re-join the Proposed Project. It would incorporate an existing 69 kV transmission line, which would not need to be replaced.

3. MIS SELECTED FOR THE PROJECT

MIS are selected because their population trends are considered indicative of the effects of management activities and as a focus for monitoring. Projects within southern California forests typically assess effects on twelve MIS (USDA, 2005) because changes in these species populations or habitats are can be effectively monitored and reflect the effects of national forest management activities. These species include white fir (*Abies concolor*), Coulter pine (*Pinus coulteri*), bigcone Douglas-fir (*Pseudotsuga macrocarpa*), blue oak (*Quercus douglasii*), Engelmann oak (*Quercus engelmannii*), California black oak (*Quercus kelloggii*), valley oak (*Quercus lobata*), arroyo toad (*Bufo californicus*), song sparrow (*Melospiza melodia*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), and California spotted owl (*Strix occidentalis*). As shown in Table 1, six of these species occur in portions of the CNF that may be affected by the Sunrise Powerlink project or its alternatives.

Table 1. Management Indicator Species		
Species	Indicator of Management	Potential to be Affected by Sunrise Powerlink project
White fir (<i>Abies concolor</i>)	Montane coniferous forest	Range includes portions of CNF, but no project alternatives would impact coniferous forest.
Coulter pine (<i>Pinus coulteri</i>)	Coulter pine forest	Range includes portions of CNF, but no project alternatives would impact coniferous forest.
Bigcone Douglas-fir (<i>Pseudotsuga macrocarpa</i>)	Bigcone Douglas-fir forest	Does not occur in project area; reported on Palomar and Vulcan Mountains to the north.
Blue oak (<i>Quercus douglasii</i>)	Oak regeneration	Does not occur in project area
Engelmann oak (<i>Quercus engelmannii</i>)	Oak regeneration	Occurs in project area
California black oak (<i>Quercus kelloggii</i>)	Oak regeneration	Does not occur in project area; occurs primarily in coniferous forest, which would not be affected by any project alternatives in the CNF
Valley oak (<i>Quercus lobata</i>)	Oak regeneration	Does not occur in project area
Arroyo toad (<i>Bufo californicus</i>)	Aquatic habitat	Occurs in project area
Song sparrow (<i>Melospiza melodia</i>)	Riparian habitat	Occurs in project area
California spotted owl (<i>Strix occidentalis</i>)	Montane coniferous forest	Occurs in project area
Mountain lion (<i>Puma concolor</i>)	Fragmentation	Occurs in project area
Mule deer (<i>Odocoileus hemionus</i>)	Healthy, diverse habitats	Occurs in project area

Of the twelve MIS in Table 1, two species do not occur in the CNF (valley oak and blue oak) and four species do not occur in habitats that would be affected by the Sunrise Powerlink project (white fir, Coulter pine, bigcone Douglas-fir, and California black oak). The remaining six MIS (Engelmann oak, arroyo toad, song sparrow, California spotted owl mountain lion, and mule deer) have potential be affected by one or more of the project alternatives.

3.1 Engelmann Oak

Many oak species exhibit very low reproductive rates, and Holland and Keil (1995) noted that the majority of oaks in oak woodlands appear to have ceased reproduction around 1900. As a result, the primary management concern for Engelmann oak woodlands is maintaining sufficient regeneration to sustain long-term viability. Engelmann oaks are used by the USDA Forest Service as a proxy for oak regeneration and as a determinant of oak woodland habitat quality within the CNF (USDA 2007). Monitoring of this species, in particular saplings, will measure the success of the forest management strategies (USDA 2007).

3.1.1 Natural History

The Engelmann oak is a deciduous tree species that has a small natural range and is the only species of subtropical white oaks in California (USDA 2007). This species most commonly occurs in savannas with grassland understory on valley floors, foothill slopes and raised stream terraces within riparian corridors. It occurs from the foothills of the San Gabriel Mountains in Los Angeles County through the Santa Ana Mountains in Orange County to the Peninsular Ranges of Riverside and San Diego Counties (USDA 2007) in the northwestern Peninsular Range in San Diego and Orange counties (Sawyer and Keeler-Wolf, 1995).

3.1.2 Potential Project Impacts

Engelmann oaks were observed during vegetation mapping and rare plant surveys conducted in 2007 and would be directly and indirectly impacted by implementation of the Interstate 8, Route D, and CNF Existing 69kV Alternatives (Figure 1). Permanent impacts would occur from construction of towers and access roads, as well as from tree removal related to vegetation management. Temporary impacts would occur from clearing required for staging areas, pull sites, and helicopter pads, as well as necessary clearing around the tower footings. Temporary impact areas would be revegetated following construction.

In addition to direct impacts, construction activities, such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact plants' photosynthetic capabilities and degrade the overall quality of the Engelmann oak woodland. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

As noted in the EIR/EIS, mitigation for loss of native trees or native tree trimming (including Engelmann oaks) shall be provided by (1) acquiring and preserving habitat within which the trees occur and/or (2) restoring (i.e., planting) trees on land that would not be subject to vegetation clearing.

Native trees that are removed shall be replaced in-kind as follows.

- Trees less than five inches diameter at breast height (DBH) shall be replaced at 3:1
- Trees between five and 12 inches DBH shall be replaced at 5:1
- Trees between 12 and 36 inches shall be replaced at 10:1
- Trees greater than 36 inches shall be replaced at 20:1

Native trees that are trimmed shall be replaced in-kind as follows.

- Trees less than 12 inches DBH shall be replaced at 2:1
- Trees greater than 12 inches DBH shall be replaced at 5:1

The EIR/EIS contains specific details about mitigation for loss of trees (see Mitigation Measure B-1a in Section D.2.5).

Interstate 8 Alternative

Engelmann oak woodland is mapped along the Interstate 8 Alternative upstream and downstream of the Sweetwater River in the vicinity of Descanso; however, no individual trees were mapped at the time of the survey (Figure 1). Implementation of this alternative would result in permanent impacts to 0.1 acres of Engelmann oak woodland (no temporary impacts to this vegetation community would occur). Permanent impacts would be mitigated at a 3:1 ratio with off site preservation of 0.3 acres of Engelmann oak woodland.

Vegetation management as part of this alternative may also require Engelmann oaks to be removed. Mitigation for loss of individual trees would follow the mitigation listed above.

Route D Alternative

Numerous Engelmann oak individuals are mapped within the CNF along much of the length of the Route D Alternative, and are particularly dense between King and Conejos Creeks (Figure 1). Thirteen Engelmann oak trees were mapped within the right-of-way for this alternative as part of other vegetation communities. Construction of this alternative, including the associated vegetation management, would require most (if not all) of these Engelmann oaks to be removed. Mitigation for loss of individual trees would follow the mitigation listed above. Engelmann oak woodland is mapped along this alternative, but not within the CNF boundaries. Mitigation for impacts to Engelmann oak woodland outside of the CNF would still be required as part of the overall project mitigation required in the EIR/EIS.

CNF Existing 69kV Alternative

At the time of the survey, access to the CNF had not yet been granted, so habitat mapping was conducted by aerial photograph interpretation (by comparison with similar habitat mapped in person outside of the CNF) and no individual trees were mapped. Based on this mapping, one patch of Engelmann oak woodland is mapped within the CNF along the CNF Existing 69kV Alternative (Figure 1). Implementation of this alternative would result in direct, permanent impacts to 0.8 acres and temporary impacts to 0.1 acres of Engelmann oak woodland. Temporary impacts would be mitigated within the alignment by restoration of 0.1 acres of

Engelmann oak woodland and off-site mitigation of 0.2 acres. Permanent impacts would be mitigated off site at a 3:1 ratio with preservation of 2.4 acres.

3.2 Arroyo Toad

The arroyo toad was selected as an MIS for low-elevation riparian and aquatic habitats (USDA 2005). Management goals include maintaining and improving habitat functions, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, movement corridors, and habitat linkages. Trends in abundance, distribution, and habitat conditions will be assessed to determine management effectiveness for the arroyo toad and other aquatic and riparian fish and game species (USDA 2007).

3.2.1 Natural History

The arroyo toad is a federal listed endangered species that is endemic to riparian environments in the foothill canyons and inter-mountain valleys of central and southern California and northwestern Baja California from near sea level to approximately 8,000 feet. During the breeding season, this species is typically found the middle reaches of slow-moving, third-order streams with shallow pools and, sandy or gravelly soils and sandy terraces. Breeding pools must be open and shallow with minimal current, and with a sand or pea gravel substrate overlain with sand or flocculent silt. Adjacent terraces must provide open, sandy or gravelly terraces with very little herbaceous cover for adult and juvenile foraging areas within a moderate riparian canopy of cottonwood, willow, or oak. They tend to be found along rivers and streams with open vegetation canopies; heavily shaded pools are unsuitable for larvae and juvenile toads due to lower water and soil temperatures and poor algal mat development. During the non-breeding season, arroyo toads are found in burrows within the upland habitats located up to 1 mile from breeding streams.

The arroyo toad has been extirpated from 75 percent of its former range, and the remaining occupied habitat is threatened by continued dam construction, river diversion, conversion of riparian wetland habitat by agriculture and urbanization, road construction, off-highway vehicle use, campground development, grazing, and mining activities (USFWS 1994). Arroyo toads are diurnal for the first four to five weeks as juveniles and stay close to breeding pools; they become nocturnal when they reach 17 to 23 millimeters in length and spend the day in burrows. Nocturnal activity is normal for both adults and large juveniles, but they may occasionally be active and observed during the day (US Fish and Wildlife Service, 1999).

3.2.2 Potential Project Impacts

The USDA Forest Service has designed a digital model to identify potential habitat for the arroyo toad. An analysis of this habitat model for the Sunrise Powerlink project determined that potential arroyo toad habitat occurs within streams that cross all of the project alternatives within the CNF. Arroyo toad habitat assessments conducted in Spring 2007 for of all these stream crossings identified 16 drainages within the CNF that had suitable conditions or habitat quality to warrant focused surveys (Figure 2). Focused surveys were conducted in 2007, following U.S. Fish and Wildlife Service (1999) protocol where possible. For the purposes of

assessing impacts, all areas within 1 km of an observed arroyo toad are considered occupied habitat (USFWS 1999).

In locations where a proposed alignment would cross through occupied habitat, arroyo toad habitat could be permanently impacted construction of towers and access roads. Because the towers are generally placed on ridgelines and hilltops rather than in canyon bottoms and streambeds, impacts caused by tower installation generally would avoid arroyo toad breeding habitat, but has potential to impact upland, non-breeding habitat. However, where access roads would cross creeks or drainages, arroyo toad breeding habitat would be permanently impacted. Temporary impacts would occur from clearing required for staging areas, pull sites, and helicopter pads, as well as necessary clearing around the tower footings. All temporary impact areas would be revegetated following construction.

In addition to direct impacts, construction activities, such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways could increase dust that may settle on surrounding vegetation. Such dust would be considered an indirect impact that would degrade the overall quality of arroyo toad habitat. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

Mitigation for impacts to occupied arroyo toad habitat (or habitat that is assumed occupied) would occur with a combination of exclusion, pre-construction surveys, and habitat restoration and preservation. Where the arroyo toad is present (or assumed to be present), the construction zone would be fenced with exclusion fencing to prevent toad access. Pre-construction surveys (including one no more than 24 hours prior to construction) would be conducted for arroyo toads by a biologist permitted by the USFWS to handle the toad. During construction within occupied habitat, surveys would be conducted every morning prior to work. Any toads found would be relocated to appropriate habitat outside the impact footprint. Additionally, loss of arroyo toad-occupied habitat would include 1:1 on-site restoration for temporary impacts and off-site purchase and preservation of arroyo toad-occupied mitigation land at a 1:1 to 3:1 ratio (depending on vegetation type).

Interstate 8 Alternative

USDA Forest Service modeled habitat occurs at nine locations along the Interstate 8 Alternative (Figure 2). Five of the locations, (La Posta Creek just north of Interstate 8, Kitchen Creek north and east of I-8, Pine Valley Creek, Sweetwater River at Wildwood Glen Lane, and San Diego River at El Capitan Reservoir), supported suitable arroyo toad breeding habitat at the time of the habitat assessment and focused surveys were conducted. The remaining four locations (two unnamed tributaries to La Posta Creek, Cottonwood Creek north of Buckman Springs and an unnamed drainage near Pine Valley Las Bancas Road) did not support suitable habitat at the time of the habitat assessment and were not surveyed.

Arroyo toad presence was assumed at the La Posta Creek, Kitchen Creek, Sweetwater River, and San Diego River locations (Figure 2). The site where the Interstate 8 Alternative crosses La Posta Creek is on a private inholding within the CNF. To avoid trespassing, this site could only be surveyed by listening for calls from La Posta Truck Trail. Because surveys were not conducted to protocol, presence is assumed for this creek. Although suitable habitat for arroyo toads was present, the Kitchen Creek was dry at the time of the habitat assessment and the area

did not receive any rainfall subsequent to the assessment. However, arroyo toads were found downstream of the confluence of Kitchen and Cottonwood Creeks in 2007, approximately 2 miles to the southwest. Additionally, arroyo toads are known to occur upstream of the alignment along Kitchen Creek. Because suitable habitat was present, arroyo toads were found in the same drainage nearby, and conditions were dry during the survey period, arroyo toad presence was assumed for the Kitchen Creek site. Protocol arroyo toad surveys conducted at the Sweetwater River site were negative; however, habitat at that site was highly suitable, with slow-moving pools, sandy benches, and open riparian vegetation. Moreover, the California Natural Diversity Database (CNDDDB; CDFG 2007) has a 2001 arroyo toad observation north of the intersection of Highway 79 and Riverside Drive less than 1 km northeast of the site. As a result, the arroyo toad is assumed present at this site despite the negative protocol surveys. Because the El Capitan Reservoir was closed at nighttime, arroyo toad surveys at the San Diego River site were not conducted to protocol, and the arroyo toad is assumed present. Surveys at the San Diego River were completed by listening for calls from El Monte Road.

Protocol surveys at the Pine Valley Creek site were negative although the CNDDDB has 1991 records from within 1 km of the site. The habitat at the survey area was marginally suitable, with an open willow canopy and sandy substrate; however, the site is disturbed by ongoing cow grazing. Grassy groundcover is high in this area, and crayfish, a very effective predator on arroyo toad eggs, tadpoles, and metamorphs, were noted during each site visit. Based on the age of the arroyo toad observations along Pine Valley Creek, the high level of disturbance, and the negative 2007 protocol surveys, this site is not considered occupied by the arroyo toad.

Construction of the I-8 Alternative would result in permanent impacts to 0.2 acres of breeding habitat, permanent impacts to 28.1 acres of upland burrowing habitat, and temporary impacts to 13.0 acres of upland burrowing habitat, the majority of which would occur on the CNF. Temporary impacts to burrowing habitat would be mitigated by restoration of 13.0 acres of arroyo toad habitat within the alignment and off-site acquisition and preservation of 13.0 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 0.6 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 56.2 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the four locations where toads were assumed to be present along this alternative.

Interstate 8: West Buckman Springs Option

The Interstate 8: West Buckman Springs Option would cross USDA Forest Service modeled arroyo toad habitat at two sites: Cottonwood Creek near the Boulder Oaks campground and an unnamed tributary drainage near the intersection of Buckman Springs Road and Bear Valley Road (Figure 2). At the time of the habitat assessment, only the Cottonwood Creek site supported suitable arroyo toad habitat and was surveyed.

The arroyo toad was observed and heard calling along Cottonwood Creek during protocol surveys in 2007 (Figure 2). Additionally, USDA Forest Service data show numerous arroyo toad observations both upstream and downstream of where the option would cross the creek. The Interstate 8: West Buckman Springs Option would impact occupied arroyo toad habitat as a result of tower construction and a permanent access road that would cross Cottonwood Creek.

Construction of the I-8: West Buckman Springs Option would result in permanent impacts to 0.1 acres of breeding habitat, permanent impacts to 4.2 acres of upland burrowing habitat, and temporary impacts to 4.4 acres of upland burrowing habitat, which would occur on the CNF. Permanent impacts to breeding habitat would occur as a result of an access road being constructed across Cottonwood Creek.

Temporary impacts to burrowing habitat would be mitigated by restoration of 4.4 acres of arroyo toad habitat within the alignment and off-site acquisition and preservation of 4.4 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 0.3 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 8.4 acres of occupied arroyo toad habitat.

Interstate 8: Buckman Springs Underground Option

USDA Forest Service modeled occurs along Kitchen Creek, including where the I-8: Buckman Springs Underground Option crosses Kitchen Creek (Figure 2). This option would cross Kitchen Creek approximately 1,000 feet downstream of where the I-8 Alternative would cross it. As discussed in Section 3.2.22, conditions were dry at the time of the arroyo toad habitat assessment. Because suitable habitat was present, arroyo toads were found in the same drainage nearby, and conditions were dry during the survey period, arroyo toad presence was assumed for the this site

This underground alternative would temporarily clear an 80-foot-wide right of way for the installation of the underground line. A 14-foot-wide permanent access road would remain along the length of the option following construction. As a result, implementation of this alternative would result in temporary and permanent impacts to arroyo toad breeding habitat along Kitchen Creek.

Construction of the I-8: Buckman Springs Underground Option would result in permanent impacts to 0.2 acres of breeding habitat, permanent impacts to 7.7 acres of upland burrowing habitat, and temporary impacts to 2.8 acres of upland burrowing habitat, the majority of which occurs on the CNF. Temporary impacts to upland burrowing habitat would be mitigated by restoration of 2.8 acres of arroyo toad habitat within the alignment and off-site acquisition and preservation of 2.8 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 0.6 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 15.4 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the location where toads were assumed to be present along this option.

Interstate 8: South Buckman Springs Option

USDA Forest Service modeled arroyo toad habitat occurs along much of the western portion of Interstate 8: South Buckman Springs Option (Figure 2). Protocol surveys were not conducted for this option because it was proposed after the arroyo toad survey season was complete.

An arroyo toad was observed near the confluence of La Posta Creek and Cottonwood Creek during protocol surveys in 2007 (Figure 2). An arroyo toad observation was recorded by the USDA Forest Service within this option along La Posta Creek near the Narrows, and numerous USDA Forest Service observations have been made near the confluence of La Posta and

Cottonwood Creeks, approximately 1,000 feet west of this option. Arroyo toads are assumed to be present along La Posta Creek because suitable habitat is present, toads are known to occur in the vicinity, and protocol surveys could not be conducted.

Construction of the I-8: South Buckman Springs Underground Option would result in permanent impacts to 0.7 acres of breeding habitat and temporary impacts to 0.4 acre of breeding habitat, as well as permanent impacts to 9.4 acres of upland burrowing habitat and temporary impacts to 2.7 acres of upland burrowing habitat, which would occur on the CNF. Temporary impacts to breeding habitat would be mitigated by restoration of 0.4 acres of arroyo toad habitat on site and off-site acquisition and preservation of 0.8 acres of occupied arroyo toad breeding habitat. Temporary impacts to upland burrowing habitat would be mitigated by restoration of 2.7 acres of arroyo toad habitat on site and off-site acquisition and preservation of 2.7 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 2.1 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 18.8 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the location where toads were assumed to be present along this option.

BCD Alternative

The BCD Alternative would cross six drainages and creeks supporting riparian vegetation within the CNF. La Posta Creek, Long Canyon, Kitchen Creek, and Horse Canyon contain USDA Forest Service modeled arroyo toad habitat, while Antone and Fred Canyons contain substantial riparian habitat, but were not identified by the habitat model. All of these drainages and creeks were dry at the time of the 2007 arroyo toad habitat assessments, so no protocol surveys were conducted along the BCD Alternative. Although they were dry, La Posta Creek and Horse Canyon contain otherwise suitable arroyo toad habitat, so these drainages are assumed to be occupied by arroyo toads (Figure 2).

Antone, Fred, and Long Canyons contain first- and second-order streams that do not contain water for long enough to support arroyo toads. At the point where Kitchen Creek crosses the BCD Alignment, it contains largely clay soils and lacks sandy or gravelly benches. Moreover water flows through Kitchen Creek at this point are likely too fast for arroyo toads. Although arroyo toads have been reported along Kitchen Creek, approximately 0.7 mile south of Cibbets Flat Campground, no recorded observations have been made within one kilometer of the BCD Alternative. As a result, the arroyo toad is considered absent from Long Canyon, Kitchen Creek, Antone Canyon, and Fred Canyon (Figure 2).

Construction of the BCD Alternative would result in permanent impacts to 11.0 acres of upland burrowing habitat and temporary impacts to 5.8 acres of upland burrowing habitat, the majority of which occurs on the CNF. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 22.0 acres of occupied arroyo toad habitat. Temporary impacts to upland burrowing habitat would be mitigated by on-site restoration of 5.8 acres of arroyo toad habitat and off-site acquisition and preservation of 5.8 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the two locations where toads were assumed to be present along this alternative.

BCD Alternative: South Option

The BCD Alternative: South Option would cross USDA Forest Service modeled arroyo toad habitat in three locations: (1) at the northern end of the alignment upslope of La Posta Creek; (2) along an unnamed tributary to La Posta Creek just east of Thing Valley Road; and (3) at La Posta Creek just north of Interstate 8.

Although La Posta Creek would not be crossed at the northern end of the alignment, habitat in the creek at this location is suitable to support arroyo toads. Due to lack of water during the survey period, protocol surveys were not conducted during 2007. As a result, the arroyo toad is assumed present at this site. The unnamed tributary drainage east of Thing Valley Road is a low-order stream that does not contain water long enough to support arroyo toads. The BCD Alternative: South Option crosses La Posta Creek just north of Interstate 8 is on a private inholding within the CNF. To avoid trespassing, this site could only be surveyed by listening for calls from La Posta Truck Trail. Because surveys were not conducted to protocol, presence is assumed for this creek. Thus impacts to occupied arroyo toad habitat would occur in two locations: at the northern end of the alignment upslope of La Posta Creek and at La Posta creek just north of Interstate 8

Construction of the BCD Alternative: South Option would result in permanent impacts to 0.2 acres of breeding habitat and temporary impacts to 0.7 acre of breeding habitat, as well as permanent impacts to 7.4 acres of upland burrowing habitat and temporary impacts to 7.0 acres of upland burrowing habitat, which would occur on the CNF. Temporary impacts to breeding habitat would be mitigated by on-site restoration of 0.7 acres of arroyo toad habitat and off-site acquisition and preservation of 1.4 acres of occupied arroyo toad breeding habitat. Temporary impacts to upland burrowing habitat would be mitigated by on-site restoration of 7.0 acres of arroyo toad habitat and off-site acquisition and preservation of 7.0 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 0.6 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 14.8 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the two locations where toads were assumed to be present along this option.

Route D Alternative

The Route D Alternative would cross USDA Forest Service modeled arroyo toad habitat in several locations, including King Creek, Conejos Creek, Boulder Creek, Kelly Creek, Cedar Creek, and the San Diego River (Figure 2). Based on the arroyo toad habitat assessments along the Route D Alternative, potentially suitable breeding habitat was present along King Creek, Conejos Creek (including two tributary drainages), Boulder Creek, Cedar Creek, and the San Diego River. Additionally, suitable habitat may occur where the alternative would cross Ritchie Creek, but this could not be determined because the area is on private property. Focused surveys were conducted in all locations with suitable habitat. The survey at the Ritchie Creek site consisted of listening for toads from Eagle Peak Road because the crossing is on private property.

An arroyo toad was observed on the San Diego River on May 8, 2007. Focused arroyo toad surveys were negative for King Creek, Conejos Creek, Boulder Creek, Cedar Creek, and

Ritchie Creek. Because the Ritchie Creek site is approximately 1 kilometer from the occupied San Diego River site, arroyo toads are assumed to occupy this creek based on the USFWS (1999) survey protocol (Figure 2).

Route D Alternative construction would not impact occupied breeding habitat along the San Diego River, but would impact upland burrowing habitat. Construction would impact breeding habitat assumed to be occupied by the toad in Ritchie Creek.

Construction of the Route D Alternative would result in permanent impacts to less than 0.1 acres of breeding habitat, permanent impacts to 12.6 acres of upland burrowing habitat, and temporary impacts to 5.9 acres of upland burrowing habitat, the majority of which occurs on the CNF. Temporary impacts to upland burrowing habitat would be mitigated by on-site restoration of 5.9 acres of arroyo toad habitat and off-site acquisition and preservation of 5.9 acres of occupied arroyo toad habitat. Permanent impacts to breeding habitat would be mitigated off-site at a 3:1 ratio for a total of 0.1 acres. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 25.2 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the location where toads were assumed to be present along this alternative.

Modified Route D Alternative

The Modified Route D Alternative would cross USDA Forest Service modeled arroyo toad habitat in at 3 locations within the CNF: the Sweetwater River, Peterson Canyon, Taylor Creek. Additionally, the Modified Route D Alternative would cross an unnamed tributary to Taylor Creek within the CNF, as well as Long Potrero Creek, Cottonwood Creek, Wilson Creek, and a second unnamed tributary to Taylor Creek just outside the CNF (Figure 2).

At the time of the arroyo toad habitat assessment, only the Sweetwater River site (approximately 1 mile south of I-8) supported suitable arroyo toad breeding habitat. Drainage crossings at Long Potrero Creek, Cottonwood Creek, Wilson Creek, Taylor Creek, the unnamed tributaries to Taylor Creek, and Peterson Canyon were either dry at the time of the habitat assessment or were dominated by coast live oak. As a result protocol surveys were only conducted on the Cottonwood Creek and Sweetwater River sites.

No arroyo toads were observed during 2007 focused surveys. Arroyo toads have been recorded in Long Potrero Creek in 1993 (CDFG 2007). This creek crossing was not surveyed in 2007 because it was dry at the time of the arroyo toad habitat assessment. Although the location where the Modified Route D Alternative crosses Long Potrero Creek is located outside of the CNF, all habitat within 1 km of the observation is considered occupied, including areas within the CNF (Figure 2).

Construction of the Modified Route D Alternative would result in permanent impacts to 1.5 acres of upland burrowing habitat and temporary impacts to 19.0 acres of upland burrowing habitat, the majority of which occurs on the CNF. Temporary impacts to upland burrowing habitat would be mitigated by on-site restoration of 19.0 acres of arroyo toad habitat and off-site acquisition and preservation of 19.0 acres of occupied arroyo toad habitat. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 3.0 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if

conclusive pre-construction surveys for the species determine it to be absent from the location where toads were assumed to be present along this option.

Modified Route D Alternative: Star Valley Option

The Modified Route D Alternative: Star Valley Option would cross the Sweetwater River, which supports USDA Forest Service modeled arroyo toad habitat (Figure 2). This Option was designed after the end of the 2007 arroyo toad breeding season so no protocol surveys were conducted. Suitable habitat occurs at the Sweetwater River location for the Modified Route D Alternative approximately 1 mile upstream. Because suitable habitat likely occurs but protocol surveys were not conducted, the Sweetwater River site is assumed occupied by arroyo toads.

Construction of the Modified Route D Alternative: Star Valley Option would result in permanent impacts to 3.6 acres of upland burrowing habitat and temporary impacts to 1.4 acres of upland burrowing habitat, which would occur on the CNF. Temporary impacts to upland burrowing habitat would be mitigated by on-site restoration of 1.4 acres of arroyo toad habitat and off-site acquisition and preservation of 1.4 acres of occupied arroyo toad habitat. Permanent impacts to upland habitat would be mitigated at a 2:1 ratio through acquisition and preservation of 7.2 acres of occupied arroyo toad habitat. The mitigation listed above may be reduced if conclusive pre-construction surveys for the species determine it to be absent from the location where toads were assumed to be present along this option.

3.3 Song Sparrow

The song sparrow was selected as an MIS for riparian areas because its abundance is indicative of management and reflects the overall health of riparian communities (USDA 2005). Because over 90% of song sparrows observed are made in riparian habitats (Big Sur Ornithology Lab 2000), its population trends are considered indicative of changes in riparian habitat. Breeding survey data collected between 1966 and 2004 suggest that song sparrow numbers are decreasing (Sauer et al. 2005). Threats to song sparrows include habitat loss, water extraction, brood parasitism by brown-headed cowbirds (*Molothrus ater*), and predation by native and introduced wildlife.

3.3.1 Natural History

The song sparrow is the most common bird within the riparian woodlands of San Diego County (Unitt 2004). It is often found in riparian habitat with a dense understory, although it has adapted somewhat to urbanization and has been found in upland scrub habitats or landscaped areas provided permanent water is present.

3.3.2 Potential Project Impacts

All project alternatives within the CNF would cross drainages supporting riparian habitat. Based on this species' abundance in riparian areas, all riparian habitat within the CNF is considered occupied for the purpose of this assessment. Because, the towers are generally constructed on ridgelines and hillsides rather than in canyons and streambeds, impacts to song sparrow habitat would be limited. Access road construction would cross a number of riparian areas throughout the CNF.

Permanent impacts would occur from construction of towers and access roads. Temporary impacts would occur from clearing required for staging areas, pull sites, and helicopter pads, as well as necessary clearing around the tower footings. All temporary impact areas would be revegetated following construction.

In addition to direct impacts, construction activities, such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways could increase dust that may settle on surrounding vegetation. Such dust would be considered an indirect impact that would degrade the quality of song sparrow habitat. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

Construction noise could cause a temporary, indirect impact to song sparrows, some of which may be displaced from the vicinity of the construction areas. Birds would be expected to return to the area following construction.

Interstate 8 Alternative

Construction of the I-8: Alternative would result in temporary impacts to 7.2 acres and permanent impacts to 0.6 acres of song sparrow habitat (southern willow scrub, mule fat scrub, southern coast live oak riparian forest, southern cottonwood-willow riparian forest, southern riparian forest, and riparian woodland), which occur within and outside of the CNF. Impacts would be mitigated through on-site restoration of 7.2 acres of riparian habitat and off-site acquisition and preservation of 9.0 acres of riparian habitat. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

Interstate 8: West Buckman Springs Option

Construction of the I-8: West Buckman Springs Option would result in permanent impacts to 0.1 acres of song sparrow habitat (riparian woodland) on the CNF. Impacts would be mitigated through off-site acquisition and preservation of 0.3 acres of riparian woodland within the CNF.

Interstate 8: Buckman Springs Underground Option

Construction of the I-8: Buckman Springs Underground Option would result in permanent impacts to 0.2 acres of song sparrow habitat (southern cottonwood-willow riparian forest) on the CNF. Impacts would be mitigated through off-site acquisition and preservation of 0.6 acres of southern cottonwood-willow riparian forest within the CNF.

Interstate 8: South Buckman Springs Option

Construction of the I-8: South Buckman Springs Option would result in temporary impacts to 0.4 acres and permanent impacts to 0.9 acres of song sparrow habitat (emergent wetland, southern willow scrub, and southern cottonwood-willow riparian forest). The majority of the riparian impacts would occur on the CNF. Impacts would be mitigated through on-site restoration of 0.4 acres of riparian habitat and off-site acquisition and preservation of 2.6 acres of riparian habitat. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

BCD Alternative

Construction of the BCD Alternative would not result in temporary or permanent impacts to riparian habitat and no mitigation is required.

BCD Alternative: South Option

Construction of the BCD Alternative: South Option would result in temporary impacts to 0.7 acres and permanent impacts to 0.2 acres of song sparrow habitat (southern cottonwood-willow riparian forest). The majority of the impacts would occur on private land adjacent to the CNF. Impacts would be mitigated through on-site restoration of 0.7 acres of riparian habitat and off-site acquisition and preservation of 1.3 acres of southern cottonwood-willow riparian forest. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

Route D Alternative

Construction of the Route D Alternative would result in permanent impacts to 2.0 acres of song sparrow habitat (southern willow scrub, riparian woodland [including burned], southern coast live oak riparian forest [including burned], and southern riparian forest), which occur within and outside of the CNF. Impacts would be mitigated through off-site acquisition and preservation of 6.0 acres of riparian habitat. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

Modified Route D Alternative

Construction of the Modified Route D Alternative would result in temporary impacts to 0.2 acres and permanent impacts to 0.2 acres of song sparrow habitat (southern coast live oak riparian forest, southern cottonwood-willow riparian forest, and southern riparian forest), which occur within and outside of the CNF. Impacts would be mitigated through on-site restoration of 0.2 acres of riparian habitat and off-site acquisition and preservation of 0.8 acres of riparian habitat. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

Modified Route D Alternative: Star Valley Option

Construction of the Modified Route D Alternative: Star Valley Option would result in permanent impacts to 0.1 acres of song sparrow habitat (southern coast live oak riparian forest), which would occur on private land. Impacts would be mitigated through off-site acquisition and preservation of 0.3 acres of southern coast live oak riparian forest.

CNF Existing 69 kV Route Alternative

Construction of the CNF Existing 69 kV Alternative would result in permanent impacts to less than 0.1 acres of song sparrow habitat (freshwater marsh, emergent wetland, and southern willow scrub). The majority of the impacts would occur on private land adjacent to the CNF. Impacts would be mitigated through off-site acquisition and preservation of 0.1 acres of riparian habitat. Impacts to riparian habitat on CNF lands would be mitigated within the CNF at the appropriate mitigation ratios.

3.4 California Spotted Owl

The California spotted owl was chosen as the MIS for mature, large diameter, high canopy closure conditions of montane conifer forest. The management goals for this species include maintaining and improving habitat conditions to sustain healthy populations, and to prevent federal listing (USDA 2005). To meet this goal it is necessary to preserve primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors, and landscape linkages. Trends in the number of occupied territories and/or habitat condition will be measured to assess management success. The USDA Forest Service does not have sufficient data to quantify impacts and trends in habitat types utilized by spotted owls in southern California. However, the current drought, beginning in 1999, has resulted in drastically increased woody plant mortality in the CNF (USDA 2007).

3.4.1 Natural History

California spotted owls occur in all the major mountain ranges in southern California from below 1,000 feet along the Monterey coast to approximately 8,500 feet in the San Bernardino Mountains (USDA 2007). It occurs in forests and canyons throughout the western United States. In southern California, spotted owls occur within four general but distinct forest types: riparian/hardwood forest, live oak/bigcone Douglas-fir forest, mixed conifer forest, and redwood/California laurel forest (USDA 2005).

The spotted owl occurs in old growth forests with a complex, multi-layer structure and a closed canopy, often with an understory of oaks and other hardwoods, and a conifer overstory. In San Diego County, it occurs year-round in woodlands characterized by a mix of coast live oaks and conifers, particularly in areas with a closed canopy, permanent water, and ample tree cavities, abandoned raptor nests, or debris platforms (Unitt 2004).

Within the CNF, the California spotted owl is known from numerous observations in the Laguna Mountains, from USDA Forest Service records near Long and Antone Canyons, and from a nest sighting near Espinosa Creek and Corte Madera Mountain.

3.4.2 Potential Project Impacts

Suitable old-growth forest does not occur along any of the alignments; however USDA Forest Service records near Long and Antone Canyons are within 200 to 400 feet of southern coast live oak riparian forest on the BCD Alternative (Figure 2). Based on these data, and the relatively large home range of the bird (800 to 2016 acres, measured in the San Bernardino Mountains), the owl California spotted owl is assumed to occupy the southern coast live oak riparian forest where the BCD Alternative crosses Long and Antone Canyons.

Permanent impacts would occur from from clearing and thinning of vegetation necessary to reduce the fire risk from the high voltage power lines.

Construction noise could cause a temporary, indirect impact to California spotted owls outside of the project footprint, some of which may be displaced from the vicinity of the construction areas. Any displaced birds would be expected to return to the area following construction.

Fugitive dust released by such construction activities as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would be considered an indirect impact that could degrade the quality of occupied California spotted owl habitat. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

BCD Alternative

Construction of the BCD Alternative would not result in temporary or permanent impacts to the southern coast live oak riparian forest at Long and Antone Canyons. Vegetation management along this portion of the route may result in a loss of trees within these riparian areas. Mitigation for loss of trees follows that described in Section 3.1.2 above.

3.5 Mule Deer

The mule deer was selected as an MIS to determine if shrub, woodland, and forests are being managed adequately to provide the quality and quantity of habitat for species dependent on or strongly associated with large blocks of healthy, diverse habitats with low to moderate disturbance (USDA 2007). The goal of management is to ensure that a mosaic of meadow, woodland, and shrub habitats are maintained or improved. Prescribed burning helps keep a continued supply of high-quality forage in close proximity to cover areas.

3.5.1 Natural History

The mule deer is a widespread species that occurs over much of western North America, from Alaska, through western Canada and western United States, into Baja California and the southern end of the Mexican Plateau (USDA 2007).

The mule deer occurs in a wide variety of habitats, but in southern California forests it occurs in the highest densities in oak woodlands and riparian areas, scrublands, and grasslands (USDA 2007). It typically prefers ecotone habitats, where there is a mosaic of dense shrubs for cover and new shrub growth and grasses for food. Fawning typically occurs in higher elevation meadows and woodlands with trees or shrubs that provide protection for birthing does and newborns. Wintering habitat is in lower elevation meadows and woodlands, as well as open sage scrub and chaparral such as occurs in the first several years after a fire. Because fire and other forms of disturbance open up vegetation, providing new foraging options for deer, lack of fire, which results in denser vegetation, has a detrimental effect on mule deer habitat quality (USDA 2007).

3.5.2 Potential Project Impacts

Mule deer observations were noted throughout the project alternatives that cross the CNF during vegetation mapping and focused surveys in 2007. However, specific locations were not recorded on all maps. The mule deer is a wide-ranging species with broad habitat requirements, including woodland, grassland, and shrubland, so all habitat within the CNF is considered occupied for the purpose of this assessment. Thus, all project alternatives would result in impacts to mule deer habitat. Permanent impacts would occur from construction of

towers and access roads. Any required thinning of vegetation would not be expected to reduce the mule deer habitat quality because this species is often drawn to disturbed areas with new forage. Temporary impacts would occur from clearing required for staging areas, pull sites, and helicopter pads, as well as necessary clearing around the tower footings. All temporary impact areas would be revegetated following construction.

Construction noise could cause a temporary, indirect impact to mule deer outside of the project footprint, and may displace some individuals. Any displaced deer would be expected to return to the area following construction.

Fugitive dust released by such construction activities as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would be considered an indirect impact that could degrade the quality of occupied mule deer habitat. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

For all alternatives and options that occur on the CNF, temporary and permanent impacts to mule deer habitat would be mitigated as part of the habitat mitigation described in the EIR/EIS. Temporary impacts would be mitigated at a 1:1 to 3:1 ratio, depending on the specific habitat impacted. Mitigation for temporary impacts include 1:1 ratio of on-site restoration. Permanent impacts to habitat would be mitigated off-site through acquisition and preservation of lands at a 1:1 to 3:1 ratio, depending on the specific habitat impacted.

3.6 Mountain Lion

The mountain lion was selected as an MIS to evaluate management of habitat fragmentation and maintenance of habitat linkages (USDA 2005). The biggest threat to mountain lions in southern California is habitat fragmentation and isolation by urban and agricultural development, as well as construction of freeways and highways (USDA 2007). The management goal for mountain lions is to maintain functional landscape linkages and populations well distributed through National Forests.

3.6.1 Natural History

The mountain lion is a wide-ranging species occurring throughout much of the western hemisphere, from western Canada and the western United States, south through Mexico, Central America, and nearly all of South America east of Andes. It occurs in a wide variety of habitats, including deserts, woodlands, grasslands, and scrublands, especially in areas that support mule deer, it's primary prey item.

As a top predator, mountain lions occur in low densities with very large home ranges averaging nearly 23,000 acres for females and 90,000 acres for males (USDA 2007). As a result, mountain lion habitat quality is dependent on large areas of contiguous habitat. Fragmentation can reduce the carrying capacity for prey species, which, in turn, reduces the carrying capacity for mountain lions. Habitat linkages are important for mountain lions because they connect otherwise isolated habitat patches, allowing mountain lions to move between different sections of their home ranges.

3.6.2 Potential Project Impacts

Mountain lion sign was recorded in two locations within the CNF during vegetation mapping and focused surveys for the project alternatives in 2007, both of which were just southwest of Cedar Creek within the Route D Alternative right-of-way (Figure 2). However, because this species has very large home ranges and can occur in a wide variety of habitats, the entire CNF is assumed occupied for the purpose of this assessment. As a result, all alternatives within the CNF would impact mountain lion habitat. Direct, permanent impacts would result from tower and access road installation along all the alternatives. Vegetation removal and thinning may be required to reduce fire fuel load in the vicinity of the high voltage wires. However, such thinning may attract mule deer, the mountain lion's primary prey, so it would not substantially reduce mountain lion habitat quality. Temporary impacts would occur from clearing required for staging areas, pull sites, and helicopter pads, as well as necessary clearing around the tower footings. All temporary impact areas would be revegetated following construction.

Construction noise could cause a temporary, indirect impact to mountain lions outside of the project footprint, and may displace some individuals. However, given the very large home range of this species, any displaced individuals would be expected to move to other suitable areas of their home ranges during construction.

Fugitive dust released by such construction activities as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would be considered an indirect impact that could degrade the quality of occupied mountain lion habitat. To offset these indirect impacts during construction, all cleared areas would be regularly watered to reduce fugitive dust. Additionally, a 15 mile-per-hour speed limit shall be observed on dirt access roads to reduce dust.

For all alternatives and options that occur on the CNF, temporary and permanent impacts to mule deer habitat would be mitigated as part of the habitat mitigation described in the EIR/EIS. Temporary impacts would be mitigated at a 1:1 to 3:1 ratio, depending on the specific habitat impacted. Mitigation for temporary impacts include 1:1 ratio of on-site restoration. Permanent impacts to habitat would be mitigated off-site through acquisition and preservation of lands at a 1:1 to 3:1 ratio, depending on the specific habitat impacted.

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