

Bright Star Canyon Wind Project – Biological Resources Critical Issues Analysis

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1. Purpose of Critical Issues Analysis

Based on a request from the City of Vernon (City), CH2M has prepared this Biological Resources Critical Issues Analysis (CIA) for 8,756 acres of City-controlled property in Kern County. The principal objective of this CIA is to review and summarize potential environmental siting issues and constraints as well as identify potential permit requirements should the City choose to proceed with a wind project on the City-controlled property.

2. Background

In October 2008, the City took control of approximately 54,000 acres of land in fee title, purchase options, and easements in Kelso Valley, Kern County. In March 2010, the City sold approximately 12,500 acres of fee title land for development of the North Sky River Wind Energy Project. Of the remaining land, the City retained 28,000 acres, of which approximately 8,756 acres were previously proposed for development as part of the Bright Star Canyon Wind Project (BSCWP).

The project site is located in a remote area of the County known as the Tehachapi Wind Resource Area (TWRA). The TWRA is recognized as a major resource area for wind energy development. Specifically, the project site is located in southeastern Kern County, California approximately 20 miles north of the town of Mojave and 13 miles west of State Route (SR) 14 (Figure 1). Access to the property is off SR-14 via Jawbone Canyon Road, a County-maintained road that extends through the Jawbone Off-Highway Vehicle (OHV) Open Area administered by the U. S. Bureau of Land Management (BLM). Jawbone Canyon Road also serves the existing Los Angeles Department of Water and Power (LADWP) Pine Tree Wind Energy Generating Facility (PTWEGF) and the North Sky River Wind Energy Center (NSRWEC).

The project area is located at the base of the Tehachapi and Piute mountain ranges within the Sierra Nevada, directly west of the Fremont Valley in the western Mojave Desert. Elevations within the project area range between 3,500 and 6,500 feet above mean sea level and include several prominent north-south trending ridgelines. The area is rugged and dominated by a variety of vegetation types, the distribution of which, is highly dependent on elevation and aspect, including riparian wetland, blue oak woodland, mixed conifer woodland, California juniper woodland, singleleaf pinyon pine woodland, grey pine woodland, mixed oak woodland, Mojave mixed woody scrub, non-native grassland, and Wright's buckwheat scrub.

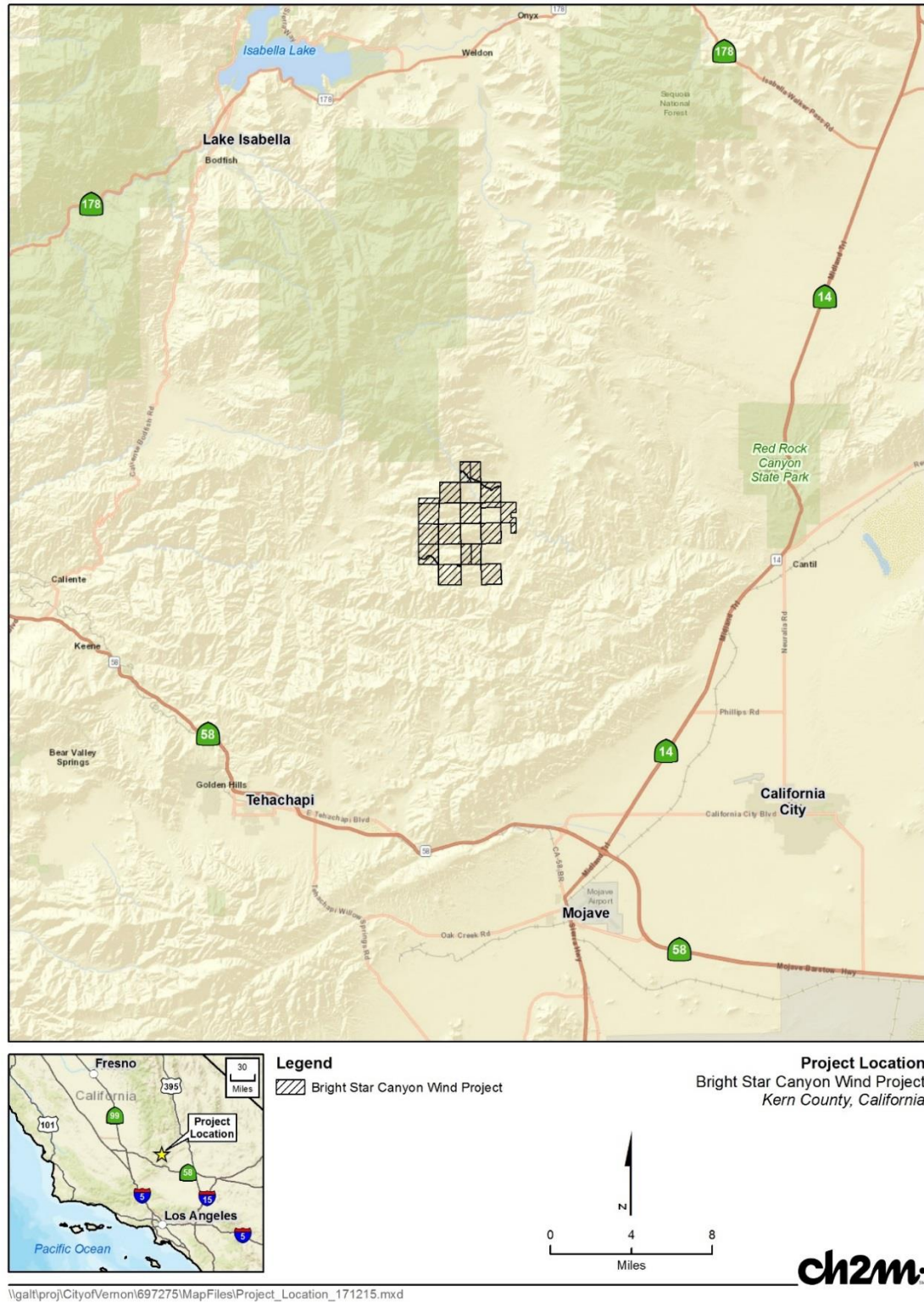


Figure 1. Location of the Bright Star Canyon Wind Project, Kern County, CA

3. Previously-Proposed Project

The City previously proposed to develop the BSCWP on approximately 8,756 acres of City-controlled land under Kern County permitting jurisdiction. Of this, approximately 500 acres were assumed to be temporarily disturbed and approximately 88 acres of permanent disturbance was anticipated. The maximum overall net generating capacity was anticipated to be up to 175 megawatts (MW) using up to 76 wind turbine generators (WTGs). However, micro-siting and wind resource studies suggested that the BSCWP may be able to generate up to 249 MW using up to 108 WTGs. The project also included internal collector lines, access roads, construction staging areas, temporary concrete batch plant, a collector substation, and other ancillary support facilities.

The previously-proposed project would have installed project components within specific environmental survey and construction corridors. Siting of WTGs and other project components would be employed up to the time of construction. As such, these corridors included a buffer area around project components to allow flexibility for siting to accommodate site constraints (biological, topographical, and/or engineering) discovered in the field or to capture wind resources. Turbine spacing would be in accordance with industry standards for the particular type of WTG, Kern County required setbacks, and environmental considerations.

The lifetime of the previously-proposed project was anticipated to be 30 years, but upgrading and replacing equipment could extend the operating life indefinitely, assuming demand exists for the electricity generated by the project beyond that time. Therefore, the estimated project life depends primarily on the demand for power, which is expected to increase in the foreseeable future.

4. Environmental Setting

The project is located at the boundary of the Mojave Basin and Range and the Southern California Mountains ecoregions and includes a diversity of topography, ranging from high desert floor in the eastern area to the foothills of the Piute Mountains and the southern Sierra Nevada in the west and north (Miles and Goudey, 1998). The Tehachapi Mountains form a connecting highland link from the core of the Sierra Nevada ecoregion to the Transverse and Coast Ranges. Although rugged topography and geology of the Tehachapi Mountains ecoregion have similarities to the southern Sierra Nevada, the diverse vegetation of this region reflects its biogeographic crossroads position and the influences from the Sierra, desert, oak woodlands, and grasslands that surround it (Griffith et al., 2016). At lower to mid elevations, the vegetation includes Sierra juniper (*Juniperus occidentalis*), creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Joshua tree (*Yucca brevifolia*), and other yuccas (*Yucca spp.*), and blackbrush (*Coleogyne ramosissima*); while at higher elevations, sagebrush (*Artemisia tridentata*), juniper, and Jeffrey (*Pinus jeffreyi*) and pinyon pines (*Pinus monophylla*) prevail. Steep canyons and slopes contain canyon live oak (*Quercus chrysolepis*) and interior live oak (*Quercus wislizeni*), as well as chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus spp.*), and pinyon pine. The terrain of the Project site varies between gently sloping grasslands and valleys to steep ridges, hills, and drainages in the foothills and mountains.

5. Regulatory Setting

5.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) is our basic national charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.

The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

5.2 Federal Endangered Species Act of 1973 (16 U.S. Code [USC] 1531-1544, 87 Stat. 884), as amended

The federal Endangered Species Act (ESA) provides for the conservation of listed Threatened and Endangered species of fish, wildlife, and plants, and the ecosystems they inhabit. The ESA authorizes the Secretary of the Interior to make determinations, including listing of species as threatened and endangered and designating Critical Habitat for listed species. Under Section 9 of the ESA, take of listed species is prohibited. 'Take' is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 'Harm' prevents modification of Threatened and Endangered (T&E) wildlife species habitat, and is defined as "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or shelter." This would include adverse impacts to designated Critical Habitat. Take may be authorized under Sections 7 and 10 of the ESA, whereby applicants for projects may obtain either a Biological Opinion from the U. S. Fish and Wildlife Service (USFWS) that authorizes the project during agency-to-agency consultations (Section 7), or an Incidental Take Authorization (Section 10) that may be issued directly from the USFWS to the project applicant. A Habitat Conservation Plan (HCP) is typically required as part of the Section 10 Incidental Take Authorization process. The purpose of the HCP and permit is to allow the project or action to proceed through identifying potential adverse effects that could cause take, and avoiding, minimizing, and/or mitigating for that take to the maximum extent practicable.

5.3 Migratory Bird Treaty Act (MBTA; 16 USC 703–711)

The federal Migratory Bird Treaty Act (MBTA) makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird, including feathers, parts, nests, or eggs, except in accordance with the regulations prescribed by the Secretary of Interior. The MBTA protects all common wild birds found in the United States except the house sparrow, starling, feral pigeon, and resident game birds, such as pheasant, grouse, quail, and wild turkey. The MBTA does not include provisions for allowing unauthorized take.

5.4 Bald and Golden Eagle Protection Act (16 USC 668)

The Bald and Golden Eagle Protection Act (BGEPA) specifically protects bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) or their eggs from being taken. Under the BGEPA, take is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs." 'Disturb' is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle; 2) decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." However, on September 11, 2009 (Federal Register, 50 Code of Federal Regulations [CFR] 13 and 22), the USFWS set in place rules establishing two new permit types: 1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and 2) purposeful take of eagle nests that pose a threat to human or eagle safety.

The USFWS recommends that project proponents prepare a BBCS to avoid, minimize, and mitigate project-related impacts to birds and bats and specifically golden eagles to ensure no-net-loss to the golden eagle population.

5.5 California Department of Fish and Game (CDFG; now California Department of Fish and Wildlife [CDFW]) Codes:

California Endangered Species Act - Fish and Game Code Section 2050 et seq.

Species listed under the California Endangered Species Act (CESA) cannot be taken or harmed, except under specific permit. As currently stated in the act, take is defined as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Fully Protected Species - Fish and Game Code Sections 3511, 4700, 5050, and 5515

These sections provide a provision for the protection of bird, mammal, reptile, amphibian, and fish species that are “fully protected.” Fully protected animals may not be harmed, taken, or possessed.

Nesting Birds - Fish and Game Code Section 3503

This section states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this Code or any regulation made pursuant thereto.

Raptor Protection - Fish and Game Code Section 3503.5

This section provides protection for all birds of prey, including their eggs and nests.

Migratory Bird Protection - Fish and Game Code Section 3513

This section makes it unlawful to take or possess any migratory non-game bird as designated in the MBTA.

5.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that a project’s effects on environmental resources must be analyzed and assessed using criteria determined by the lead agency. CEQA defines a rare species in a broader sense than the definitions of threatened, endangered, or California Species of Special Concern. Under this definition, the CDFW can request additional consideration of species not otherwise protected.

CEQA Significance Criteria

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency will use in determining the significance of environmental effects caused by projects or actions under its review. Most lead agencies rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based upon these guidelines, impacts to biological resources would normally be considered significant if the project:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFW or USFWS;
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or, conflicts with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

An evaluation of whether an impact to biological resources would be significant must consider both the resource itself and how that resource fits into a regional or local context. Significant impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. The evaluation of impacts considers direct impacts, indirect impacts, cumulative impacts, as well as temporary and permanent impacts.

CEQA is implemented on a project-by-project basis or on a programmatic level by the lead agency. For wind energy projects in southern California, lead agencies are typically city- or county-level planning departments for projects constructed on private lands.

6. Methods

CH2M reviewed project files and public databases (e.g., the CDFW California Natural Diversity Database [CNDDDB] Rare Find 5 database; CDFW, 2015) to determine the potential for state and federal T&E species that could occur or have been documented on the project site and 10-mile buffer. CH2M used this information to provide an understanding of biological risks associated with the Project, as well as to outline potential options the City could implement to mitigate risk.

We assessed the potential for occurrence of the T&E wildlife species according to the following criteria:

Documented: This species has previously been recorded on the project site;

Likely: This species has been recently recorded in the project vicinity and habitat conditions on the project site are appropriate for the species; and

Possible: The species' distribution includes the project vicinity.

7. Results

7.1 Land Use, Cover, and Habitat

Existing wind energy facilities in the area include the LADWP's 120-megawatt PTWEGF (located immediately south-southeast of the study area), the 77-MW Sky River Wind Energy Facility (located approximately 2 miles to the southeast), and the 339-MW NSRWEC (located immediately east of BSCWP).

The project area has been heavily impacted by authorized and unauthorized OHV use and livestock grazing. Existing development in the area includes rural residences and access roads, producing and nonproducing water wells, cattle ranching and maintenance facilities, existing meteorological towers, NextEra's NSRWEC, LADWP's PTWEGF, and the Sky River Wind Energy Facility. Water sources in the area include Cottonwood Creek and Butterbrecht Springs. A portion of the Pacific Crest National Scenic Trail runs adjacent to the proposed WTG corridors on the western and northern borders of the BSCWP. Approximately 65 residences are located within 2 miles of BSCWP. These residences include seasonal hunting cabins, a few part- and full-time residences northwest and within the Kelso Valley, and some scattered to the west of the project. Major transportation corridors in the region include SR-14

(north-south) and SR-58 (east-west), which intersect about 20 miles south of the project area in Mojave. Population centers within 20 miles of the project site include Tehachapi and Mojave.

Table 1. Land Cover Types Present within the Project

Land Use/Cover	Study Area Acres	% Total
Riparian Wetland	4.49	0.05%
California Juniper Woodland	7.01	0.08%
Non-native Grassland	109.47	1.25%
Mojave Mixed Woody Scrub	115.99	1.32%
Wright's Buckwheat Scrub	381.82	4.36%
Mixed Oak Woodland	514.72	5.88%
Blue Oak Woodland	671.55	7.67%
Grey Pine	995.01	11.36%
Singleleaf Pinyon Woodland	1,511.28	17.31%
Mixed Conifer Woodland	4,440.30	50.71%
Total	8,756.00	100.00%

Data: USGS NLCD 2006

7.2 Vegetation Communities

There are seven primary terrestrial plant community types in the study area including mixed-conifer woodland, singleleaf pinyon pine, grey pine, blue oak woodland, mixed oak woodland, Wright's buckwheat scrub, and Mojave mixed woody scrub (Figure 2). Descriptions of these communities are provided in the following paragraphs.

Mixed Conifer Woodland

Mixed-conifer woodlands occur primarily in the highest elevations of the study area. This community is dominated by a multi-canopy suite of conifers including gray pine (*Pinus sabiniana*), Ponderosa pine (*Pinus ponderosa*), and white fir (*Abies concolor*). Other species that may be present include interior live oak (*Quercus wislizenii*), California juniper, and singleleaf pinyon in the tree layer and scrub oak (*Quercus berberidifolia*), creeping snowberry (*Symphoricarpos mollis*) and manzanita (*Manzanita sp.*) in the shrub layer. The herbaceous layer is typically sparse and may contain scattered patches of grasses such as Idaho fescue (*Festuca idahoensis*) and Sandberg's bluegrass (*Poa secunda*).

Singleleaf Pinyon Woodland

Large stands of singleleaf pinyon woodland dominate the higher elevations in southern portions of the study area. The canopy in this community is dominated by the singleleaf pinyon, although other trees such as California Juniper and canyon live oak (*Quercus chrysolepis*) occur frequently at lower cover. The shrub layer is generally sparse, and may include Tucker oak (*Quercus john-tuckeri*), narrowleaf goldenbush (*Ericameria linearifolia*), Mormon tea (*Ephedra sp.*) and chaparral yucca (*Hesperoyucca whipplei*). The herbaceous layer is generally sparse and dominated by non-native annual grasses, but many species of native forbs also may occur.

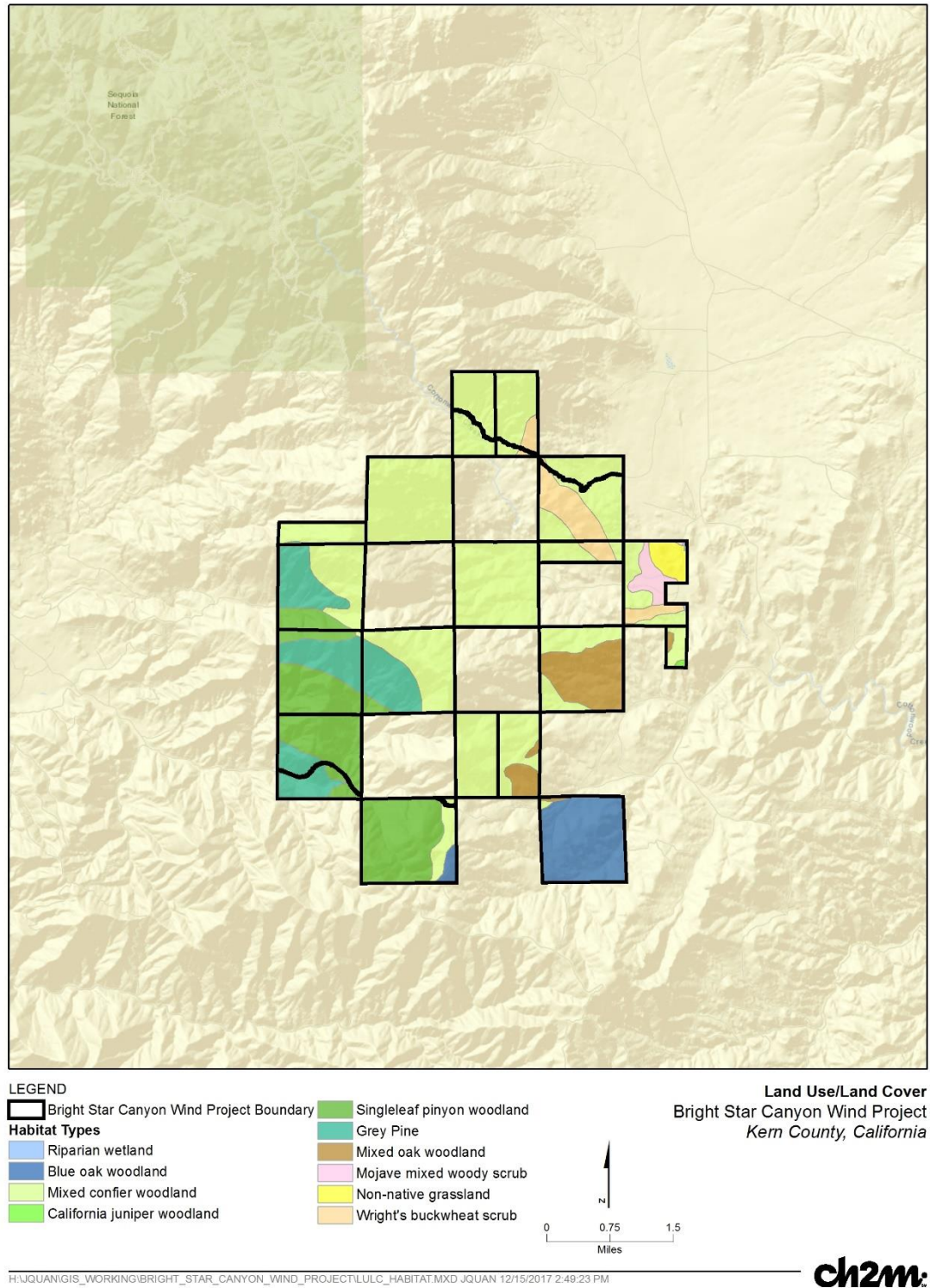


Figure 2. Land Cover Found in the Bright Star Canyon Wind Project, Kern County, CA

Grey Pine

This habitat is typically diverse in structure both vertically and horizontally, with a mix of hardwoods, conifers, and shrubs. The shrub component is typically composed of several species that tend to be clumped, with interspersed patches of Annual Grassland. Woodlands of this type generally have small accumulations of dead and downed woody material and relatively few snags, compared with other tree habitats in California. Most existing stands of this type are in mature stages, with canopy cover ranging from 10 to 59 percent. Shrub species include *Ceanothus* spp., several manzanita species (*Arctostaphylos* spp.), California coffeeberry (*Frangula californica*), poison-oak (*Toxicodendron diversilobum*), silver lupine (*Lupinus albifrons*), and California redbud (*Cercis occidentalis*).

Blue Oak Woodland

Blue oak woodland occurs in the central and southern portions of the study area at moderate elevations. It is dominated by an open canopy of blue oaks (*Quercus douglasii*), and may include other tree species such as foothill pine, California juniper, singleleaf pinyon, and canyon live oak at lower cover. In most areas within the Project, the relatively open understory is dominated by the shrub, narrowleaf goldenbush. Stands such as these have been recognized as a distinct vegetation association (Sawyer et al. 2009). Other shrubs may include east Mojave buckwheat (*Eriogonum fasciculatum*) and cup-leaf ceanothus (*Ceanothus cuneatus* var. *cuneatus*). The herbaceous layer is dominated by non-native annual grasses such as red brome (*Bromus madritensis*), Australian brome (*Bromus arenarius*), and ripgut brome (*Bromus diandrus*), but many native annuals forbs may also occur. Cattle grazing occurs seasonally in the blue oak woodlands within the study area.

Mixed Oak Woodland

This vegetation type is widespread throughout the study area, where it most often occurs on open slopes and ridges or in openings in California juniper or singleleaf pinyon woodlands. It often intergrades with non-native grasslands and Mojave mixed woody scrub. Other shrubs and subshrubs frequently occurring in stands mapped as this community include narrowleaf goldenbush, eastern Mojave buckwheat, white bursage (*Ambrosia dumosa*), and Mormon tea. California juniper and occasionally singleleaf pinyon pine may occur as emergent trees.

Wright's Buckwheat Scrub

Wright's buckwheat (*Eriogonum wrighti*) scrub most often occurs on open slopes and ridges or in openings in California juniper or singleleaf pinyon woodlands. It often intergrades with non-native grasslands and Mojave mixed woody scrub. Other shrubs and subshrubs frequently occurring in stands mapped as this community include narrowleaf goldenbush, east Mojave buckwheat, white bursage, and Mormon tea. California juniper and occasionally singleleaf pinyon pine may occur as emergent trees.

Mojave Mixed Woody Scrub

This community is present in patches in the southern and north-central portions of the study area. These nearly impenetrable areas are co-dominated by Tucker oak (*Quercus john-tuckeri*), cup-leaf ceanothus (*Ceanothus greggii*), scrub oak, and canyon live oak. The herbaceous layer is typically very sparse in this community, though a few forbs, such as buckwheats (*Eriogonum* spp.) occur. Leaf litter is usually abundant.

7.3 Wetlands and Surface Waters

The Project is located in two hydrologic Subregions, Tulare-Buena Vista Lakes, and Northern Mojave-Mono Lake (NRCS 2012). Most of the study area is contained within the Antelope-Fremont Valleys Subbasin within the Northern Mojave-Mono Lake Subregion, and the remainder is located within the Middle Kern-Upper Tehachapi-Grapevine Subbasin within the Tulare-Buena Vista Lakes Subregion. The Antelope-Fremont Valleys Subbasin is internally-drained and contains no outlets.

All of the Project streams in the Middle Kern-Upper Tehachapi-Grapevine Subbasin drain into Caliente Creek, which terminates in an alluvial cone on the floor of the San Joaquin Valley near the town of Lamont. However, during an extreme flood event, it is possible, but unlikely, that waters from Caliente Creek could enter the Kern River through historical channels and former wetlands in the Central Valley that have long since been drained.

The study area contains no wetlands, but does contain one intermittent stream (Cottonwood Creek) and numerous ephemeral features. The ephemeral streams may convey surface water only for brief periods following rain events, while some of the higher elevation streams may support surface flows in response to rainfall or during periods of snowmelt. Several springs occur in the project vicinity, but outside of the study area.

In a letter dated August 9, 2011 from Bruce Henderson, Sr. Project Manager, North Coast Branch, Regulatory Division, the Department of the Army, in response to an inquiry regarding U.S. Army Corps of Engineers (USACE) jurisdiction over the North Sky River Wind Energy Project and Jawbone Wind Energy Project (directly applicable to the BSCWP as they share waterways), Mr. Henderson states:

“Based on information you provided in your July 19, 2007 letter pertaining to the Hoffman Summit Wind Project, and applied here to the North Sky River and Jawbone wind energy projects, including maps and aerial photographs depicting the locations of project facilities and infrastructure, as well as prior knowledge of the project area and its watershed, we have determined the North Sky River Wind Energy Project and Jawbone Wind Energy Project do not contain waters of the United States pursuant to 33 C.F.R. §325.9. Therefore, these proposed projects are not subject to our jurisdiction under Section 404 of the Clean Water Act and a Department of the Army permit would not be required from our office.”

7.4 Rare Species and Communities

CH2M consulted the CNDDDB Online Environmental Review Tool, as well as Project files for studies completed for BSCWP, to determine what T&E species may occur at the Project. The CNDDDB search included a 10-mile buffer around the Project (Figure 3).

Table 2. Federally listed species, State listed species, and Candidate Species Proposed for Listing that may Occur in the Project as well as Occurrences Based on Studies Completed for the Bright Star Canyon Wind Project, Kern County, California

Common Name	Scientific Name	Status	Likelihood in Study Area
BIRDS			
California condor	<i>Gymnogyps californianus</i>	FE, SE, FP	Possible. Individuals have occurred in area surrounding Project. Expanding range.
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA, FP	Documented. Numerous individuals observed during study. Nests in the vicinity of the Project.
Swainson’s hawk	<i>Buteo swainsoni</i>	ST	Documented. Several individuals observed during study. Nests in the vicinity of the Project.
Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	FT	Possible during migration. Breeds in extensive areas of riparian habitat (along rivers and lakes). The Kern River and Lake Isabella, located approximately 15 miles north of the Project, provides the nearest nesting habitat for the western yellow-billed cuckoo.

Table 2. Federally listed species, State listed species, and Candidate Species Proposed for Listing that may Occur in the Project as well as Occurrences Based on Studies Completed for the Bright Star Canyon Wind Project, Kern County, California

Common Name	Scientific Name	Status	Likelihood in Study Area
Willow flycatcher	<i>Empidonax traillii</i>	SE	Documented during migration. Breeds in extensive areas of riparian habitat (along rivers and lakes). The Kern River and Lake Isabella, located approximately 15 miles north of the Project, provides the nearest nesting habitat for the species. See southwestern willow flycatcher below.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE	Likely during migration. Breeds in extensive areas of riparian habitat (along rivers and lakes). The Kern River and Lake Isabella, located approximately 15 miles north of the Project, provides the nearest nesting habitat for the southwestern willow flycatcher.
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE, SE	Possible during migration. Breeds in extensive areas of riparian habitat (along rivers and lakes). The Kern River and Lake Isabella, located approximately 15 miles north of the Project, provides the nearest nesting habitat for the least Bell's vireo.
REPTILES			
Desert tortoise	<i>Gopherus agassizii</i>	FT, ST	Unlikely in BSCWP. This species is known from the CNDDDB to occur within approximately 6 miles of the Project. However, the habitats present in, and elevation of BSCWP make it unlikely this species will occur in the Project. Likely in Jawbone Canyon, along the access route to the Project.
AMPHIBIANS			
Tehachapi slender salamander	<i>Batrachoseps stebbinsi</i>	ST	Possible . An individual of this species was located just outside the Project.
MAMMALS			
Mohave ground squirrel	<i>Spermophilus mohavensis</i>	ST	Documented . Potentially suitable habitat located in areas of Mohave creosote bush scrub, blackbrush scrub, and big sagebrush scrub intergraded with Joshua tree woodland where preferred food plants are present (e.g. winter fat and hop-sage).
PLANTS			
Mojave tarplant	<i>Echinomastus erectocentrus var. acunensis</i>	FE	Possible . Nearest CNDDDB occurrences found less than 1 mile south of the project area near Jawbone Canyon. Tributary washes (including Cutterbank Spring) to Jawbone Canyon support this species.

Source: USFWS County Distribution List, CDFW list of special status species, CNDDDB Online Environmental Review Tool (FT=Federally Threatened, FE=Federally Endangered, FP=California Fully Protected Species, BGEPA=Bald and Golden Eagle Protection Act.

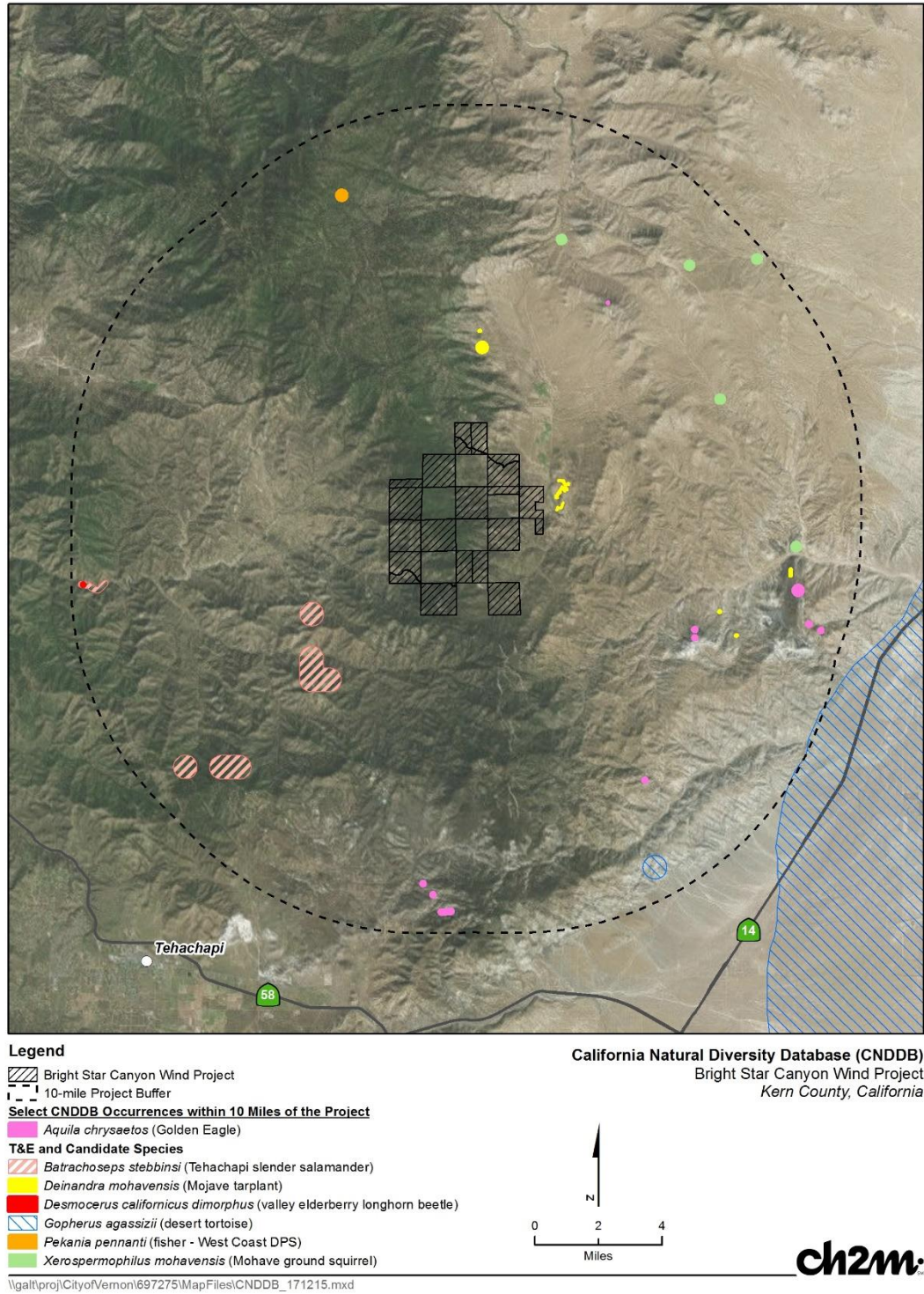


Figure 3. Results of CNDDDB Search for Federal and State listed Species Occurrences within the Bright Star Canyon Wind Project and 10-mile buffer, Kern County, CA

7.5 Potential Risks to Listed Species of Greatest Concern

California Condor

In a publicly available study entitled “*California Condor Risk Assessment for the North Sky River Wind Energy Project, Kern County, California*” (Johnson and Howlin 2011), it was found in reviewing relevant literature, that physical characteristics (e.g., high wing loading) and behavior (e.g., attraction to novel objects) would put California condors (*Gymnogyps californianus*) at potential risk of colliding with turbines. In addition, California condors are known to, at times, frequent heights that would put them in the rotor swept zone of modern turbines. Other related old world species such as Griffon (*Gyps fulvus*) and Egyptian vultures (*Neophron percnopterus*) have proved vulnerable to collisions with commercial wind turbines. Further, California condors have been detected in the vicinity of Tehachapi area wind facilities. In recent years, the species has increased in numbers and their range appears to be expanding. Based on this information, wind energy facilities constructed in an area where California condors may occur would likely be at risk for lethal take of this species. Unfortunately, it is likely just a matter of time before one or more of the birds is killed by colliding with wind turbine blades. There is currently no mechanism for obtaining a take permit for the California condor.

Golden Eagle

Based on public information from nearby projects and the presence of golden eagles in the Project during avian studies, there is risk of eagle take at the facility.

During the period, June 14, 2011 – June 6, 2012, 71 golden eagles were observed either while biologists were conducting bird use count (BUC) surveys for the Project or incidentally while traveling between points (39 BUC observations, 32 incidental observations (WEST, 2012)). However, it is not possible to know how many of these observations were of eagles seen once, twice, or multiple times.

A standardized method of measuring use of the Project by a species is to calculate the number seen per plot (800-meter radius) per 30-minute survey, known as mean use. Mean use for golden eagles during the study was 0.03 golden eagles observed per plot per 30-minute survey during summer, 0.07 during fall, 0.09 during winter, and 0.04 during spring (WEST, 2012). The overall mean use across all seasons was 0.06 golden eagles observed per plot per 30-minute survey. These use values fall within the low to moderate range when compared to publicly available information from other projects; however, 75 percent of the golden eagles were observed flying within what is often referred to as the rotor swept zone (approximately 25 – 150-meters above ground level), which heightens concern.

The relatively high use of the area by golden eagles and the proximity to golden eagle nests in the surrounding landscape (CH2M, 2012) is a concern; results of BUC surveys at the BSCWP indicate relatively low but consistent use of the area by golden eagles throughout the year, with somewhat higher use in fall and winter. However, a number of the eagles observed incidentally may never have been seen during surveys and, therefore, were not included in the analysis. Additionally, at least eight golden eagle fatalities occurred at the nearby PTWEGF during the first two years of operation (and possibly more since then); however, the details of the fatalities are unavailable. Unfortunately, the PTWEGF lacks rigorous pre-construction avian use data to allow comparison with the BSCWP.

Measures to Reduce Risk to Condors, Eagles and Other Birds

Several measures can be undertaken to avoid and minimize potential risk to condors and golden eagles. Overhead transmission or distribution lines should be built or retrofitted to Avian Power Line Interaction Committee (APLIC) standards (e.g., APLIC 2006, 2012). Because these standards were made to protect golden eagles, the larger size of California condors should be taken into consideration when designing overhead transmission lines to prevent electrocutions. Other measures that can be considered include marking overhead lines with bird flight diverters or other measures to make them more visible following

APLIC standards. Meteorological towers if guyed can be a source of bird mortality risk. If guyed towers are used, the guy wires should also be extensively marked to increase their visibility.

Carcasses of medium to large mammals and other wildlife should be immediately removed if they are found within or near the boundaries of BSCWP. Prohibition of livestock grazing can potentially reduce the potential for condor and eagle foraging in or near the area. Prohibiting hunting of big game on site may also reduce risk by reducing availability of big game carcasses, gut piles and other attractants. In addition, efforts should be made to keep the site free of debris and microtrash. Project personnel should be trained in condor identification as well, and a system should be developed where turbines can be shut down when the condors are detected near the project. Biomonitoring on site have been used to potentially reduce risk of collision for eagles and condors. In some cases (e.g., Ocotillo), these biomonitoring direct operations to curtail turbines when eagles are considered at risk of collision.

Operations personnel should be instructed to avoid interaction with condors and to immediately contact the Ventura office of the USFWS or The Condor Recovery Project personnel if condor(s) occur at the site. Non-permitted personnel should not be allowed to haze or otherwise interact with condors. In addition, and importantly, the Project should participate with other projects in the region in the early warning system for condors that is currently up and running. Contributions to the California condor recovery effort could also be considered that might be used for a variety of purposes, including additional research on California condor habitat use in relation to wind energy development in California, or for support of the captive breeding program that would lead to additional condor establishment in appropriate areas.

The American Wind Wildlife Institute (AWWI) is a multi-stakeholder group who has been funding and conducting research related to reducing impacts related to wildlife and currently is involved in several studies looking at eagle risk minimization and compensatory mitigation.

7.6 Critical Habitat

Critical habitat is a term under the ESA that identifies geographic areas occupied at the time a species is listed that contain features essential for the conservation of the species and that may require special management considerations or protection. In addition, it identifies unoccupied geographic areas that were not occupied by the species at the time of listing but are essential to the conservation of the species. Federal agencies that undertake, fund, or permit activities that may affect critical habitat are required to consult with the Service to ensure that such actions do not adversely modify or destroy designated critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Critical habitat designation does not impose restrictions on private lands unless federal funds, permits, or activities are involved. There is no designated Critical Habitat mapped near the Project. The closest Critical Habitat to the Project is Critical Habitat for California condor located approximately 20 miles to the southwest.

8. Additional Concerns

8.1 The Pacific Crest Trail

The Pacific Crest Trail is 2,659 mi (4,279 km) long and ranges in elevation from just above sea level at the Oregon–Washington border to 13,153 feet (4,009 m) at Forester Pass in the Sierra Nevada. Designated a National Scenic Trail in 1968, the route passes through 25 national forests and 7 national parks. A portion of the Pacific Crest Trail bisects the Project in a north-south direction. The route is mostly through National Forest and protected wilderness, avoids civilization and covers scenic and pristine mountainous terrain with few roads. As such it is prized by wilderness enthusiasts and it is unclear whether the proposed construction of the Project on a portion of the route would attract negative

press. It is possible that the Kern County Planning Department would not look favorably on a Project placed in the path of the Pacific Crest Trail.

9. Limitations and Additional Studies Recommended

Protocol-level surveys were conducted for the previously-proposed project to accurately determine if the Project Area supports any State or federally listed plants and/or wildlife. Protocol-level surveys were designed to take the seasonal requirements of these species into account. For example, rare plant surveys were conducted during the spring growing and blooming season. However, biological distributions and survey protocols may change over time; it is possible that protocol level surveys will need to be conducted again as they originally occurred 5 – 7 years ago.

The Project Area supported special-status species (e.g., Swainson's hawk, golden eagle) at the time surveys were conducted for the Project. In addition, there is a moderate to high likelihood that the Project could impact the following biological resources:

1. Seasonal wetlands and springs
2. Ephemeral drainages (desert washes) and riparian habitat

Below is a list of surveys and assessments that may be needed for the BSCWP. A number of these studies were completed for the Project, and in those cases, dates of the studies are provided. Some or all of these studies may need to be redone as it has been more than 5 years since they were originally completed for the Project. This is a preliminary list that would be refined through coordination with Kern County and other responsible agencies.

1. Avian Use Survey - June 14, 2011 – June 6, 2012.
2. Bat Acoustic Survey - July 28, 2011 – July 29, 2012.
3. Aerial Raptor Nest Surveys - June 2011, February 2012, May 2012.
4. Focused Eagle Use Surveys - Eagle Use included as part of the June 14, 2011 – June 6, 2012 Avian Use Surveys.
5. Focused Riparian Bird Surveys - April 16, May 15, and June 12, 2012.
6. Condor Risk Assessment
7. Desert Tortoise Surveys
8. American Badger Surveys
9. Burrowing Owl Surveys
10. Botanical Surveys - April 10, 2012 – July 25, 2012.
11. Wetland Delineation - April 2012.
12. Habitat Characterization

10. Summary of Biological and Regulatory Issues and Constraints

The following are the expected biological and regulatory issues affecting the proposed BSCWP. Areas affected by these constraints should be avoided to the extent possible to minimize impacts and mitigation costs.

1. **Temporary and permanent fill in seasonal wetlands and desert washes (e.g., streambed): Regional Water Quality Control Board (RWQCB) Water Quality Certification, and CDFW Streambed Alteration Agreement (SAA).** The USACE (see above under section: Wetlands and Surface Waters) will not assume jurisdiction over wetlands and drainages that occur in the project area, as these aquatic resources are isolated from any traditionally navigable waterways. However, potentially all of these aquatic features meet the definition of waters of the State and are thus subject to Regional Water Quality Control Board (RWQCB) jurisdiction. Similarly, the desert washes will fall under the jurisdiction of CDFW. Streambed Alteration Agreements from CDFW would be required to authorize ground disturbing activities within the bed and bank zone of jurisdictional drainages.
2. **Threatened and Endangered Species: Formal consultation with USFWS; BLM and CDFW approvals.** Construction activities have the potential to affect State and federal threatened and endangered species as well as other special-status wildlife species. Of particular concern is the likelihood that the State and federal threatened desert tortoise, and State threatened Mohave Ground Squirrel exist along the access road to the project area. If impacts to BLM land are anticipated, including those caused by excess vehicle traffic, right of way (ROW) permits will be required, and some level of National Environmental Policy Act (NEPA) review will occur for the Project. To conduct Project activities, consultation with USFWS (including a letter of concurrence from CDFW and BLM) may be required. The lead agency for the consultation will likely be the BLM, as they control the access road and, thereby, the nexus with federal lands. Typically, biological survey data would be required on each potentially affected listed species. The consultation process could take from 12 to 24 months including preparation of the Biological Assessment (Section 7) to be submitted to the USFWS and issuance of a Biological Opinion.
3. **Other Sensitive Habitat Areas.** Construction activities have the potential to affect Joshua tree woodland, a habitat considered “rare” by CDFW and a habitat of interest to Kern County. Thus, if these areas are developed, the City would likely be required to offset losses of Joshua tree woodland at a mitigation ratio of 1:1.
4. **Rare Plants.** Construction activities have the potential to affect rare plants determined to be potentially occurring in the project area. As per CDFW (CDFG, 2009) requirements, a protocol level survey was conducted (GANDA, 2012) on a portion of the Project that would be disturbed by construction. These surveys will need to be completed and those portions already surveyed may need to be resurveyed. Protocol-level rare plant surveys need to occur during the appropriate blooming period of the target species. This generally occurs in the spring months, but for some plants may occur in summer. Areas affected by other constraints should be eliminated from development prior to performing protocol surveys to minimize the survey effort.
5. **Migratory and Resident Birds.** Construction activities could potentially affect wildlife and nesting birds, including special-status species. To avoid “take” of any species protected under the MBTA and State regulations, activities in nesting habitat may need to occur outside the nesting season (this typically means September to January). Alternatively, pre-construction nest surveys could be completed and no-work buffers established around active nests during nesting season.
6. **Bird Strikes.** Aboveground infrastructure, such as electrical transmission lines, could pose a potential hazard to birds through strikes and/or electrocution, particularly if these structures occur near known migratory bird flyways or concentrations of raptors. The City may be required to implement additional protocol-level avian use studies. These studies would collect baseline data to determine if the project would result in a significant level of adverse impacts due to bird strikes and/or electrocution. A “raptor-safe” design would be required of the new transmission

line and poles (APLIC, 2006, 2012, 2014). In addition, the City will be required to implement a post-construction bird mortality monitoring program to quantify the level of operational impacts to avian species.

11. Potential Permitting

Potential permits or approvals that have been identified for the construction and operation of a wind facility in this location, as well as the general timeframe for securing these permits are shown in Table 3.

Permits Required and Anticipated Permit Schedule

Table 3 below outlines the biological resource permits and agreements that will likely be required for Project implementation as well as the typical timelines associated with the identified permits.

Table 3. Biological Resources Typical Permit Timelines

Agency	Authorization Required/ Likely Permit	Typical Timeline/Comments
Kern County	Conceptual approval regarding the turbine layout.	Although an unofficial approval, it should be considered critical since Kern County has previously expressed concern regarding Project layout. Working with Kern County early in the process to refine the turbine layout will be valuable to continued coordination with the County. This is likely to be an iterative process with Kern County staff.
Kern County	Rezone Permit and Conditional Use Permit, based on the refined turbine layout and updated project description.	Approximately 9-12 months after conceptual approval of turbine layout, including conducting surveys and preparation of supporting technical reports.
BLM	Right of Way (ROW) Grant for Use of Roads.	Due to necessary use of BLM roads to access project areas.
USFWS	ESA Section 7 or Section 10 Biological Opinion (dependent upon whether there is federal agency involvement in project permitting (i.e., BLM))	Approximately 12-18 months from time the Biological Assessment (BA) is submitted to USFWS. It will take approximately 1 year to prepare BA (need to include results of biological resource surveys) The actual consultation will likely be through BLM. Preparation and agency approval of a Section 10 HCP may take up to 2 – 5 years.
USFWS	Eagle Take Permit	Approximately 12-24 months from time the Environmental Assessment (EA) is submitted to USFWS. It will take approximately 1 year to prepare EA (need to include results of biological resource surveys).
RWQCB	Section 401 Water Quality Certificate Porter-Cologne WDRs	6 months to 1 year from time application is complete and RWQCB is in receipt of certified CEQA document and has proof of concurrence from USFWS and CDFW.
CDFW	Streambed Alteration Agreement	3 months to process from time application is complete and CDFW is in receipt of certified CEQA document, CDFW fees, and proof of concurrence from USFWS.
CDFW	Section 2081 Incidental Take Permit	Based on potential impacts to state-listed species; see USFWS timeline; permits are generally issued in conjunction.

12. References

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