

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION)
OF PACIFIC WIND DEVELOPMENT LLC)
FOR APPROVAL OF THE LOCATION)
OF THE LA JOYA WIND PROJECT AND)
345 KV GEN-TIE LINE IN)
TORRANCE COUNTY, NEW MEXICO)
PURSUANT TO NMSA § 62-9-3; AND)
RIGHT OF WAY WIDTH DETERMINATION)
PURSUANT TO NMSA § 62-9-3.2)

Case No. 18-00353 -UT

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NM PUBLIC REGULATION COMM
RECORDS MANAGEMENT BUREAU

DIRECT TESTIMONY OF

DR. JULIA GARVIN

ON BEHALF OF PACIFIC WIND DEVELOPMENT LLC

November 19, 2018

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DIRECT TESTIMONY OF DR. JULIA GARVIN

1 **I. WITNESS INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Dr. Julia Garvin. My business address is 1750 SW Harbor Way, Suite 400,
4 Portland, OR 97201.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by Tetra Tech, Inc. as a senior ecologist and project manager.

7 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
8 **EXPERIENCE.**

9 A. I received my Bachelor of Science degree in Biology from the University of California –
10 Davis, and received my PhD in Biology from the University of Wisconsin – Milwaukee. I
11 have over 17 years of experience in the fields of wildlife conservation, avian and behavioral
12 ecology, and field biology. I have worked for Tetra Tech for over 7 years, developing and
13 implementing biological studies, monitoring plans, and conservation plans for wind energy
14 developments and transmission projects. A copy of my resume is included in Exhibit JG-
15 1.

16 **Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?**

17 A. No.

18 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

19 A. I am testifying on behalf of the applicant, Pacific Wind Development LLC (“Pacific
20 Wind”).

21 **Q. WHAT IS YOUR ROLE WITH RESPECT TO THE PROJECT?**

22 A. My role is the project manager and senior biologist related to Tier 3 studies at the Wind
23 Project.

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1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. My testimony supports Pacific Wind's application to the New Mexico Public Regulation
3 Commission ("Commission") for location approval of the La Joya Project. The La Joya
4 Project includes up to 500 Megawatts ("MW") of wind generation (the "Wind Project"), a
5 345 kV generation tie transmission line ("Gen-Tie Line"), the La Joya Substation, and the
6 Torrance Switching Station. The Gen-Tie Line, La Joya Substation, and Torrance
7 Switching Station are collectively referred to as the "Gen-Tie Facilities." The Gen-Tie
8 Facilities and Wind Project are described in the Direct Testimony of Mark Stacy.

9 My testimony addresses the biological resources in the approximately 18-mile long,
10 1,000-foot wide corridor within which the 150-foot wide right-of-way for the Gen-Tie
11 Line, and within which or adjacent to which the La Joya Substation and Torrance Switching
12 Station will be located (the "Gen-Tie Corridor") in order to address the statutory standard
13 that the Commission shall approve the location of the transmission line unless the location
14 will unduly impair important environmental values. I also address biological resources in
15 the area within which wind turbines will be sited (the "Wind Project Area"). The biological
16 resources of the Gen-Tie Corridor and the Wind Project Area are similar due to their
17 proximity.

18 **Q. WHAT EXHIBITS DO YOU SPONSOR AS PART OF YOUR TESTIMONY?**

19 A. I sponsor Exhibit JG-1, which is my resume; and Exhibit JG-2, which is the Comprehensive
20 Biological Evaluation for the La Joya Project ("Biological Evaluation Report").

21 **Q. WERE EXHIBITS JG-1 AND JG-2 PREPARED BY YOU OR UNDER YOUR**
22 **SUPERVISION?**

23 A. Yes.

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1 **Q. ARE EXHIBITS JG-1 AND JG-2 TRUE AND CORRECT COPIES OF THE**
2 **DOCUMENTS YOU DESCRIBE IN YOUR TESTIMONY?**

3 **A. Yes.**

4 **II. OVERVIEW OF BIOLOGICAL RESOURCE STUDIES**

5 **Q. PLEASE DESCRIBE THE APPROACH TO ANALYZING BIOLOGICAL**
6 **RESOURCES.**

7 **A. Pacific Wind's approach to designing studies of biological resources for the Project**
8 **followed the tiered approach of the U.S. Fish and Wildlife Service's ("USFWS") Land-**
9 **Based Wind Energy Guidelines (the "WEG") and the USFWS's Eagle Conservation Plan**
10 **Guidance (the "ECPG"). The WEG and ECPG are voluntary approaches recommended**
11 **by the USFWS to help wind project developers design projects to be compatible with**
12 **wildlife conservation objectives. Both take a tiered approach to assessing the potential for**
13 **negative impacts of a given project.**

14 The WEG tiered approach defines a process for collecting information regarding
15 wildlife resources that are pertinent to the siting and operation of wind energy projects and
16 any transmission lines needed to interconnect with the existing transmission system. Tier
17 1 consists of a preliminary site evaluation, which is a first look to identify the general
18 ecological context of a site (i.e., landscape-scale analysis). Tier 2 consists of site
19 characterization to identify the potential for occurrence of species of concern and their
20 habitats within the potential project site. Tier 1 and Tier 2 studies are often combined into
21 a single document (typically referred to as a "Site Characterization Study," or "SCS"). Tier
22 3 consists of more detailed studies of specific species and habitat features that are likely to
23 occur in a given project area based on the results of the Tier 1 and 2 studies. Results of Tier

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1 3 studies can be used to assess potential risk of the proposed project and design measures
2 to avoid or minimize potential significant negative impacts to wildlife and their habitats.

3 Pacific Wind prepared WEG Tier 1 and Tier 2 studies for the La Joya Project, which
4 Tetra Tech used along with other materials to prepare the Biological Evaluation Report. I
5 understand that, following the WEG, Pacific Wind will use Tier 3 information to help
6 micro-site facilities to avoid or minimize impacts to biological resources. Based on the
7 results of the SCS, Pacific Wind has initiated Tier 3 field studies including eagle use
8 surveys, avian point counts, eagle/raptor nest surveys, eagle prey base surveys, raptor roost
9 surveys, and bat acoustic surveys. The Tier 3 study plan and preliminary results have been
10 shared and discussed with USFWS and the New Mexico Department of Game and Fish
11 (“NMDGF”).

12 As noted in Section 2.1 of the Biological Evaluation Report, Tetra Tech reviewed
13 numerous sources of existing data regarding flora and fauna in Torrance County, as well
14 as numerous studies specific to the areas within which the Gen-Tie Corridor and Wind
15 Project are proposed to be located. In addition, Tetra Tech resource specialists conducted
16 field evaluations within the Gen-Tie Corridor and Wind Project Area.

17 **III. CHARACTERIZATION OF BIOLOGICAL RESOURCES.**

18 **Q. PLEASE GENERALLY DESCRIBE THE ECOREGION AND HABITAT**
19 **FEATURES IN THE GEN-TIE CORRIDOR AND WIND PROJECT AREA.**

20 A. The Gen-Tie Corridor and Wind Project are located within the Plains-Mesa Grassland
21 vegetation association, which is shortgrass prairie at the western edge of the Great Plains.
22 Both the Gen-Tie Corridor and Wind Project are completely dominated by
23 grassland/herbaceous land cover, although scattered shrubs and sub-shrubs are present,

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1 often in areas affected by heavier livestock grazing. This land coverage is indicative of the
2 lack of surface water resources present throughout both the Gen-Tie Corridor and Wind
3 Project Area. The terrain is generally flat with some gently rolling hills.

4 The Gen-Tie Corridor and Wind Project Area are rural areas, supporting open,
5 largely undeveloped rangeland. The primary land use is cattle grazing. There are no
6 occupied dwellings in the Gen-Tie Corridor, and only one occupied residence within the
7 Wind Project Area. The few public roads are caliche-covered, with the majority of the
8 roads being two-tracks. Also located in the area are the El Cabo Wind Project and its gen-
9 tie line, pipelines, highways, and the BNSF railway line. Please see Figure 1 in Exhibit JG-
10 2. The La Joya Project is located in a Special Use District that Torrance County zoned for
11 renewable energy development, and lies within an expansive area zoned for agricultural
12 uses.

13 No perennial streams occur in either the Gen-Tie Corridor or the Wind Project
14 Area, but there are several draws and ephemeral drainages that may flow during storm
15 events. Drainage is interior without connections to navigable waters. There are also a
16 number of small waterbodies and emergent wetlands and freshwater ponds present,
17 primarily within the Wind Project Area. These features appear to be isolated and are
18 generally limited to manmade wetland areas associated with stock ponds, or ephemeral
19 wetlands, swales and channels. Several seasonally flooded waterbodies occur outside the
20 Gen-Tie Corridor and Wind Project Area. These features may fill with saltwater seasonally,
21 and may provide a staging area for shorebirds but are not known to be hotspots for avian
22 activity. See Exhibit JG-2, Figure 2.

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1 Additional details are provided in Exhibit JG-2. Photographs of the Wind Project
2 Area and Gen-Tie Corridor are provided in Exhibit MS-14.

3 **Q. WHAT BIOLOGICAL RESOURCES DO YOU FOCUS ON IN YOUR**
4 **TESTIMONY?**

5 A. My testimony focuses on those biological resources identified in the Biological Evaluation
6 Report that have the greatest susceptibility to project-related impacts.

7 **IV. SPECIAL STATUS LANDS AND SPECIES**

8 **Q. WHAT ARE SPECIAL STATUS LANDS?**

9 A. Special status lands are lands that have been designated by state or federal agencies or
10 conservation organizations to be of significant or unique importance to wildlife.

11 **Q. DO ANY SPECIAL STATUS LANDS OCCUR IN THE GEN-TIE CORRIDOR OR**
12 **WIND PROJECT AREA?**

13 A. No, none occur within the Gen-Tie Corridor or the Wind Project Area. The nearest special
14 status land is the Sandia-Manzano Mountains Bird Habitat Conservation Area (identified
15 by the Intermountain West Joint Venture), which occurs in the mountainous terrain about
16 six miles to the northwest of the Wind Project Area and more than 10 miles to the west of
17 the Gen-Tie Corridor.

18 **Q. WHAT ARE SPECIAL STATUS SPECIES?**

19 A. Special status species include species listed as threatened or endangered under the federal
20 Endangered Species Act (the "ESA") by the USFWS, bald eagles and golden eagles which
21 are protected under the federal Bald and Golden Eagle Protection Act (the "BGEPA"), and
22 state-listed species identified by the New Mexico Department of Game and Fish
23 ("NMDGF").

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1 Q. WHAT ARE SPECIES OF CONCERN?

2 A. "Species of concern" is a broader term that is used here to indicate species that are not
3 listed or protected under federal or state law but are identified by federal or state wildlife
4 agencies as Species of Greatest Conservation Need ("SGCN") and Birds of Conservation
5 Concern ("BCC"). Federal and state wildlife agencies have determined that, due to threats
6 to their populations, these species have the potential to be listed in the future; however,
7 designation as SGCN or BCC does not impose any regulatory or legal requirements.

8 Q. ARE FEDERALLY PROTECTED SPECIES LIKELY TO OCCUR IN THE GEN-
9 TIE CORRIDOR OR WIND PROJECT AREA?

10 A. No species listed as threatened or endangered under the federal ESA is likely to occur
11 within the Gen-Tie Corridor or the Wind Project Area (see Table 4-1 in Exhibit JG-2). No
12 critical habitat for any federally listed species occurs within 30 miles of the Gen-Tie
13 Corridor or Wind Project Area. The golden eagle, protected under the BGEPA, has a high
14 likelihood of occurrence in the Gen-Tie Corridor and the Wind Project Area. Golden eagles
15 may use the Gen-Tie Corridor for foraging on small mammals, although no prairie dog
16 colonies were detected within the Gen-Tie Corridor. Golden eagles may use the Wind
17 Project Area for foraging due to the occurrence of prey species such as ground squirrels
18 and Gunnison's prairie dogs within the Wind Project Area. Nesting by golden eagles in the
19 Gen-Tie Corridor and Wind Project Area is unlikely due to lack of nesting habitat. See
20 Exhibit JG-2, Section 4.1.

21 Q. ARE STATE-LISTED SPECIES LIKELY TO OCCUR IN THE GEN-TIE
22 CORRIDOR OR WIND PROJECT AREA?

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1 A. The potential for state-listed species to occur in the Gen-Tie Corridor or Wind Project Area
2 is generally low, with only a moderate likelihood for one species listed as state threatened,
3 Baird's Sparrow, to occur in the Gen-Tie Corridor or Wind Project Area (see Table 4-1 in
4 Exhibit JG-2).

5 The Baird's sparrow is a migrant throughout most of New Mexico, and winters in
6 the southernmost portions of the state. Baird's sparrows are typically found in grasslands,
7 weedy fields, and hay fields during migration. The Gen-Tie Corridor and Wind Project
8 Area include expansive grasslands with small shrubs/forbs that are used as rangeland for
9 cattle. No Baird's sparrows have been observed within the Gen-Tie Corridor and Wind
10 Project Area, and few have been reported within the vicinity. Based on the available habitat
11 present on site, the Baird's sparrow has a moderate likelihood of occurrence within the
12 Gen-Tie Corridor and Wind Project Area during migration. See Exhibit JG-2, Section 4.2.

13 **Q. WILL THE GEN-TIE FACILITIES OR THE WIND PROJECT UNDULY IMPAIR**
14 **FEDERALLY PROTECTED OR STATE-LISTED SPECIES?**

15 A. No. The federally protected and state-listed species that are likely to occur in the Gen-Tie
16 Corridor (i.e., golden eagle, Baird's sparrow) are not expected to experience negative
17 impacts from the construction and operation of the Gen-Tie Facilities based on how these
18 species are likely to interact with the facilities (i.e., collision and electrocution risk is low),
19 the absence of concentrating features such as nesting or roosting substrates or prey
20 concentrations, and the availability of equally suitable habitat in the region. These species
21 may have relatively small negative impacts from the Wind Project; although there is
22 potential for collision, this risk is likely low based on infrequent occurrence of the species.
23 The relatively small amount of permanent habitat loss as a result of construction of the

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1 Gen-Tie Facilities and Wind Project is unlikely to negatively impact these species given
2 that these habitats are abundant in the region. Neither the Gen-Tie Facilities nor the Wind
3 Project are expected to unduly impair golden eagles or Baird's sparrows. See Exhibit JG-
4 2, Section 6.0.

5 **Q. ARE THERE SGCN THAT MAY OCCUR IN THE GEN-TIE CORRIDOR OR**
6 **WIND PROJECT AREA?**

7 A. There are 25 species identified as SGCN that have potential to occur within the Gen-Tie
8 Corridor and Wind Project Area. Of these 25 species, 10 that may occur in the Gen-Tie
9 corridor have been detected during or incidental to avian surveys that overlapped with the
10 Gen-Tie Corridor. These include pinyon jay, mountain bluebird, mountain plover,
11 loggerhead shrike, long-billed curlew, burrowing owl, Cassin's sparrow, vesper sparrow,
12 western bluebird, and bald eagle. Six bird species identified as SGCN and two mammals
13 have been observed within the Wind Project Area. These include loggerhead shrike, vesper
14 sparrow, Cassin's sparrow, burrowing owl, peregrine falcon, western bluebird, Gunnison's
15 prairie dog, and black-tailed prairie dog. See Exhibit JG-2, Section 4.3.

16 **Q, ARE THERE BCC THAT MAY OCCUR IN THE GEN-TIE CORRIDOR OR**
17 **WIND PROJECT AREA?**

18 A. Based on the results of field surveys and citizen-science bird counts in nearby areas, several
19 BCC may occur within the Gen-Tie Corridor and Wind Project Area, shown on Table 4-2
20 in Exhibit JG-2, Section 4.4.

21 **Q. WILL THE GEN-TIE FACILITIES OR THE WIND PROJECT UNDULY IMPAIR**
22 **SPECIES LISTED AS SGCN OR BCC?**

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1 A. No. The species listed as SGCN and BCC that are likely to occur in the Gen-Tie Corridor
2 are not expected to experience negative impacts from the construction and operation of the
3 Gen-Tie Facilities based on how these species are likely to interact with the facilities (i.e.,
4 collision and electrocution risk is low), the absence of concentrating features such as
5 colonial nesting habitat (e.g., prairie dog burrows which may be used for nesting by
6 burrowing owls), and the availability of equally suitable habitat elsewhere in the region.
7 These species may have relatively small negative impacts from the Wind Project; although
8 there is potential for collision for flying species, this risk is likely low based on infrequent
9 occurrence of the species. Potential negative impacts from the Wind Project would be
10 further reduced by implementing protection measures such as ground-clearance nest
11 surveys prior to construction. The relatively small amount of permanent habitat loss as a
12 result of construction of the Gen-Tie Facilities and Wind Project is unlikely to negatively
13 impact these species given that these habitats are abundant in the region. Neither the Gen-
14 Tie Facilities nor the Wind Project are expected to unduly impair species listed as SGCN
15 or BCC. See Exhibit JG-2, Section 6.0.

16 V. **BIRDS**

17 Q. **PLEASE DESCRIBE THE LIKELIHOOD OF OCCURRENCE AND USE OF THE**
18 **GEN-TIE CORRIDOR AND WIND PROJECT AREA BY BIRDS.**

19 A. Birds are likely to breed and overwinter within the Gen-Tie Corridor and Wind Project
20 Area, but these areas do not provide suitable habitat to support rookeries or communal
21 roosts. Birds may also migrate through the Gen-Tie Corridor and Wind Project Area, but
22 these areas do not provide suitable habitat to support avian staging areas. See Exhibit JG-
23 2, Section 5.1.

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1 Q. WILL THE GEN-TIE FACILITIES OR WIND PROJECT UNDULY IMPAIR
2 BIRDS?

3 A. No. The bird community present within the Gen-Tie Corridor is not expected to experience
4 negative impacts from the construction and operation of the Gen-Tie Facilities based on
5 how birds are likely to interact with the facilities (i.e., collision and electrocution risk is
6 low); the absence of concentrating features such as wetlands or colonial nesting habitat
7 (e.g., prairie dog burrows which may be used for nesting by burrowing owls), and the
8 availability of equally suitable habitat elsewhere in the region. Operation of the Wind
9 Project is likely to result in collisions with birds; however, the absence of concentrating
10 features such as migration corridors, nesting or roosting substrates, or staging areas, and
11 the availability of equally suitable habitat in the region suggests that impacts would be low
12 relative to other operational wind facilities. While there are concentrations of prey for
13 raptor species (e.g., prairie dog colonies), these also occur outside of the Wind Project
14 Area. Potential negative impacts from the Wind Project would be further reduced by
15 implementing protection measures such as ground-clearance nest surveys prior to
16 construction. The relatively small amount of permanent habitat loss as a result of
17 construction of the Gen-Tie Facilities and Wind Project is unlikely to negatively impact
18 the bird community given that these habitats are abundant in the region. Neither the Gen-
19 Tie Facilities nor the Wind Project are expected to unduly impair birds. See Exhibit JG-2,
20 Section 6.0.

21 VI. MAMMALS

22 Q. PLEASE DESCRIBE THE LIKELIHOOD OF OCCURRENCE AND USE OF THE
23 GEN-TIE CORRIDOR AND WIND PROJECT AREA BY BATS.

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1 A. Nineteen bat species have the potential to occur within the Gen-Tie Corridor and Wind
2 Project Area based on species ranges, documented occurrences, and habitat preferences
3 (see Table 5-1 in Exhibit JG-2). Four are tree-roosting species, eight are species that use
4 features such as caves, crevices, and abandoned mines and buildings for roosting, and
5 seven are habitat generalists that use trees and other natural features. Some of the 19 bat
6 species with potential to occur within the Gen-Tie Corridor and Wind Project Area use
7 desert, scrub and grassland habitats for foraging. None of these bat species are federally-
8 listed or state-listed as threatened or endangered. Only one SGCN bat species has the
9 potential to occur in the Gen-Tie Corridor and Wind Project Area, the pale Townsend's
10 big-eared bat subspecies, and it has a low likelihood of occurrence.

11 The Gen-Tie Corridor and Wind Project Area generally do not include habitat
12 features that may attract foraging bats relative to the vicinity, or that may support roosting.
13 The Gen-Tie Corridor and Wind Project Area is absent of large trees, wetlands or open
14 water, caves, cracks and crevices, mines, and buildings. No known maternity roosts,
15 hibernacula, caves, or mines are found in or near the Gen-Tie Corridor or Wind Project
16 Area. Acoustic bat surveys are continuing as part of WEG Tier 3 studies. Preliminary
17 results indicate that bat use is low to moderate, consistent with results of monitoring at the
18 nearby El Cabo Wind Project. See Exhibit JG-2, Section 5.2.

19 **Q. WILL THE GEN-TIE FACILITIES OR WIND PROJECT UNDULY IMPAIR**
20 **BATS?**

21 A. No. The bat species that are likely to occur in the Gen-Tie Corridor are not expected to
22 experience negative impacts from the construction and operation of the Gen-Tie Facilities
23 based on how they are likely to interact with the facilities (i.e., collision and electrocution

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1 risk is low), the absence of concentrating features such as roosting habitat, and the
2 availability of equally suitable foraging habitat elsewhere in the region. Operation of the
3 Wind Project is likely to result in collisions with bats; however, the absence of
4 concentrating features such as wetlands or open water, migration corridors, roosting
5 habitat, and the availability of equally suitable foraging habitat in the region suggests that
6 impacts would be low relative to other operational wind facilities. The relatively small
7 amount of permanent habitat loss as a result of construction of the Gen-Tie Facilities and
8 Wind Project is unlikely to negatively impact the bat community given that these habitats
9 are abundant in the region. Neither the Gen-Tie Facilities nor the Wind Project are expected
10 to unduly impair bats. See Exhibit JG-2, Section 6.0.

11 **Q. PLEASE DESCRIBE THE LIKELIHOOD OF OCCURRENCE AND USE OF THE**
12 **GEN-TIE CORRIDOR AND WIND PROJECT AREA BY TERRESTRIAL**
13 **MAMMALS.**

14 **A.** Prairie dogs and spotted ground squirrels are present within the Wind Project Area, but
15 have not been detected within the Gen-Tie Corridor. These species are present year-round
16 in the region, but some species hibernate during the winter. Gunnison's prairie dog colonies
17 were observed within the Wind Project Area during the field evaluation, and black-tailed
18 prairie dogs have been observed in the Wind Project Area. Prairie dogs are not a federally-
19 listed or state-listed threatened or endangered species but both Gunnison's prairie dogs and
20 black-tailed prairie dogs are considered SGCN. Prairie dog colonies may be used as
21 foraging areas for eagles and other raptors and provide habitat for other SGCN species such
22 as burrowing owls and mountain plovers. Spotted ground squirrels were also documented

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1 in the Wind Project Area during the site reconnaissance and provide a potential source of
2 prey for raptors. See Exhibit JG-2, Section 5.3.

3 **Q. WILL THE GEN-TIE FACILITIES OR WIND PROJECT UNDULY IMPAIR**
4 **TERRESTRIAL MAMMALS?**

5 A. No. Terrestrial mammals were not detected within the Gen-Tie Corridor; therefore, the
6 construction and operation of the Gen-Tie Facilities are unlikely to affect these species.
7 The relatively small amount of permanent habitat loss as a result of construction of the
8 Wind Project is unlikely to negatively impact terrestrial mammals that are present given
9 the availability of equally suitable habitat in the region. Potential negative impacts from
10 the Wind Project would be further reduced by implementing protection measures such as
11 micrositeing during engineering design to minimize impacts to sensitive biological
12 resources (e.g., prairie dog colonies occupied by burrowing owls) to the extent practicable.
13 Neither the Gen-Tie Facilities nor the Wind Project are expected to unduly impair
14 terrestrial mammals. See Exhibit JG-2, Section 6.0.

15 **VII. PLANTS**

16 **Q. PLEASE DESCRIBE THE PLANTS IN THE GEN-TIE CORRIDOR AND WIND**
17 **PROJECT AREA.**

18 A. The Gen-Tie Corridor and Wind Project Area occur in grassland habitats that are typical
19 of the region and common throughout eastern New Mexico and the Great Plains.
20 Vegetation is mostly shortgrass prairie species, dominated by grama grasses, New Mexico
21 feathergrass, threeawns, little bluestem, soapweed yucca, broom snakeweed, and areas of
22 scattered juniper near the northern extent of the Gen-Tie Corridor. See Exhibit JG-2,
23 Section 3.3.

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1 Q. DO ANY FEDERALLY-LISTED OR STATE-LISTED PLANT SPECIES OCCUR
2 IN THE GEN-TIE CORRIDOR OR WIND PROJECT AREA?

3 A. No federally-listed or state-listed plant species occur in the Gen-Tie Corridor or Wind
4 Project Area or vicinity.

5 Q. DO ANY PLANT SPECIES OF CONCERN OCCUR IN THE GEN-TIE
6 CORRIDOR OR THE WIND PROJECT AREA?

7 A. No rare plants occur in the Gen-Tie Corridor or Wind Project Area.

8 Q. WILL THE GEN-TIE FACILITIES OR WIND PROJECT UNDULY IMPAIR
9 PLANT SPECIES?

10 A. No. There are no special status plant species within Gen-Tie Corridor or Wind Project
11 Area. The relatively small amount of permanent habitat loss as a result of construction of
12 the Gen-Tie Facilities and Wind Project is unlikely to negatively impact the plant
13 community given that these habitats are abundant in the region. Areas of temporary habitat
14 loss will be restored using native or similar seed mixes. See Exhibit JG-2, Section 6.0.

15 **VIII. CONCLUSIONS**

16 Q. WILL THE GEN-TIE FACILITIES UNDULY IMPAIR IMPORTANT
17 ENVIRONMENTAL VALUES REGARDING BIOLOGICAL RESOURCES?

18 A. No. As explained above, the proposed Gen-Tie Corridor occurs primarily in grassland
19 habitats that are typical of the region. There are a number of existing sources of
20 development and disturbance, including cattle ranching and the existing El Cabo Wind
21 Farm and 345-kV gen-tie line. The lack of undisturbed native habitats as well as absence
22 of wetlands and other water resources within the Gen-Tie Corridor suggests that the plants
23 and wildlife associated with these habitats will be largely unaffected by the construction

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1 and operation of the Gen-Tie Facilities. Plant and wildlife species present within the Gen-
2 Tie Corridor as indicated from surveys are typical for this region of New Mexico and the
3 likelihood of occurrence of special-status species is generally low. The special-status
4 species that have moderate to high likelihood of occurrence (i.e., golden eagle, Baird's
5 sparrow) in the Gen-Tie Corridor are not expected to experience negative impacts from the
6 construction and operation of the Gen-Tie Facilities based on how these species are likely
7 to interact with the Gen-Tie Facilities (i.e., collision and electrocution risk is low), the
8 absence of concentrating features such as nesting or roosting substrates or prey
9 concentrations, and the availability of equally suitable habitat in the region. There are no
10 features that are likely to concentrate other bird or bat species within the Gen-Tie Corridor.
11 Similarly, the relatively small amount of habitat loss as a result of construction and
12 operation of the Gen-Tie Facilities is unlikely to adversely impact the plant and wildlife
13 communities given that these habitats are abundant in the region.

14 **Q. WILL THE WIND PROJECT UNDULY IMPAIR IMPORTANT**
15 **ENVIRONMENTAL VALUES REGARDING BIOLOGICAL RESOURCES?**

16 **A.** No, and I understand this exceeds the standards required for location approval of the Wind
17 Project. As explained above, the proposed Wind Project Area also occurs primarily in
18 grassland habitats that are typical of the region. There are a number of existing sources of
19 development and disturbance, including an existing transmission line and an adjacent wind
20 energy facility. The lack of undisturbed native habitats as well as absence of wetlands and
21 other water resources within the Wind Project Area suggests that the plants and wildlife
22 associated with these habitats will be largely unaffected by the construction and operation
23 of the Wind Project. Plant and wildlife species present within the Wind Project Area as

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1 indicated from surveys are typical for this region of New Mexico and the likelihood of
2 occurrence of special-status species is generally low. The special-status species that have
3 moderate to high likelihood of occurrence (i.e., golden eagle, Baird's sparrow) in the Wind
4 Project Area are expected to have relatively small impacts from the Wind Project based on
5 the availability of equally suitable habitat in the region. Similarly, the relatively small
6 amount of habitat loss as a result of the Wind Project is unlikely to impact the non-special
7 status plant and wildlife communities given that these habitats are abundant in the region.
8 Operation of the Wind Project is likely to result in collisions with bird and bat species;
9 however, the absence of concentrating features such as migration corridors, nesting or
10 roosting substrates, or staging areas, and the availability of equally suitable habitat in the
11 region suggests that impacts would be low relative to other operational wind facilities.
12 While there are concentrations of prey for raptor species (e.g., prairie dog colonies), these
13 also occur outside of the Wind Project Area.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

15 **A. Yes.**

16

17

Julie Garvin, PhD**Senior Ecologist and Project Manager**

Experience Summary

Dr. Garvin is a senior ecologist and project manager with over 17 years of experience performing research in the fields of conservation, avian and behavioral ecology, and field biology. She has provided services including project management; agency consultation and coordination; development of proposals and cost-models; technical study design, and site set-up. She has authored or peer-reviewed federal regulatory documents including Habitat Conservation Plans, Environmental Assessments, Eagle Conservation Plans, as well as state-specific regulatory documents. She has assisted with greenfield and brownfield energy facility permitting including development of pre- and post-construction monitoring, adaptive management and mitigation plans. She is experienced with demographic and statistical models including the U.S. Fish and Wildlife Service Bayesian collision risk model for eagles as well as fatality estimation programs such as the Huso Estimator and Evidence of Absence.

Dr. Garvin has a strong technical background in eagles and other raptors, along with Hawaiian native birds, federally threatened and endangered species, and general animal behavior. She has significant experience in monitoring and mapping of wildlife and vegetation including aerial raptor nest surveys, and has developed predictive models specific to bald eagle nest occurrence.

Education

PhD, Biology, University of Wisconsin-Milwaukee, 2006

BS, Biology (Emphasis: Ecology and Evolution), University California-Davis, 2000

Relevant Job Experience

Senior Ecologist and Project Manager, April 2011 – Current

Tetra Tech, Inc., Portland, OR

Provide environmental consulting services for wind and solar facilities and transmission line projects throughout the U.S. Aid clients in performing environmental due diligence such as baseline studies for birds, bats, and sensitive species and their habitats, as well as post-construction monitoring studies, adaptive management strategies and compensatory mitigation plans. Perform project management; state and federal agency coordination; technical study design, set-up, implementation, data analysis and reporting. Author and review federal and state regulatory documents associated with environmental permitting for utility-scale energy facilities. Use statistical tools to prepare project-specific risk assessments. Serve as a subject-matter expert on eagles and other raptors, Hawaiian native birds, and federally threatened and endangered avian species. Perform aerial raptor nest surveys.

Project experience at Tetra Tech has included environmental due diligence for wind energy facilities in all states west of the Mississippi with the exception of Montana and Missouri, and in several states east of the Mississippi. Transmission line project experience comes from CA, CO, ID, NM, ND, OK, and OR.

Postdoctoral Research Associate, June 2008–July 2010

University of Wisconsin – Madison, Madison, WI

Employed a Before-After-Control-Impact design to evaluate the post-construction effects of a Wisconsin wind farm on avian species abundance, richness, and behavior. Performed standard fixed point counts and raptor counts as well as habitat quantification with GIS tools. Assessed impact to sensitive species (e.g. threatened, endangered, species of concern), and determined management implications. Analyzed data and presented results in the form of reports, peer-reviewed journal articles, and presentations at regional and national conferences. Provided direct supervision to M.S. students and seasonal field technicians. Collaborated with various state, federal, and private agencies to ensure completed research met all permitting requirements and agency wildlife concerns.

Julie Garvin, PhD**Senior Ecologist and Project Manager****Sr. Avian Conservation Research Specialist, October 2006–May 2008****Maui Forest Bird Recovery Project, Makawao, HI**

Implemented and managed avian conservation research on the critically endangered Maui forest birds in the Hanawi Natural Area Reserve. Conducted research on avian behavior, population ecology, and population restoration. Collected, organized, analyzed, presented, and published data in outside journals and state reports. Managed long-term data in database system. Trained and supervised technicians and volunteers. Collaborated with private, state and federal agencies in achieving species management goals, as well as in updating species action and recovery plans.

Selected Publications & Presentations

- Dohm, R., C.S. Jennelle, J.C. Garvin, and D. Drake. *Accepted*. A long-term assessment of raptor displacement at a wind farm. *Frontiers in Ecology and the Environment*. Publication expected in 2019.
- Garvin, J., M. Martell, T. Donn, K. Dick, J. Taylor, C. Munill. 2018. Predicting Where Bald Eagle Nests Will Occur and Project Siting Implications. American Wind Energy Association Wind Project Siting and Environmental Compliance Conference. Memphis, TN.
- Garvin, J., J. Taylor, K. Dick, and M. Martell. 2017. Trends in Bald Eagle Nesting Habitat in the Western U.S. – Insights Gained from the Wind Industry. Raptor Research Foundation Annual Meeting. Salt Lake City, UT. [Poster]
- Garvin, J. and L. Nagy. 2014. To disturb or not to disturb: the difficulty in assessing golden eagle nest disturbance at wind energy facilities. National Wind Coordinating Collaborative Wind and Wildlife Research Meeting X. Broomfield, CO.
- Garvin, J., L. Nagy, K. Wells, and C. Farmer. 2014. Carcass removal to reduce eagle-vehicle collisions as a compensatory mitigation strategy. 2014 American Wind Energy Association 2014 WINDPOWER Conference and Exhibition. Las Vegas, NV. [Poster]
- Vetter, J.P., K.J. Swinnerton, E.A. VanderWerf, J.C. Garvin, H.L. Mounce, H.E. Breniser, D.L. Leonard, J.S. Fretz. 2012. Survival estimates for two Hawaiian honeycreepers. *Pacific Science* 66(2:299-309).
- Garvin, J.C., Jennelle, C.S., Drake, D., & Grodsky, S.M. 2011. Response of Raptors to a Windfarm. *Journal of Applied Ecology*. 48(1) 199-209.

Professional Accomplishments

Invited to speak on how basic biological research on eagles can be used to inform project siting and environmental compliance monitoring at the American Wind Energy Association Wind Project Siting and Environmental Compliance Conference in 2018.

Invitation to review article on collision avoidance of a transmission line by migrating raptors in the journal *The Condor*.

Invitations to review articles on assessing avian impacts of wind energy facilities in the journal *The Condor*, *Biological Conservation*, the *Journal of Nature Conservation*, the *Journal of Fish and Wildlife Management*, and the journal *Ibis*.

Professional Affiliations

- Member, American Ornithological Society Union
- Member, The Wildlife Society, Oregon Chapter
- Member, Raptor Research Foundation

**COMPREHENSIVE BIOLOGICAL EVALUATION FOR THE
LA JOYA PROJECT
TORRANCE COUNTY, NEW MEXICO**



El Cabo Wind Farm, Torrance County, New Mexico (Tetra Tech 2017)

November 2018

Prepared
for:



Prepared
by:



350 Indiana Street, Suite 500, Golden, CO, 80401

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1.0 INTRODUCTION

Pacific Wind Development LLC (Pacific Wind), a wholly owned subsidiary of Avangrid Renewables, LLC (Avangrid), proposes to construct the La Joya 345-kilovolt (kV) Transmission Generation Tie Line (Gen-Tie Line) together with the La Joya Substation and the Torrance Switching Station (collectively, the Gen-Tie Facilities) in Torrance County, approximately 10 miles west of Encino, New Mexico. The Gen-Tie Facilities would interconnect up to 500 megawatts (MW) of wind-generated electricity from the proposed La Joya Wind Energy Project (Wind Project) into the electric transmission grid. The Gen-Tie Corridor (an approximately 18-mile long, 1,000-foot wide corridor containing the Gen-Tie Facilities) and the Wind Project Area (containing the wind generation facilities) are collectively referred to as the La Joya Project (Figure 1).

Avangrid contracted with Tetra Tech Inc. (Tetra Tech) to prepare this comprehensive Biological Evaluation (BE) to summarize biological resources that are known or are reasonably expected to occur within the La Joya Project. Information used to complete this evaluation includes both publicly available data and technical reports completed as part of Avangrid's overarching development due diligence.

1.1 Project Description

The proposed Gen-Tie Line would run north from the proposed La Joya Substation to the vicinity of the existing El Cabo substation, then would parallel the existing El Cabo 345-kV gen-tie line for the remainder of its length, terminating at Avangrid's proposed Torrance Switching Station (Figure 1). The Gen-Tie Corridor encompasses approximately 2,180 acres of both private and New Mexico State Land, and would include a permanent ROW of approximately 150 feet, which would occupy approximately 327 acres. The Wind Project would be a utility-scale wind energy facility, located on approximately 51,000 acres of both private and New Mexico State Land within the Wind Project Area (Figure 1).

The Wind Project Area is sparsely populated with only one occupied residence, and no occupied residences are located within the Gen-Tie Corridor. The nearest population centers are the Village of Encino (population 82), approximately 4 miles to the east; the Town of Duran (population 35), approximately 10 miles to the southeast; the Village of Willard (population 253), approximately 13 miles to the west; and the Town of Vaughn (population 446), approximately 18 miles to the east (U.S. Census Bureau 2017) (Figure 1).

2.0 METHODS

2.1 Review of Existing Data

The following data sources were reviewed to assess the existing flora and fauna of the region in which the La Joya Project is located (Torrance County), and specifically the Gen-Tie Corridor and the Wind Project Area:

- Bat distribution and locations of hibernacula from published literature, the NMDGF, Bat Conservation International, and the U.S. Fish and Wildlife Service (USFWS);
- eBird, an online database of bird distribution and abundance (eBird 2012);
- Federal Emergency Management Agency (FEMA) National Flood Hazard tool (FEMA 2018);
- Google Earth aerial imagery (Google Earth Pro 2016);
- Intermountain West Joint Venture Bird Habitat Conservation Areas (IWJV 2005);
- National Audubon Society Christmas Bird Count (CBC) database (NAS 2017a);
- National Audubon Society Important Bird Areas (IBA) online mapping tool (NAS 2017b);
- National Conservation Easement Database (The Conservation Registry 2016);
- National Land Cover Database (NLCD; Homer et al. 2015);
- Natural Resources Conservation Service (NRCS) Web Soil Survey data for mapped hydric soils and drainage class (NRCS 2018);
- The Nature Conservancy (TNC) online mapping tool (TNC 2017);
- NMDGF Biota Information System (BISON-M 2017);
- NMDGF State Wildlife Action Plan for New Mexico (NMDGF 2016);
- NMRPTC list of rare plants (NMRPTC 1999);
- New Mexico Endangered Plant Program (EMNRD 2017);
- NMBiotics Database Museum of Southwestern Biology (NHNM 2017);
- U.S. Department of Agriculture Conservation Reserve Program (USDA 2017);
- U.S. Environmental Protection Agency (EPA) Level III Ecoregions (Griffith et. al 2006);

- USFWS Environmental Conservation Online System Species Profiles;
- USFWS IPaC tool (USFWS 2017a);
- USFWS National Wetlands Inventory (NWI) (USFWS 2018);
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (USGS 2018a);
- USGS Watershed Boundary Dataset (USGS 2018b); and
- USGS North American Breeding Bird Survey (BBS) database (Sauer et al. 2017).

Avangrid has followed the USFWS Land-based Wind Energy Guidelines (WEG; USFWS 2012) and completed numerous avian and bat studies and Site Characterization Studies to assess biological resources in the La Joya Project. A list of those studies, as well as studies completed for the adjacent El Cabo Wind Farm within which the majority of the Gen-Tie Corridor is located, is presented below. These studies were used to develop the evaluation.

2.1.1 Gen-Tie Corridor and Wind Project Area

Note that studies relevant to the Gen-Tie Corridor also encompassed areas outside of the Gen-Tie Corridor.

- Final Biological Evaluation for the La Joya and Lucia Energy Project, Torrance County, NM (EPG 2017a);
- Final La Joya North Wind Energy Project Raptor Nest Survey Report (Tetra Tech 2018a);
- Final La Joya South/Lucia Energy Project Raptor Nest Survey Report (Tetra Tech 2018b);
- Final La Joya North Wind Energy Project Site Characterization Study – Tier 1/Tier 2 Report (Tetra Tech 2018c);
- Final La Joya South Wind Energy Project Site Characterization Study – Tier 1/Tier 2 Report (Tetra Tech 2018d);
- Unpublished data from avian and eagle use point counts conducted at the La Joya Wind Project August 2017-August 2018, and from roost surveys conducted December 2017-January 2018 (Tetra Tech 2018e);
- Wetland Desktop Analysis Memo- La Joya Project, Torrance County, New Mexico (Tetra Tech 2018f);
- Acoustic Bat Studies for the El Cabo Wind Resource Area, Torrance County, NM (WEST 2012);

- Wildlife Baseline Studies for the El Cabo Wind Resource Area, Torrance County, NM (WEST 2013);
- Biological Studies for the Proposed El Cabo Wind Energy Project (this includes a CH2M 2010 BE without figures attached and all the WEST studies) (NMSLO 2014); and
- Wildlife Baseline Studies for the El Cabo Wind Resource Area, Torrance County, NM (WEST 2015)

2.2 Field Visit

Field surveys were conducted by biologists within the Gen-Tie Corridor and Wind Project Area to prepare the reports listed in Section 2.1. Tetra Tech conducted a field evaluation of the Wind Project Area on August 14-20, 2017 (Tetra Tech 2018b). A site visit for the purpose of evaluating the Gen-Tie Corridor and Wind Project Area was completed by a Tetra Tech senior scientist in October 2018.

3.0 DESCRIPTION OF REGIONAL AND LOCAL CONDITIONS

Many of the regional conditions in Torrance County apply to both the Gen-Tie Corridor and the Wind Project Area. Differences in local conditions between these two areas are called out explicitly.

3.1 Climate, Topography, and Soils

Torrance County temperatures range from 55°F to 87°F in the summer, and between 18°F and 45°F during winter (WRCC 2017). Annual snowfall averages 17.4 inches and annual rainfall averages 12 inches (WRCC 2017). Prevailing winds are from the southwest, with intense spring winds occurring regularly. The topography of the Gen-Tie Corridor and Wind Project Area is generally flat with some gently rolling hills. Dominant soils in the Gen-Tie Corridor and Wind Project Area are comprised of the Clovis Loam, Clovis-Dean Loam, Harvey-Dean Loam, and Tapia Loam series (USDA 2018). Permeability of these soils ranges from moderately slow to moderate, with small portions of the Gen-Tie Corridor and Wind Project Area containing hydric soils (NRCS 2018; Figure 2).

3.2 Water Resources and Floodplains

A wetland desktop analysis was completed to assess the presence of wetlands and other surface waters within the La Joya Project (Tetra Tech 2018f). Results of the assessment indicate that there are a number of NHD-mapped ephemeral drainages present within the La Joya Project that may flow during storm events; however, there are no perennial channel features present (USGS 2018a). The ephemeral channels appear to all ultimately drain either to uplands or into

internally-draining salt lakes and depressional areas located within or near the La Joya Project. There are also a number of small NHD-mapped waterbodies and NWI-mapped emergent wetlands and freshwater ponds located throughout the La Joya Project, primarily within the Wind Project Area (USGS 2018a, USFWS 2018). These features appear to be isolated and are generally limited to diked or impounded freshwater pond/emergent wetland areas associated with stock ponds, or seasonal/intermittent freshwater emergent wetlands associated with depressional areas and/or ephemeral swales and channels. There are also a number of FEMA-mapped depressional "Zone A" or 100-year floodplains located within the La Joya Project (FEMA 2018; Figure 2). As noted above, these features also appear to be associated with isolated depression areas and associated ephemeral drainages.

The La Joya Project lies within the Rio Grande Closed Basins hydrologic unit code (HUC) 6 watershed, which is a series of interior-draining closed basins. Within the Rio Grande Closed Basins, the La Joya Project is further divided between the Eastern Estancia and Western Estancia HUC 8 watersheds (USGS 2018b; Figure 2), which comprise the Estancia Basin. All drainage features within both the Eastern and Western Estancia Watersheds, including those located within the La Joya Project, either dissipate into uplands or drain internally to ephemeral salt lakes, depressional areas, including historic playas, or upland swales that may temporarily contain water from seasonal storms or are used as stock ponds for livestock watering. There are no surface connections to waters outside the interior-drainage basin.

Historically, the USACE Albuquerque District has determined that these large internally-draining basins are "isolated basins," and therefore the water features associated with these basins, such as those within the Study Area, are not subject to Section 404 of the CWA (NMED-SWQB 2018). However, only the USACE can issue a jurisdictional determination for water resources potentially impacted by project activities.

3.3 Land Use and Land Cover

The majority of the Gen-Tie Corridor and Wind Project Area are rural, supporting open, undeveloped rangeland. The landscape includes the following development: wind energy facilities, pipelines, electric transmission lines, oil and gas wells, highways, railroads, few rural residential dwellings, and ranching and farming facilities.

The majority of the La Joya Project lies within the Plains-Mesa Grassland vegetation association (Dick-Peddie 1993). Plains-Mesa Grassland is a shortgrass prairie and is the western edge of the Great Plains in New Mexico. Plains-Mesa Grassland is almost completely grass dominated, although scattered shrubs and sub-shrubs are present, often in areas affected by heavier grazing (EPG 2017a).

The dominant land cover, based on NLCD data (Homer et al. 2015), is grassland/herbaceous, which makes up over 99 percent of the combined acreage of the Gen-Tie Corridor and Wind Project Area and is predominantly used for grazing cattle (Table 3-1; Figure 3). The grassland habitat found in the Gen-Tie Corridor and Wind Project Area is common throughout eastern New Mexico and the Great Plains. Vegetation is mostly shortgrass prairie species, dominated by grama grasses (*Bouteloua* spp.), New Mexico feathergrass (*Stipa neomexicana*), threeawns (*Aristida* spp.), little bluestem (*Schizachyrium scoparium*), soapweed yucca (*Yucca glauca*), broom snakeweed (*Gutierrezia sarothrae*), and areas of scattered juniper (*Juniperus* spp.) near hills or in rougher topography. Wildlife species common within this habitat include pronghorn (*Antilocarpa americana*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), desert cottontail (*Sylvilagus audubonii*), and various reptiles.

Table 3-1. Land Cover in the La Joya Project

NLCD Land Cover	Approximate Acres in the Wind Project Area ¹	Approximate Percentage of Wind Project Area	Approximate Acres in the Gen-Tie Corridor ¹	Approximate Percentage of Gen-Tie Corridor
Grassland/Herbaceous	50,664.4	99.3	2,113.2	97.0
Shrub/Scrub	218.8	0.4	52.2	2.3
Barren Land	79.0	0.2	–	–
Developed, Medium Intensity	26.3	0.1	–	–
Developed, Low Intensity	9.3	<0.1	–	–
Developed, Open Space	–	–	9.0	0.4
Evergreen Forest	0.7	<0.1	5.6	0.3
Developed, High Intensity	1.5	<0.1	–	–
Total	51,000	–	2,180	–

1. There is overlap among portions of the Gen-Tie Corridor and Wind Project Area.

3.3.1 Gen-Tie Corridor

After grassland/herbaceous land cover, the remaining combined land cover types account for approximately 3 percent of the Gen-Tie Corridor (Table 3-1). This coverage is indicative of the lack of surface water resources present throughout the Gen-Tie Corridor. The Gen-Tie Corridor intersects US-60 and the BNSF railroad along the southern portion of the line, and is comprised predominantly of private lands, with a portion of lands managed by the New Mexico State Land Office. The Gen-Tie Corridor is located within the Torrance County agricultural zoning district,

and land use is comprised almost entirely of cattle ranching and the existing El Cabo Wind Farm and El Cabo 345-kV gen-tie line (Figure 1).

3.3.2 Wind Project Area

After grassland/herbaceous land cover, the remaining combined land cover types account for less than 0.7 percent of the Wind Project Area (Table 3-1). This coverage is indicative of the lack of surface water resources present throughout the Wind Project Area.

The BNSF railroad runs through the northern portion of the Wind Project Area, and land ownership is comprised of both private lands and lands managed by the New Mexico State Land Office. Land use in the Wind Project Area is dominated by cattle ranching, with one occupied residence and a few public roads that are caliche-covered, with the majority of them being two-tracks.

4.0 ASSESSMENT OF SPECIAL-STATUS SPECIES

The likelihood of occurrence of special-status species and the potential for impacts is often the same for the Gen-Tie Corridor and the Wind Project Area. Differences in potential for impacts between these two areas are called out explicitly. Special-status species include species listed under the federal Endangered Species Act (ESA) and the state's Wildlife Conservation Act and Endangered Plant List established by the Energy, Minerals, and Natural Resources Department of New Mexico as well as Species of Greatest Conservation Need (SGCN) from the New Mexico Wildlife Action Plan (NMDGF 2016). Table 4-1 lists special-status species that have potential to occur in the Gen-Tie Corridor or the Wind Project Area.

4.1 Federally Protected Species

No species protected under the ESA are likely to occur in the Gen-Tie Corridor or Wind Project Area. The golden eagle, protected under the Bald and Golden Eagle Protection Act (BGEPA) has a high likelihood of occurrence in the La Joya Project (Table 4-1) and was observed at the Wind Project Area incidental to raptor nest surveys performed in Spring 2018 (Tetra Tech 2018b). A more detailed summary for the golden eagle appears below, as it is the only species protected under the ESA or BGEPA to have a high likelihood of occurrence in the La Joya Project.

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Birds							
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>	-	T	-	Migrant throughout state from subspecies' far northern breeding range; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No lake shores, coastlines, or barrier islands available for stopover areas, and no urban environments available at the Wind Project Area or Gen-Tie Corridor.	Low
Baird's sparrow	<i>Ammodramus bairdii</i>	-	T	S	Shortgrass prairie with scattered low bushes and matted vegetation.	Shortgrass prairie grasslands with small shrubs are present throughout the Gen-Tie Corridor and Wind Project Area.	Moderate

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Bald eagle	<i>Haliaeetus leucocephalus</i>	P	-	H	Riparian, lacustrine, freshwater wetlands, and saltwater wetlands.	No perennial rivers, only ephemeral streams present at the Gen-Tie Corridor and Wind Project Area. No large tracts of riparian forests. Observed at the nearby El Cabo Wind Farm.	Low
Bendire's thrasher	<i>Toxostoma bendirei</i>	-	-	I	Desert scrub, grasslands with scattered brush or yuccas.	Grasslands present throughout the Gen-Tie Corridor and Wind Project Area. Limited brush and yucca.	Moderate
Burrowing owl	<i>Athene cunicularia</i>	-	-	H	Flat, open areas such as prairies with a few scattered bushes. Often found around prairie dog towns or ground squirrel colonies.	Active prairie dog colonies on site. Observed at the Wind Project Area and at the nearby El Cabo Wind Farm.	High
Cassin's sparrow	<i>Peucaea cassinii</i>	-	-	S	Shortgrass prairies with interspersed bushes such as mesquite, yucca, and cactus.	Documented occurrences at the Wind Project Area and at the nearby El Cabo Wind Farm.	High

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Eared grebe	<i>Podiceps nigricollis</i>	-	-	H	Shallow ponds and lakes with emergent reeds.	Scattered shallow small ponds present within Gen-Tie Corridor and Wind Project Area but nearly all associated with stock ponds.	Low
Golden eagle	<i>Aquila chrysaetos</i>	P	-	-	Desert scrub, grassland, and shrubland.	Open grasslands and shrublands present within the Wind Farm Area and Gen-Tie Corridor. Documented occurrences at the Wind Project Area and nearby El Cabo Wind Farm.	High
Gray vireo	<i>Vireo vicinior</i>	-	T	I	Desert scrub, pinyon-juniper woodlands, oak scrub, and chaparral.	Habitat at the Gen-Tie Corridor and Wind Project Area is primarily grasslands and is unlikely to be suitable for gray vireo. May occur during post-breeding dispersal or migration. Documented occurrence at the nearby El Cabo Wind Farm.	Low

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Loggerhead shrike	<i>Lanius ludovicianus</i>	-	-	S	Open prairies with scattered bushes and trees.	Shortgrass prairie with small, dispersed bushes (yucca, cholla) present within the Wind Farm Area and Gen-Tie Corridor. Observed at the Wind Project Area and nearby El Cabo Wind Farm.	High
Long-billed curlew	<i>Numenius americanus</i>	-	-	S	Breeding habitat includes shortgrass prairies; wintering habitat includes marshes and fields.	Shortgrass prairie present in the Gen-Tie Corridor and Wind Project Area, but they are outside of this species' typical breeding range. May occur during migration between breeding and wintering areas. Observed at the nearby El Cabo Wind Farm.	Moderate

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	-	F	Mature, old growth forests in canyons and steep slopes.	No tracts of mature forest near the Wind Project Area or Gen-Tie Corridor. Two known occurrences in Torrance County. Critical habitat within Torrance County is over 30 miles to the west in Cibola National Forest.	Low
Mountain bluebird	<i>Sialia currucoides</i>	-	-	S	Open woodlands including meadows, hedgerows, prairies, and flat grasslands, pinyon-juniper and oak-juniper woodlands, and agricultural areas.	Open grasslands and shrublands present at the Gen-Tie Corridor and Wind Project Area. Documented occurrences at the nearby El Cabo Wind Farm.	High
Mountain plover	<i>Charadrius montanus</i>	-	-	S	Dry grassland, semi-desert scrub, and agricultural areas.	Documented occurrences at the nearby El Cabo Wind Farm.	Moderate

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Peregrine falcon	<i>Falco peregrinus</i>	-	T	H	Year-round resident in the mountains of southern New Mexico and breeder in northwest New Mexico. Nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Outside of known breeding areas in New Mexico. Limited roosting and foraging habitat available near the near the Wind Project Area or Gen-Tie Corridor. One individual documented at the Wind Project Area in Fall 2018.	Low

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	-	-	I	Pinyon-juniper woodlands, sagebrush, scrub oak, chaparral, and ponderosa pine forests.	Shrublands present at the Gen-Tie Corridor and Wind Project Area. Documented occurrences at the nearby El Cabo Wind Farm.	High
Snowy plover	<i>Charadrius nivosus</i>	-	-	S	Sandy beaches, shallow inland lakes.	The Gen-Tie Corridor and Wind Project Area are not near main migratory stopover areas but individuals may be present when migrating from northern breeding grounds to wintering areas.	Low
Sprague's pipit	<i>Anthus spragueii</i>	-	-	I	Native upland prairie and fallow fields/stubble.	Grasslands present. Individuals may stopover during migration; the Gen-Tie Corridor and Wind Project Area is on the outer edge of primary migratory route.	Low

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Jota Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	E	F	Dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs.	Few wetlands or ponds are present and no large tracts of riparian forests are located within the Wind Farm Area or Gen-Tie Corridor. Limited predicted habitat (Hatten 2016).	Low
Vesper sparrow	<i>Pooecetes gramineus</i>	-	-	S	Sagebrush-steppe, ponderosa pine forests, prairies.	Grasslands present within the Wind Farm Area and Gen-Tie Corridor. Documented occurrences at the Wind Project Area and at the nearby El Cabo Wind Farm.	High
Virginia's warbler	<i>Oreothlypis virginiae</i>	-	-	I	Open woodlands with brushy undergrowth on slopes.	Few areas with wooded habitat present within the Wind Farm Area or Gen-Tie Corridor, primarily around homesteads. One documented occurrence in Torrance County.	Low

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Western bluebird	<i>Sialia mexicana</i>	-	-	S	Wooded habitat with open areas. Winters in pinyon-juniper woodlands.	Few areas with wooded habitat present within the Wind Farm Area or Gen-Tie Corridor, primarily around homesteads. Documented occurrences at the Wind Project Area and at the nearby El Cabo Wind Farm.	Moderate
Yellow-billed cuckoo (Western Distinct Population Segment)	<i>Coccyzus americanus</i>	T	-	F	Low to moderate elevation riparian cottonwood-willow forests.	Only ephemeral streams are present within the Wind Farm Area and Gen-Tie Corridor; there are no large tracts of riparian forests.	Low

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Mammals							
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	-	-	I	Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle.	Shortgrass prairie present within the Wind Farm Area and Gen-Tie Corridor, which are actively grazed by cattle. Active prairie dog colonies (undetermined species) observed at the Wind Project Area.	High
Gunnison's prairie dog	<i>Cynomys gunnisoni</i>	-	-	I	Grasslands and semi-desert/montane shrublands at elevations from 6,000 to 12,000 feet.	Shortgrass prairie present within the Wind Farm Area and Gen-Tie Corridor. Active prairie dog colonies (undetermined species) observed at the Wind Project Area and at the nearby El Cabo Wind Farm. Nine known occurrences in Torrance County.	High

Table 4-1. Wildlife Special-Status Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Federal Status ¹	State Status ²	SGCN Category ³	Preferred Habitat	Available Habitat in Gen-Tie Corridor and Wind Project Area	Likelihood of Occurrence ⁴
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallascens</i>	-	-	S	Roosts in caves, abandoned mine tunnels, and occasionally old buildings. Associated with dry uplands with both deciduous and coniferous forests; semi-desert scrub and pinyon-juniper woodlands.	Limited forest and woodlands present within the Wind Farm Area or Gen-Tie Corridor. Some cliffs/crevices present that could represent suitable habitat.	Low
Reptiles							
Desert massasauga	<i>Sistrurus tergeminus edwardsii</i>	-	-	D	Desert grasslands, shortgrass prairies, shinnery oak shrublands.	Shortgrass prairie present within the Wind Farm Area and Gen-Tie Corridor.	Moderate

Source: WEST 2013, Sibley 2014; WEST 2015, BISON-M 2017, NHHM 2017, USFWS 2017b, Tetra Tech 2018a, Tetra Tech 2018b, Tetra Tech 2018d, Tetra Tech 2018e

1 Federal Listings: E = Endangered, T = Threatened, P = Protected by Bald and Golden Eagle Protection Act.
2 State Listings: E = Endangered, T = Threatened.

3 Species of Greatest Conservation Need (SGCN) NMDGF Category: Category I (Immediate Priority), Category H (Limited Habitat), Category S (Susceptible), Category D (Conservation Data Gaps), and Category F (Federally listed) species.

4 Likelihood of Occurrence: Low—species' range overlaps the Project and marginally suitable habitat is present in the vicinity; Moderate—species' range overlaps the Project and suitable habitat is present in the vicinity, or species is known to occur in habitat similar to that at the Project; High—species observed during field surveys, highly suitable habitat present, or known populations exist in the vicinity (previous surveys at nearby locations).

No critical habitat for any federally listed species occurs within 30 miles of the Gen-Tie Corridor or Wind Project Area (USFWS 2017b; Tetra Tech 2018d). The closest critical habitat for any federally listed species is for Mexican spotted owls (*Strix occidentalis lucida*) in the Manzano Mountains, located more than 30 miles from the Gen-Tie Corridor and Wind Project Area.

In addition to the golden eagle, four other species protected under the ESA or the BGEPA are known to occur, or potentially occur, within Torrance County (USFWS 2017a, BISON-M 2017; Table 4-1). Habitat for three of these species, the southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (western distinct population segment; *Coccyzus americanus*), and Mexican spotted owl is absent from the Gen-Tie Corridor and Wind Project Area; likelihood of occurrence of these species in the La Joya Project is low. A single individual bald eagle (*Haliaeetus leucocephalus*) has been observed at the La Joya Project (WEST 2015), but the species has a low likelihood of occurrence based upon the lack of suitable habitat and the La Joya Project's location relative to the species' range (Tetra Tech 2018d).

4.1.1 Golden Eagle

Golden eagles may use the Gen-Tie Corridor and Wind Project Area for foraging due to occurrence of prey species, but are not likely to use these areas for nesting due to lack of nesting habitat.

Golden eagles in the western United States are most commonly associated with open and semi-open habitats such as shrublands, grasslands, woodland-brushlands, and coniferous forests, as well as farmland and riparian habitats (Kochert 1986, Kochert et al. 2002). Golden eagles typically nest on cliff faces or in large trees; breeding areas vary by region, but are generally associated with mountainous canyon land, rimrock terrain of open desert, grassland areas, riparian habitats, and occasionally in forested areas (Kochert et al. 2002).

Golden eagles are known to occur year-round in the region in which the La Joya Project is proposed to be located (Sibley 2014). Raptor nest surveys were performed by Tetra Tech during Spring 2018 in accordance with recommendations in the WEG, Stage 2 of the ECPG, and the Eagle Rule (USFWS 2016). The objective of the surveys was to inventory all raptor nests within 1-mile of the Wind Project Area, and all bald and golden eagle nests within 10 miles of the Wind Project Area and an area north of the El Cabo Wind Farm (Tetra Tech 2018a, Tetra Tech 2018b). As a result, the entirety of the La Joya Project including the Gen-Tie Corridor was covered during the survey effort. The closest known golden eagle nests are a cluster of six nests on cliffs more than 6 miles from the northern end of the Gen-Tie Corridor and more than 13 miles to the north of the Wind Project Area (Tetra Tech 2018b). During the 2018 nest surveys, the biologist determined one of these nests to be in good condition, while the other five nests would need major repair in order to be used for breeding (Tetra Tech 2018a).

Golden eagles feed upon a wide variety of prey species but tend to hunt small to medium-sized mammals (Kochert et al. 2002). Foraging opportunities in the form of spotted ground squirrel (*Xerospermophilus spilosoma*) and Gunnison's prairie dog (*Cynomys gunnisoni*) colonies are present within the La Joya Project (Figure 4; WEST 2013, Tetra Tech 2018d). Golden eagles have been observed infrequently during surveys at the Wind Project Area as well as at the nearby El Cabo Wind Farm (WEST 2013, WEST 2015, Tetra Tech 2018e). Based on this information, the likelihood of occurrence of golden eagles at the La Joya Project is high (Table 4-1; Tetra Tech 2018d).

4.1.1.1 Gen-Tie Corridor

No in-use bald or golden eagle nests were found within 10 miles of the Gen-Tie Corridor during the 2018 raptor nest surveys (Tetra Tech 2018a, Tetra Tech 2018b). The nearest golden eagle nests to the Gen-Tie Corridor are located more than 6 miles to the northeast, and all were alternate (meaning inactive) in 2018 (Tetra Tech 2018a). Golden eagles have been observed infrequently during avian use surveys at the nearby El Cabo Wind Farm (WEST 2013, WEST 2015), and one was observed incidental to surveys north of the El Cabo Wind Farm (Tetra Tech 2018e). Golden eagles may use the Gen-Tie Corridor for foraging on small mammals.

4.1.1.2 Wind Project Area

No bald or golden eagle nests were detected within 10 miles of the Wind Project Area; however, four large inactive raptor nests with unknown species determination were detected within 10 miles. These four large nests had characteristics that indicate they could have been used by eagles in the past, or may be used by eagles in the future, but were insufficient to definitively classify the nests as being built or used by golden eagles. Three incidental observations of golden eagles were made within the Wind Project Area during the aerial nest survey, but these observations likely represent no more than two unique individuals (Tetra Tech 2018b). No eagles have been observed within the Wind Project Area during 429 hours of eagle use surveys from August 2017 through August 2018 (Tetra Tech 2018e). Golden eagles may use the Wind Project Area for foraging on small mammals.

4.2 State-Listed Species

The potential for state-listed species to occur in the Gen-Tie Corridor or Wind Project Area is generally low, with only a moderate likelihood for one species listed as state threatened, Baird's Sparrow (*Ammodramus bairdii*), to occur at the La Joya Project.

Based on the county data provided by the state's BISON-M database of state threatened and endangered wildlife species (BISON-M 2017), the southwestern willow flycatcher is the only bird species that is state-listed as endangered that has the potential to occur in Torrance County

(Table 4-1). Similarly, there are four bird species that are state-listed as threatened that have the potential to occur in Torrance County: bald eagle, Baird's sparrow, gray vireo (*Vireo vicinior*), and peregrine falcon/artic peregrine falcon (*Falco peregrinus ssp. tundrius*; Table 4-1).

Other than the Baird's sparrow, the state-listed threatened and endangered species mentioned above have a low likelihood of occurrence, based on a combination of lack of suitable habitat, recorded specimens or recent occurrences in the vicinity of the La Joya Project, and the La Joya Project's location relative to the species' ranges (Table 4-1). Bald eagle and gray vireo were observed at the nearby El Cabo Wind Farm during avian use surveys (WEST 2015), and a single peregrine falcon was observed during avian use surveys at the Wind Project Area (Tetra Tech 2018e).

The Baird's sparrow is a migrant throughout most of New Mexico, and winters in the southernmost portions of the state. Baird's sparrows are typically found in grasslands, weedy fields, and hay fields during migration (Green et al. 2002). There are expansive grasslands with small shrubs/forbs throughout the La Joya Project that are used as rangeland for cattle. No Baird's sparrows have been observed at the La Joya Project during surveys to date (EPG 2015, Tetra Tech 2018e). There are few records of Baird's sparrows reported within the vicinity of the La Joya Project (eBird 2012). Based on the presence of available habitat at the La Joya Project, the Baird's sparrow has a moderate likelihood of occurrence in the La Joya Project during migration (Tetra Tech 2018d).

4.3 State Species of Greatest Conservation Need

There are 25 SGCN with the potential to occur at the La Joya Project out of the 39 SGCN that the New Mexico Department of Game and Fish (NMDGF) considers having potential to occur within Torrance County. The assessment of potential for occurrence within the La Joya Project is based upon known species' ranges, documented occurrences, and/or the presence of suitable habitat (Table 4-1; NMDGF 2016). Aquatic species such as crustaceans and fish were excluded from analysis due to the lack of perennial surface water habitat and the expected avoidance of features within ephemeral channels and isolated wetlands within the La Joya Project with potential to contain these species.

New Mexico's State Wildlife Action Plan identifies SGCN, which are ranked by NMDGF based on rarity, the likelihood of extirpation of the species from the state, and importance to a functioning ecosystem (NMDGF 2016). Designation as SGCN may indicate that a species may be at risk and may be likely to be listed in the future, but does not impose any regulatory or legal requirements.

4.3.1 Gen-Tie Corridor

Information on the occurrence of SGCN within the Gen-Tie Corridor is drawn from surveys at the El Cabo Wind Farm. The El Cabo surveys were performed from point-count locations that occurred both within and outside of the Gen-Tie Corridor. The habitat sampled at the survey locations is representative of the Gen-Tie Corridor, and therefore the occurrence of SGCN during the El Cabo surveys is likely representative of occurrence of SGCN within the Gen-Tie Corridor. Eleven SGCN species (ten birds and one mammal) were detected during or incidental to year-round avian point count surveys conducted at the El Cabo Wind Farm (WEST 2013, WEST 2015): pinyon jay (*Gymnorhinus cyanocephalus*), mountain bluebird (*Sialia currucoides*), mountain plover (*Charadrius montanus*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus*), burrowing owl (*Athene cunicularia*), Cassin's sparrow (*Peucaea cassinii*), vesper sparrow (*Pooecetes gramineus*), western bluebird (*Sialia mexicana*), bald eagle, and Gunnison's prairie dog.

4.3.2 Wind Project Area

Six SGCN bird species were detected during year-round avian point count surveys conducted at the Wind Project Area, August 2017- August 2018 (Tetra Tech 2018e): loggerhead shrike, vesper sparrow, Cassin's sparrow, burrowing owl, peregrine falcon, and western bluebird. Additionally, two SGCN mammals, Gunnison's prairie dogs and black-tailed prairie dogs (*Cynomys ludovicianus*), have been observed within the Wind Project Area (Tetra Tech 2018b, Tetra Tech 2018e).

4.4 Birds of Conservation Concern

Several Birds of Conservation Concern (BCC) may occur within the Gen-Tie Corridor and Wind Project Area. The USFWS identifies BCC that may become candidates for listing under the ESA. The BCC list represents high conservation priority avian species within ecologically distinct Bird Conservation Regions (BCR) that may be a risk (USFWS 2008). Identification as a BCC does not impose any regulatory or legal requirements.

The La Joya Project occurs within BCR 16 – Southern Rockies/Colorado Plateau (USFWS 2008). BCC with the potential to occur at the La Joya Project, based on the USFWS IPaC report (Appendix A), are shown in Table 4-2. To identify BCC that have been documented near the La Joya Project, Tetra Tech queried data from the Site Characterization Study reconnaissance visit (Tetra Tech 2018d), avian point count surveys (WEST 2013, WEST 2015, Tetra Tech 2018e), raptor nest surveys (Tetra Tech 2018a, Tetra Tech 2018b), National Audubon Society CBC database (2004–2016; NAS 2017), and USGS North American BBS database (1966–2016; Sauer et al. 2017). Although the CBC and BBS datasets do not provide information directly from the

Gen-Tie Corridor or Wind Project Area, they do contain similar habitat; thus, the CBC and BBS results are applicable for a general characterization of BCC that have the potential to occur at the La Joya Project (Table 4-2). The season of occurrence at the La Joya Project was estimated based on range maps for each species (Sibley 2014).

Table 4-2. BCC with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Season of Occurrence				Survey Type ¹
		Spring	Summer	Fall	Winter	
American bittern	<i>Botaurus lentiginosus</i>	X	–	X	–	None
Bald eagle ²	<i>Haliaeetus leucocephalus</i>	–	–	–	X	None
Bendire's thrasher	<i>Toxostoma bendirei</i>	–	X	–	–	None
Black rosy-finch	<i>Leucosticte atrata</i>	–	–	–	X	None
Brewer's sparrow ²	<i>Spizella breweri</i>	X	–	X	–	CBC
Brown-capped rosy-finch	<i>Leucosticte australis</i>	–	–	–	X	None
Burrowing owl ²	<i>Athene cunicularia</i>	X	X	X	–	None
Cassin's finch	<i>Haemorhous cassinii</i>	–	–	–	X	CBC
Chestnut-collared longspur ²	<i>Calcarius ornatus</i>	X	–	X	X	CBC
Ferruginous hawk ²	<i>Buteo regalis</i>	X	X	X	X	Both
Flammulated owl	<i>Psilosops flammeolus</i>	X	X	X	–	None
Golden eagle ²	<i>Aquila chrysaetos</i>	X	X	X	X	Both
Grace's warbler	<i>Dendroica graciae</i>	X	X	X	–	None
Grasshopper sparrow	<i>Ammodramus savannarum</i>	X	X	X	–	Both
Gray vireo ²	<i>Vireo vicinior</i>	X	X	X	–	None
Juniper titmouse ²	<i>Baeolophus ridgwayi</i>	X	X	X	X	Both
Lewis's woodpecker	<i>Melanerpes lewis</i>	X	X	X	X	None
Long-billed curlew ²	<i>Numenius americanus</i>	X	–	X	–	BBS
Loggerhead shrike ²	<i>Lanius ludovicianus</i>	X	X	X	X	None

Table 4-2. BCC with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Season of Occurrence				Survey Type ¹
		Spring	Summer	Fall	Winter	
Mountain plover ²	<i>Charadrius montanus</i>	X	X	X	–	None
Peregrine falcon ²	<i>Falco peregrinus</i>	X	–	X	–	CBC
Pinyon jay ²	<i>Gymnorhinus cyanocephalus</i>	X	X	X	X	Both
Prairie falcon ²	<i>Falco mexicanus</i>	X	X	X	X	Both
Willow flycatcher	<i>Empidonax traillii</i>	X	X	X	–	None
Yellow-billed cuckoo (Western D.P.S.)	<i>Coccyzus americanus</i>	X	X	X	–	None

Source: Sibley 2014, Sauer et al. 2017, USFWS 2008.

1 BBS = Breeding Bird Survey (Mountainair, Gallo Arroyo, and Pastura BBS routes), CBC = Christmas Bird Count (Five Points Count Circle), Both = Observed during BBS and CBC, None = Not observed during BBS or CBC.

2 Observed at the La Joya Project during raptor nest surveys or avian point count surveys (WEST 2013, WEST 2015, Tetra Tech 2018a, Tetra Tech 2018b, Tetra Tech 2018e).

5.0 ASSESSMENT OF OTHER BIOLOGICAL RESOURCES

The likelihood of occurrence of biological resources other than special-status species and the potential for impacts is often the same for the Gen-Tie Corridor and the Wind Project Area. Differences in potential for impacts between these two areas are called out explicitly.

5.1 Avian Staging Areas and Rookeries

The Gen-Tie Corridor and Wind Project Area do not provide suitable habitat to support avian staging areas and rookeries. Habitats within the Wind Project Area and Gen-Tie Corridor were evaluated in August 2017 (Tetra Tech 2018c, Tetra Tech 2018d). This analysis area encompasses the entirety of the La Joya Project. As noted in Section 3.2, there are only small, scattered isolated wetlands within the La Joya Project; however, there are waterbodies in the region outside the La Joya Project that may provide staging or stopover habitat for migrant bird species. These waterbodies consist of a series of saltwater lakes that may fill up seasonally (SNM 2016). The largest of the saltwater lakes is Laguna del Perro (13,000 acres), which is more than 14 miles west of the Gen-Tie Corridor and more than 8 miles west of the Wind Project Area (Figure 1). NWI defines these waterbodies as lacustrine lake systems that are seasonally flooded (surface water present for extended periods early in the growing season) or temporarily flooded (surface water present for brief periods from a few days to a few weeks during the growing season);

USFWS 2017c). Although these saltwater lakes may provide staging areas for certain species, particularly shorebirds, the area is not known to be a hotspot of bird activity (eBird 2012, EPG 2017).

Raptor roost surveys were conducted to identify the presence of communal bald eagle or turkey vulture roosts within 10 miles of the Wind Project Area and an area north of the El Cabo Wind Farm (Tetra Tech 2018a, Tetra Tech 2018d). No roosts were identified during the desktop or field surveys (Tetra Tech 2018a, Tetra Tech 2018d). No waterbird rookeries have been documented in the Gen-Tie Corridor or Wind Project Area. Furthermore, large trees surrounding wetlands or water bodies which are used as rookeries are not present in the vicinity of the La Joya Project and thus there is negligible potential for occurrence of rookeries (Tetra Tech 2018a, Tetra Tech 2018b, Tetra Tech 2018c, Tetra Tech 2018d).

5.2 Bats

The Gen-Tie Corridor and Wind Project Area generally do not include habitat features that may attract foraging bats relative to the vicinity, or that may support roosting. Nineteen bat species have the potential to occur at the La Joya Project out of 29 bat species occurring in New Mexico based on evaluation of species' ranges, documented occurrences, and habitat preferences (Adams 2003, BISON-M 2017, WBWG 2017, UNM 2017; Table 5-1). None of these bat species are currently listed as threatened or endangered at the federal or state level (USFWS 2017a; BISON-M 2017) and only one is considered a SGCN: the pale Townsend's big-eared bat subspecies (*Plecotus townsendii pallescens*), which is ranked as SGCN Susceptible (NMDGF 2016; Table 5-1) but has a low likelihood of occurring at the La Joya Project due to lack of suitable habitat.

Of the 19 bat species, four are tree-roosting species; eight are species that use natural features such as caves, cracks, and crevices, as well as abandoned mines and buildings for roosting; and seven are habitat generalists that use trees and other natural features (Table 5-1). Although many of these species are associated with riparian areas and forested habitats that are absent in the Gen-Tie Corridor and Wind Project Area, several bat species use desert, scrub, and grassland habitats for foraging. Bat use of these habitats within the Gen-Tie Corridor or Wind Project Area for foraging is not expected to be higher compared to those in the general vicinity given the widespread nature of these habitats in the region.

Table 5-1. Bat Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Migratory Status	Roosting Habitats	Habitat Association	Wind-Energy Fatalities	Likelihood of Occurrence ¹
Arizona myotis	<i>Myotis occultus</i>	Non-migratory	Trees, buildings, and bridges.	Conifer forests 6,000 – 9,000 feet elevation. Typically foraging associated with perennial water source.	Unknown	Low
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Migratory	Rocky out-crops, canyons, or cliffs.	Desert and arid grassland areas. Documented to occur at nearby at El Cabo Wind Farm (WEST 2013).	Few fatalities found at a wind farm within species range (Thompson et al. 2011).	High
Big brown bat	<i>Eptesicus fuscus</i>	Non-migratory	Tree bark and cavities – coniferous and deciduous and conifer, buildings, barns, bridges, and bat houses.	Found in a wide variety of habitats from timberline meadows to lowland deserts, though most abundant in deciduous forests. Also often abundant in suburban areas of mixed agricultural use.	Found frequently as fatalities throughout its range (Arnett et al. 2008).	Low
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	Migratory	Caves, rock crevices, abandoned mines, bridges and buildings.	Desert scrub communities, pinyon-juniper woodland, pine-oak forests, and riparian areas.	Found frequently as fatalities in Oklahoma and Texas (Arnett et al. 2008).	High
California myotis	<i>Myotis californicus</i>	Non-migratory	Caves, mines, rocky hillsides, tree bark, buildings.	Grasslands, deserts, ponderosa pine.	Unknown	Moderate

Table 5-1. Bat Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Migratory Status	Roosting Habitats	Habitat Association	Wind-Energy Fatalities	Likelihood of Occurrence ¹
Canyon bat	<i>Parastrellus hesperus</i>	Non-migratory	Roosts day and night among boulders, or in cracks and crevices of rock faces.	Mountain ranges, rocky canyons, cliffs, and creosote bush flats.	Few fatalities found at a wind farm within species range (Miller 2008).	Moderate
Cave myotis	<i>Myotis velifer</i>	Non-migratory	Caves, old buildings.	Lower elevations of the southwest. Forage in dense riparian vegetation, drainage basins, and drier desert washes.	Few fatalities found at a wind farm within species range (Piorkowski and O'Connell 2010).	Low
Eastern red bat	<i>Lasiurus borealis</i>	Migratory	Tree foliage - usually deciduous, sometimes coniferous.	Hardwood deciduous forests and riparian areas.	One of most common fatalities; fatalities assumed to be migratory individuals (Kunz et al. 2007, Johnson and Erickson 2011).	High
Fringed myotis	<i>Myotis thysanodes</i>	Non-migratory	Crevices, mines, cliff faces, buildings, bridges.	Dry woodlands (Pinyon-juniper, oak, ponderosa pine), desert scrub, mesic coniferous forests, grassland, sagebrush steppe.	Unknown	Moderate
Hoary bat	<i>Lasiurus cinereus</i>	Migratory	Tree foliage - coniferous and deciduous.	Primarily coniferous forest. Also upland habitats, including deciduous and juniper forest. Documented to occur at	Most common fatality documented in North America;	High

Table S-1. Bat Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Migratory Status	Roosting Habitats	Habitat Association	Wind-Energy Fatalities	Likelihood of Occurrence ¹
Little brown bat	<i>Myotis lucifugus</i>	Non-migratory	Buildings, rock crevices, trees, caves, mines.	nearby at El Cabo Wind Farm (WEST 2013).	fatalities assumed to be migratory individuals (Kunz et al. 2007, Arnett et al. 2008).	Moderate
Long-eared myotis	<i>Myotis evotis</i>	Non-migratory	Tree bark, hollow trees, caves, mines, crevices, sinkholes, rocky outcrops.	Ponderosa pine forests, Pinyon-juniper woodlands, montane shrublands, riparian woodlands.	Found frequently as fatalities throughout its range (Arnett et al. 2008).	Low
Long-legged myotis	<i>Myotis volans</i>	Non-migratory	Crevices, tree bark, hollow trees, caves, mines, buildings.	Primarily found in coniferous forests. Also found in semi-arid shrublands, sagebrush steppe, chaparral, and agricultural areas.	Unknown	Low
Pallid bat	<i>Antrozous pallidus</i>	Non-migratory	Crevices in rocky outcrops, caves, mines, trees, buildings, bridges, and other and human-made structures.	Primarily found in coniferous forests. Also found in desert and riparian habitats. Usually open habitats, including pinyon-juniper, sagebrush, and arid scrublands.	Unknown	Moderate

Table 5-1. Bat Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Migratory Status	Roosting Habitats	Habitat Association	Wind-Energy Fatalities	Likelihood of Occurrence ¹
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Migratory	Large trees.	Northern temperate coniferous and mixed conifer/hardwood forest and riparian areas.	One of most common fatalities; fatalities assumed to be migratory individuals (Kunz et al. 2007).	Low
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallascens</i>	Non-migratory	Roosts in caves, abandoned mine tunnels, and occasionally old buildings.	Dry uplands with both deciduous and coniferous forests; semi-desert scrub and pinyon-juniper woodlands.	Unknown	Low
Western red bat	<i>Lasiurus blossevillii</i>	Migratory	Tree foliage - usually deciduous.	Riparian areas with deciduous trees such as sycamores or cottonwoods. Documented to occur at nearby at El Cabo Wind Farm (WEST 2013).	Few fatalities found at a wind farm within species range (Arnett et al. 2008).	High
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Non-migratory	Cliff/rock crevices, buildings, overpasses, caves, and mines.	Typically found in Pinyon-juniper forests, deserts, chaparral, riparian areas, and coniferous forests.	Unknown	Moderate
Yuma myotis	<i>Myotis yumanensis</i>	Non-migratory	Buildings, bridges, caves, cliff crevices, mines, and trees.	Riparian, scrublands, deserts, and forests. Usually associated with permanent sources of water, such as rivers, streams, ponds, and lakes.	Unknown	Moderate

Source: Adams 2003, BISON-M 2017, UNM 2017, USFWS 2017b, WBWG 2017.

Table S-1. Bat Species with the Potential to Occur at the La Joya Project

Common Name	Scientific Name	Migratory Status	Roosting Habitats	Habitat Association	Wind-Energy Fatalities	Likelihood of Occurrence ¹
<p>¹ Likelihood of Occurrence: Low—species' range overlaps the La Joya Project and marginally suitable habitat is present in the vicinity; Moderate—species' range overlaps with the La Joya Project and suitable habitat is present in the vicinity, or species is known to occur in habitat similar to that at the La Joya Project; High—species observed during field surveys, highly suitable habitat present, or known populations exist in the vicinity (previous surveys at nearby locations).</p>						

Based on publicly available information, no known maternity roosts, hibernacula, caves, or mines were found near the Gen-Tie Corridor or Wind Project Area (Tetra Tech 2018d). The nearest mine is more than 10 miles from the Gen-Tie Corridor and more than 2 miles from the Wind Project Area. The nearest karst features are approximately 6 miles to the west of the northern extent of the Gen-Tie Corridor, and approximately 7 miles to the southeast of the Wind Project Area. There is escarpment habitat within a mile of the northern section of the Gen-Tie Corridor that could serve as bat roosting habitat. No substantial escarpments were identified within 4 miles of the Wind Project Area. Large deciduous trees around a few historic unoccupied dwellings within the Wind Project Area were identified as potential bat roosts during the reconnaissance visit (Tetra Tech 2018d). However, it is unlikely that notable concentrations of tree-roosting bats will occur at the Gen-Tie Corridor or Wind Project Area during migration or breeding due to the sparseness of forested habitat in the area (Tetra Tech 2018d; Figure 3). These habitat features are generally not found within the Gen-Tie Corridor or Wind Project Area. Results of acoustic monitoring studies at the nearby El Cabo Wind Farm, which suggested that the area does not occur within a fall migration pathway, provide further support for this conclusion (WEST 2012).

Acoustic bat surveys at the Wind Project Area began in early April 2018 and will continue until early November 2018 to assess seasonal activity of local and migratory bat species. Two ground-based Wildlife Acoustics SM3BAT detectors were installed at locations representative of the land uses and habitat types within the Wind Project Area and will remain at the same locations throughout the study period. A preliminary review of activity data collected through September suggests that bat use rates are low to moderate, consistent with results of the monitoring at the nearby El Cabo Wind Farm (WEST 2012).

5.3 Areas of Wildlife Concentrations

Spotted ground squirrels and Gunnison's prairie dogs have been observed within the vicinity of the La Joya Project (EPG 2017, Tetra Tech 2018a, Tetra Tech 2018b, Tetra Tech 2018c, Tetra Tech 2018d). Spotted ground squirrels, documented in the Wind Project Area during the site reconnaissance visit, may provide a source of prey for raptors. Their colony mounds are more dispersed than prairie dog burrows, and the squirrels were mainly heard but not observed within the Wind Project Area; therefore, distinct colonies were not mapped. Prairie dog colonies observed within the Wind Project Area were mapped during the reconnaissance visit for the Site Characterization Study (Tetra Tech 2018d), and colonies observed within the Wind Project Area and a 10-mile buffer were mapped during raptor nest surveys (Tetra Tech 2018b; Figure 4). Prairie dogs are not a state threatened or endangered species in New Mexico, but black-tailed prairie dogs and Gunnison's prairie dogs are considered a SCGN Category I (immediate priority category; NMDGF 2016; Table 4-1). Their colonies may be used as foraging areas for eagles and

other raptors and provide habitat for other SGCN species such as burrowing owls and mountain plovers. No other areas of wildlife concentrations were observed or detected at the La Joya Project.

5.3.1 *Gen-Tie Corridor*

No prairie dog colonies were detected within the Gen-Tie Corridor (Figure 4).

5.3.2 *Wind Project Area*

Three Gunnison's prairie dog colonies were detected within the Wind Project Area (Figure 4).

5.4 **Species of Habitat Fragmentation Concern**

Certain bird species may be adversely affected by habitat fragmentation which can exacerbate the problem of habitat loss by decreasing patch area and increasing edge habitat. Habitat fragmentation can reduce bird productivity through increased nest predation and parasitism, and reduced pairing success of males (Robinson et al. 1995). The species most likely to be affected by habitat fragmentation as a result of the La Joya Project are species primarily associated with grasslands, such as the Bendire's thrasher (*Toxostoma bendirei*), burrowing owl, long-billed curlew, and Sprague's pipit (Table 4-1). As discussed above, the burrowing owl has been detected multiple times during avian use surveys conducted at the Wind Project Area and in the vicinity of the Gen-Tie Corridor, and the long-billed curlew has been detected multiple times in the vicinity of the Gen-Tie Corridor. The other two species have not been detected during surveys in the vicinity of the La Joya Project.

6.0 **CONCLUSION**

6.1 **Gen-Tie Corridor**

The proposed Gen-Tie Corridor occurs primarily in grassland habitats that are typical of the region. There are a number of existing sources of development and disturbance, including cattle ranching and the existing El Cabo Wind Farm and 345-kV gen-tie line. The lack of undisturbed native habitats as well as absence of wetlands and other water resources within the Gen-Tie Corridor suggests that the plants and wildlife associated with these habitats will be largely unaffected by the construction and operation of the Gen-Tie Line. Plant and wildlife species present within the Gen-Tie Corridor as indicated from surveys are typical for this region of New Mexico and the likelihood of occurrence of special-status species is generally low. The special-status species that have moderate to high likelihood of occurrence (e.g., golden eagle, Baird's sparrow) in the Gen-Tie Corridor are not expected to experience negative impacts from the construction and operation of the Gen-Tie Line based on how these species are likely to interact

with the Gen-Tie Line (i.e., collision and electrocution risk is low), the absence of concentrating features such as nesting or roosting substrates or prey concentrations, and the availability of equally suitable habitat in the region. There are no features that are likely to concentrate other bird or bat species within the Gen-Tie Corridor. Similarly, the relatively small amount of habitat loss as a result of construction is unlikely to adversely impact the plant and wildlife communities given that these habitats are abundant in the region.

6.2 Wind Project Area

The proposed Wind Project Area also occurs primarily in grassland habitats that are typical of the region. There are a number of existing sources of development and disturbance, including an existing transmission line and an adjacent wind energy facility. The lack of undisturbed native habitats as well as absence of wetlands and other water resources within the Wind Project Area suggests that the plants and wildlife associated with these habitats will be largely unaffected by the construction and operation of the Wind Project. Plant and wildlife species present within the Wind Project Area as indicated from surveys are typical for this region of New Mexico and the likelihood of occurrence of special-status species is generally low. The special-status species that have moderate to high likelihood of occurrence (e.g., golden eagle, Baird's sparrow) in the Wind Project Area are expected to have relatively small impacts from the Wind Project based on the availability of equally suitable habitat in the region. Similarly, the relatively small amount of habitat loss as a result of the Wind Project is unlikely to impact the non-special status plant and wildlife communities given that these habitats are abundant in the region. Operation of the Wind Project is likely to result in collisions with bird and bat species; however, the absence of concentrating features such as migration corridors, nesting or roosting substrates, or staging areas, and the availability of equally suitable habitat in the region suggests that impacts would be low relative to other operational wind facilities. While there are concentrations of prey for raptor species (e.g., prairie dog colonies), these also occur outside of the Wind Project Area.

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Figures

LA JOYA WIND PROJECT AND GENERATION TIE LINE

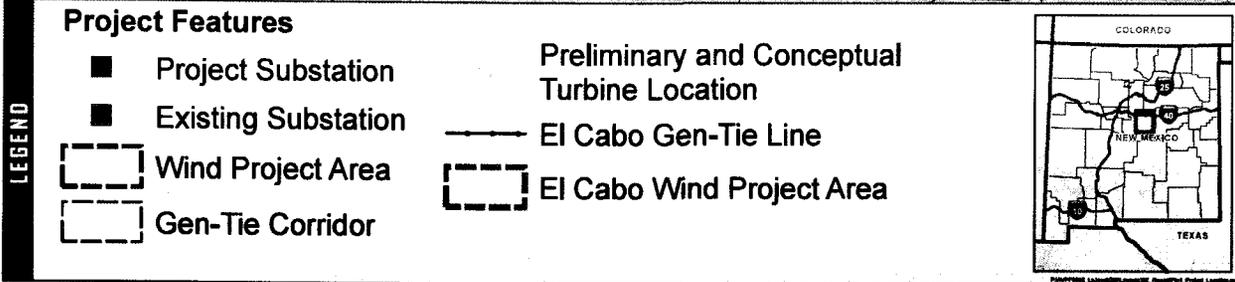
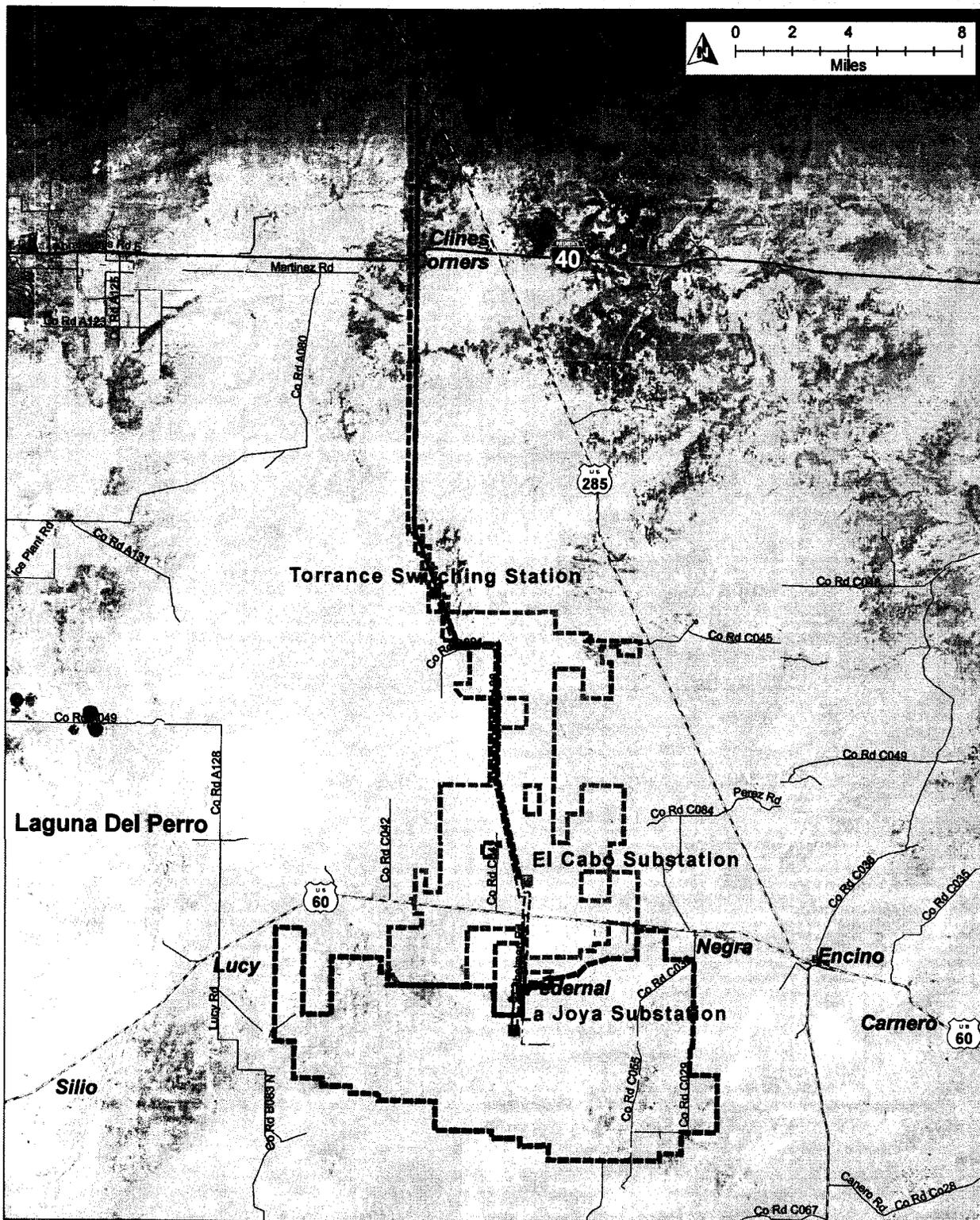
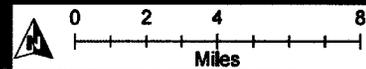


Figure 1 : Project Location

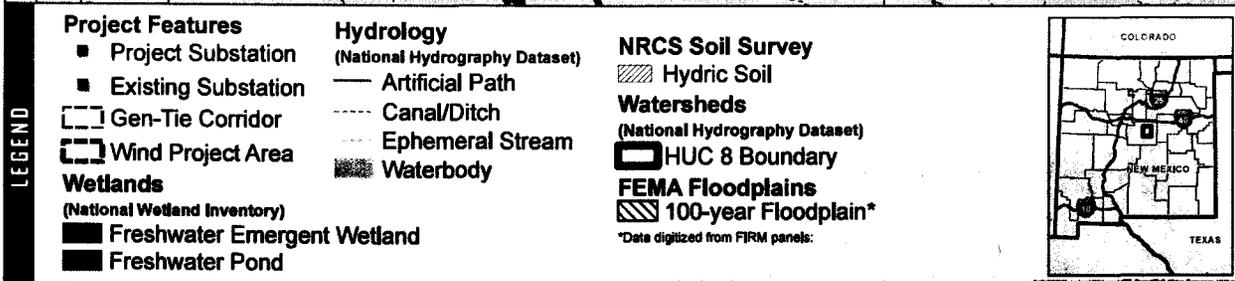
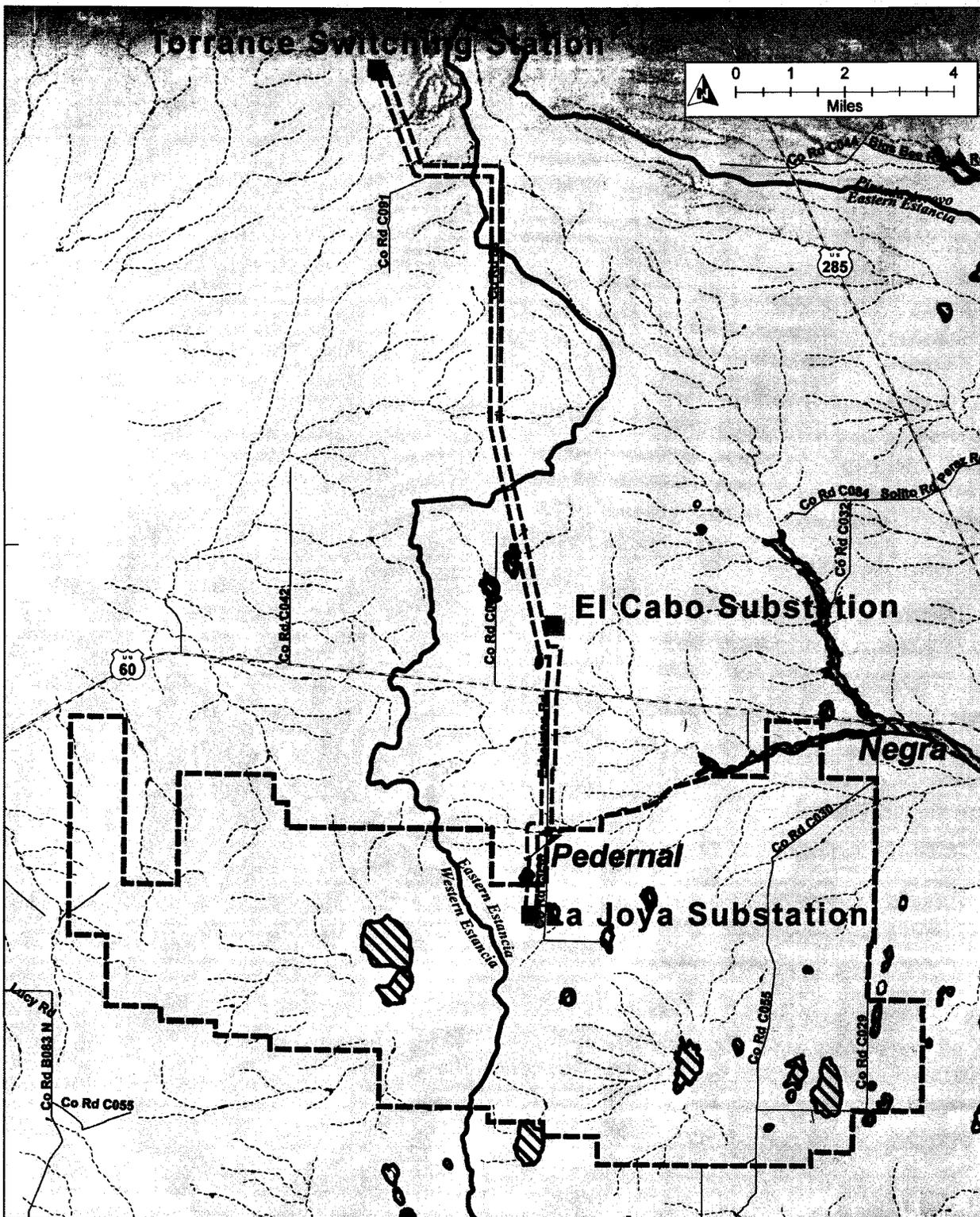
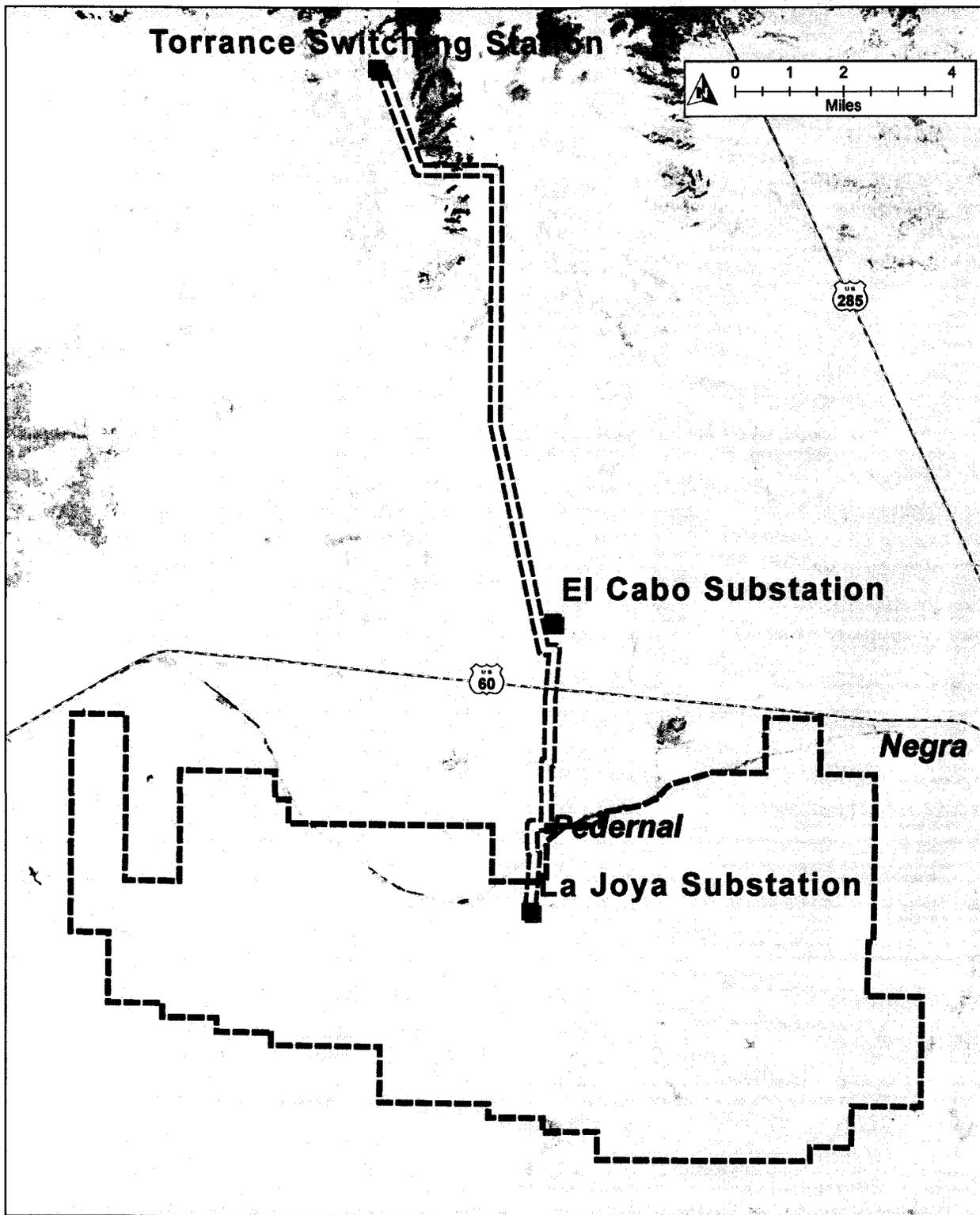


Figure 2: Water Resources

LA JOYA WIND PROJECT AND GENERATION TIE LINE

AMERICAN JOY
RENEWABLES



LEGEND	Project Features	Land Cover (National Land Cover Database)	
	<ul style="list-style-type: none"> ■ Project Substation ■ Existing Substation --- Gen-Tie Corridor --- Wind Project Area 	<ul style="list-style-type: none"> ■ Open Water ■ Developed, Open Space ■ Developed, Low Intensity ■ Developed, Medium Intensity 	<ul style="list-style-type: none"> ■ Developed, High Intensity ■ Barren Land (Rock/Sand/Clay) ■ Evergreen Forest ■ Shrub/Scrub ■ Grassland/Herbaceous

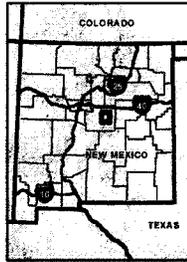
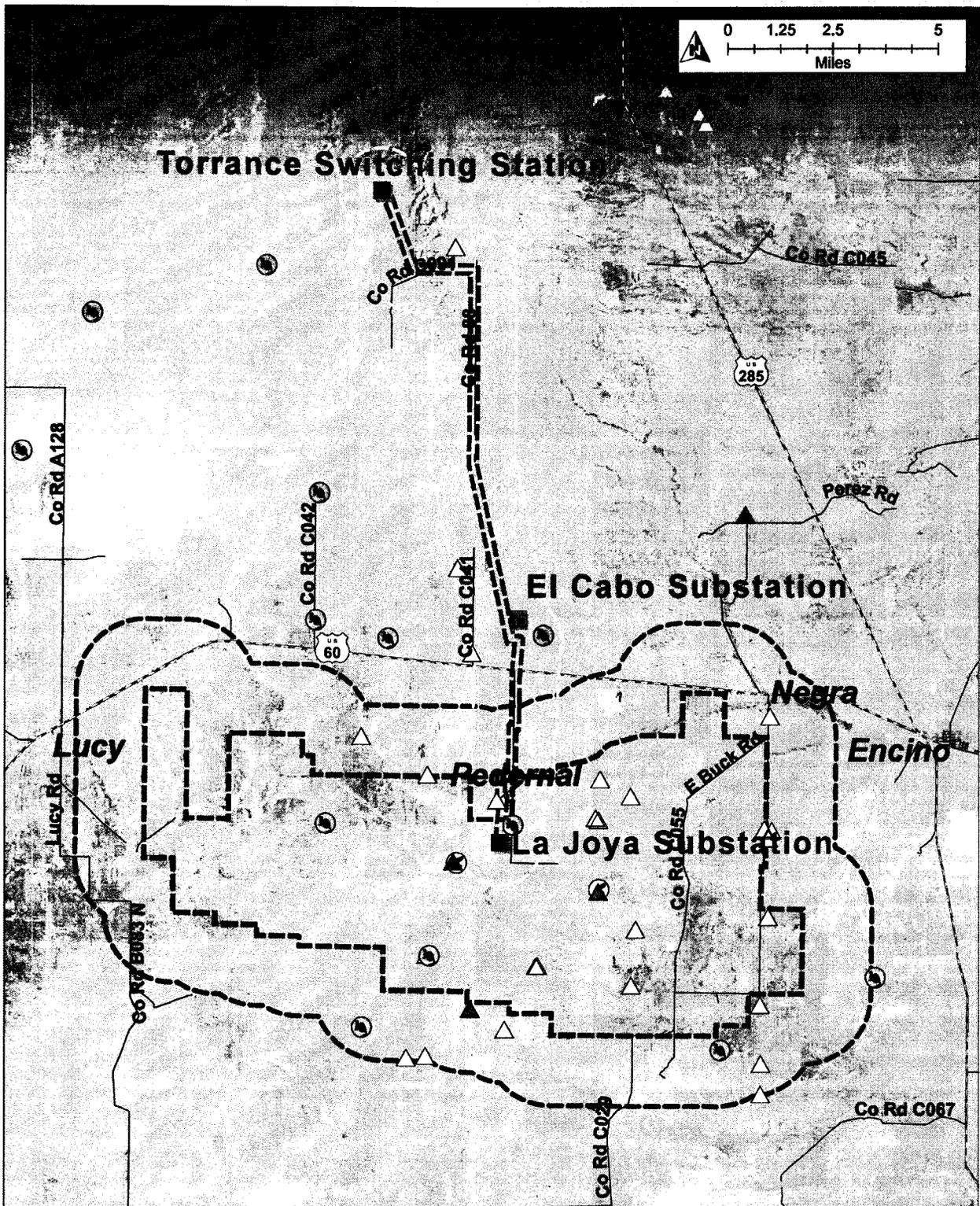


Figure 3: NLCD Land Cover



LEGEND	Project Features	Raptor Nest Survey
	■ Project Substation	⊙ Incidental Golden Eagle Observation
	■ Existing Substation	● Prairie Dog Colony
	▭ Gen-Tie Corridor	Species, Nest Status, Nest Size Class
▭ Wind Project Area	△ Golden Eagle, Alternate, Large	
▭ 1-mile Buffer of Gen-Tie	▲ Unknown, Inactive, Large	
▭ 2-mile Buffer of Wind Project Area	△ Unknown, Inactive, Small	

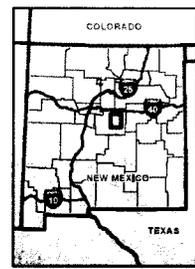


Figure 4: Raptor Nests and Prairie Dog Colonies

Appendix A. Information for Planning and Consultation System Report for the La Joya Project

IPaC

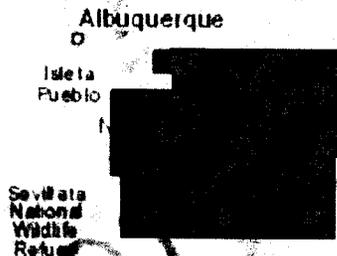
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Torrance County, New Mexico



Albuquerque
Isleta Pueblo
Serrano National Wildlife Refuge

Local office

New Mexico Ecological Services Field Office

☎ (505) 346-2525

📠 (505) 346-2542

2105 Osuna Road Ne
Albuquerque, NM 87113-1001

<http://www.fws.gov/southwest/es/NewMexico/>

http://www.fws.gov/southwest/es/ES_Lists_Main2.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME

STATUS

Mexican Spotted Owl *Strix occidentalis lucida*

Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/8196>

Yellow-billed Cuckoo *Coccyzus americanus*

Threatened

There is **proposed** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/3911>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME

TYPE

Mexican Spotted Owl *Strix occidentalis lucida*

Final

<https://ecos.fws.gov/ecp/species/8196#crithab>

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Dec 1 to Aug 31

Black-chinned Sparrow *Spizella atrogularis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9447>

Breeds Apr 15 to Jul 31

Brewer's Sparrow *Spizella breweri*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9291>

Breeds May 15 to Aug 10

Burrowing Owl *Athene cunicularia*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9737>

Breeds Mar 15 to Aug 31

Chestnut-collared Longspur *Calcarius ornatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere**Clark's Grebe** *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31**Golden Eagle** *Aquila chrysaetos*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31**Grace's Warbler** *Dendroica graciae*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 20 to Jul 20**Gray Vireo** *Vireo vicinior*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/8680>

Breeds May 10 to Aug 20**Lesser Yellowlegs** *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/9579>

Breeds elsewhere**Lewis's Woodpecker** *Melanerpes lewis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/9408>

Breeds Apr 20 to Sep 30**Long-billed Curlew** *Numenius americanus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/5511>

Breeds Apr 1 to Jul 31**Long-eared Owl** *asio otus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/3631>

Breeds Mar 1 to Jul 15**Marbled Godwit** *Limosa fedoa*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
<https://ecos.fws.gov/ecp/species/9481>

Breeds elsewhere

Olive-sided Flycatcher *Contopus cooperi*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3914>

Breeds May 20 to Aug 31

Pinyon Jay *Gymnorhinus cyanocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9420>

Breeds Feb 15 to Jul 15

Rufous Hummingbird *selasphorus rufus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

Virginia's Warbler *Vermivora virginiae*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9441>

Breeds May 1 to Jul 31

Willet *Tringa semipalmata*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Willow Flycatcher *Empidonax traillii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/3482>

Breeds May 20 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that

Black-chinned Sparrow
 BCC Rangewide
 (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



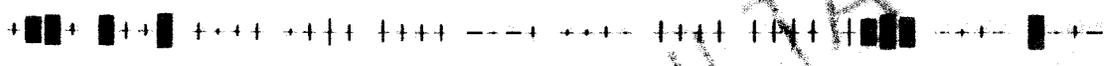
Brewer's Sparrow
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Burrowing Owl
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Chestnut-collared Longspur
 BCC Rangewide
 (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Clark's Grebe
 BCC Rangewide
 (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Golden Eagle
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Grace's Warbler
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Gray Vireo
 BCC Rangewide
 (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



FOR CONSULTATION

Lesser Yellowlegs
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



Lewis's
Woodpecker
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



Long-billed Curlew
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



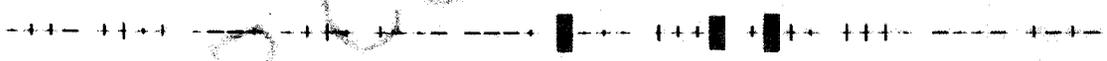
SPECIES

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Long-eared Owl
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



Marbled Godwit
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



Olive-sided
Flycatcher
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



Pinyon Jay
BCC Rangewide
(CON) (This is a Bird
of Conservation
Concern (BCC)
throughout its range
in the continental
USA and Alaska.)



FOR CONSULTATION

Rufous Hummingbird
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Virginia's Warbler
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Willet
 BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Willow Flycatcher
 BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



CONSULTATION

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

