Biological Assessment of the El Paso Electric Montana Power Station Project in El Paso, El Paso County, Texas

Prepared for

El Paso Electric Company

Prepared by

SWCA Environmental Consultants

May 2012
Revised September 2013

BIOLOGICAL ASSESSMENT OF THE EL PASO ELECTRIC MONTANA POWER STATION PROJECT IN EL PASO, EL PASO COUNTY, TEXAS

Prepared for

El Paso Electric Company
100 North Stanton Street
El Paso, Texas 79901
Attn: Roger Chacon
(915) 543-4065

Prepared by

Eleanor R. Gladding
Olivia Münzer
Katie Snipes

Project Manager
Ken Houser

SWCA Environmental Consultants
Tucson Office
343 West Franklin Street
Tucson, Arizona 85701
(520) 325-9194
www.swca.com

SWCA Project No. 23132

May 2012
Revised September 2013

CONTENTS

Figures

Tables

Appendices

EXECUTIVE SUMMARY

El Paso Electric Company (EPEC) is proposing to construct and operate a greenfield electric generating station, referred to as the Montana Power Station consisting of four General Electric LMS 100 gas turbine generators and associated equipment, for a total of 400 megawatts of generating capacity (proposed project). The Montana Power Station (Latitude 31°49'17.04"N, Longitude 106°12'40.68"W) totals approximately 260 acres of EPEC-owned lands and is located north of Montana Avenue (State Route 62), and south of the southern boundary of Fort Bliss along Frankie Lane in El Paso County, Texas.

This biological assessment (BA) has been prepared in support of a U.S. Environmental Protection Agency Region VI Greenhouse Gas Permit required for the proposed project. This BA includes an analysis of the potential environmental impacts of the proposed project on federally listed and special-status species protected under the Endangered Species Act of 1973 (ESA). The area evaluated consists of the approximately 260-acre plant site, interdependent actions (i.e., transmission, water, and natural gas lines), and a 1-kilometer buffer extending from the plant site boundary, collectively referred to as the action area. The action area accounts for all potential direct and indirect impacts of the proposed project. Potential impacts include those from air pollution, water pollution, and noise associated with the construction and operation of the proposed project.

Ten ESA-listed species are addressed in this BA, nine of which are listed by the USFWS as threatened or endangered and are therefore protected under the authority of the ESA. One species is listed as a candidate and currently is not afforded protection under the ESA; however, this species is also addressed in the event that it becomes listed during the life of the project. These 10 species are not expected to occur in the action area because this area is clearly outside of the known geographic range of the species, the action area does not contain the appropriate vegetation characteristics or landscape features known to support these species, or the species is extirpated from the action area (see Table ES-1). In summary, no effects to federally listed species are expected to occur from the proposed construction and operation of the proposed project.

Table ES-1. Summary of Federally Listed Species in El Paso County, their Potential for Occurrence in the Action Area, and Effects Determination

Common Name	Scientific Name	Federal Status	Potential for Occurrence in Action Area	Effects Determination
Birds				
Interior least tern	*Sterna antillarum athalassos*	E	Unlikely to occur. Suitable breeding habitat (sandy areas near water with fish populations) not present within action area. TPWD distribution map does not include El Paso County.	No effect
Northern Aplomado falcon	*Falco femoralis septentrionalis*	E	Unlikely to occur. The habitat necessary for the survival of this species (grasslands or savannas) does not occur within the action area. There are no documented occurrences in El Paso County. No reintroductions in El Paso County have occurred to date.	No effect
Mexican spotted owl	*Strix occidentalis lucida*	T	Unlikely to occur. Suitable habitat (heavily vegetated canyons and forests) not present within action area. There are no documented occurrences in El Paso County.	No effect
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	Unlikely to occur. Suitable habitat (water courses with suitable riparian vegetation, saturated soils, and standing water) not present in action area.	No effect

Table ES-1. Summary of Federally Listed Species in El Paso County, their Potential for Occurrence in the Action Area, and Effects Determination

Common Name	Scientific Name	Federal Status	Potential for Occurrence in Action Area	Effects Determination
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	C	Unlikely to occur. Suitable habitat (water courses with suitable riparian vegetation, saturated soils, and standing water) not present in action area.	No effect
Fish				
Rio Grande silvery minnow	*Hybognathus amarus*	E	Unlikely to occur. An experimental population, listed by the USFWS as non-essential and not endangered, occurs along the Rio Grande in Texas. However, the range for this population does not include El Paso County.	No effect
Mammals				
Black bear	*Ursus americanus*	N/A	Unlikely to occur. The Trans-Pecos Ecoregion is not included in the historical range of the Louisiana black bear.	No effect
Black-footed ferret	*Mustela nigripes*	E	Not expected to occur because extirpated from Texas.	No effect
Gray wolf	*Canus lupus*	E	Not expected to occur because extirpated from Texas.	No effect
Flowering Plants				
Sneed's pincushion cactus	*Escobaria sneedii* var. *sneedii*	E	Unlikely to occur. Action area includes Chihuahuan Desert, but does not contain steep, rocky slopes with limestone. Surveys in Hueco Mountains, within action area, have not identified individuals of this species.	No effect

1.0 INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted through Trinity Consultants (Trinity), on behalf of El Paso Electric Company (EPEC), to complete a biological assessment (BA) in support of the U.S. Environmental Protection Agency's (EPA) decision to issue a Prevention of Significant Deterioration (PSD) permit for greenhouse gas (GHG) regulated pollutants in connection with the proposed construction and operation of a greenfield electric generating station near the city of El Paso, El Paso County, Texas (proposed project). The proposed project consists of four General Electric (GE) LMS 100 gas turbine generators, and associated equipment, totaling 400 megawatts (MW) of generating capacity, encompassing approximately 260 acres of EPEC-owned lands (plant site) located north of Montana Avenue and south of the southern boundary of Fort Bliss along Frankie Lane (Figure 1). Five additional interdependent actions are associated with the proposed project, including three proposed transmission line options, one proposed water distribution line, and one proposed natural gas line. The layout of the proposed project is provided in Figure 2.

This BA is prepared pursuant to Section 7 under the Endangered Species Act of 1973 (ESA), as amended, to determine whether the U.S. EPA issuance of a PSD permit for the proposed project may affect listed species or designated critical habitat. The outcome of this BA determines whether formal consultation or a conference with the U.S. Fish and Wildlife Service (USFWS) is necessary (50 Code of Federal Regulations [CFR] 402.02, 50 CFR 402.12).

2.0 AGENCY REGULATIONS

2.1 Regulations and Standards

EPEC is seeking a permit under the EPA's Prevention of Significant Deterioration (PSD) Program for Greenhouse Gases (GHGs), pursuant to 40 Code of Federal Regulations (CFR) 52.21. This federal air quality permit would authorize the construction and operation of the proposed project. The involvement of federal permitting through the issuance of a PSD permit establishes a federal nexus that could potentially require consultation with the U.S. Fish and Wildlife Service (USFWS). SWCA has drafted this BA, which addresses the proposed project, in terms of the ESA. Section 7 of the ESA requires that, through consultation with the USFWS, federal actions not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat.

This project will require PSD permitting for nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The Texas Commission on Environmental Quality (TCEQ) has been authorized to issue consolidated PSD air permits for these air contaminants by the EPA; thus, the proposed project will require a PSD permit from TCEQ. However, the project will also require a PSD permit for GHGs from the EPA because the EPA has not delegated or authorized the GHG PSD permitting program to the TCEQ. Therefore, a separate GHG PSD permit must be approved and issued by the EPA. Because the GHG PSD permit will be issued by a federal agency, interagency cooperation requires that the EPA enter into consultation with the USFWS to ensure that the proposed action is not likely to adversely affect threatened or endangered species or their designated critical habitats, thus complying with Section 7(a)(2) of the ESA.

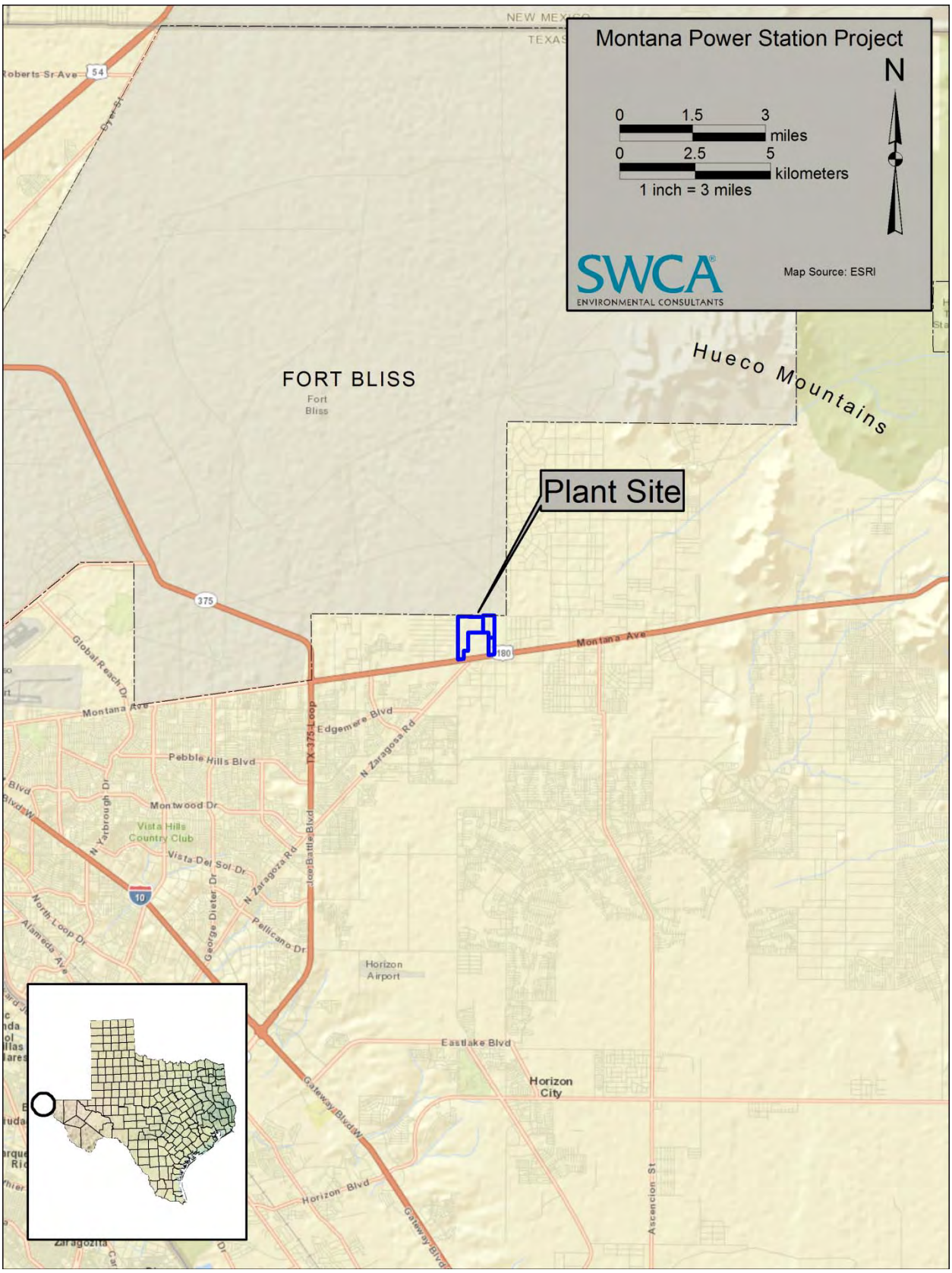


Figure 1. Plant Site.

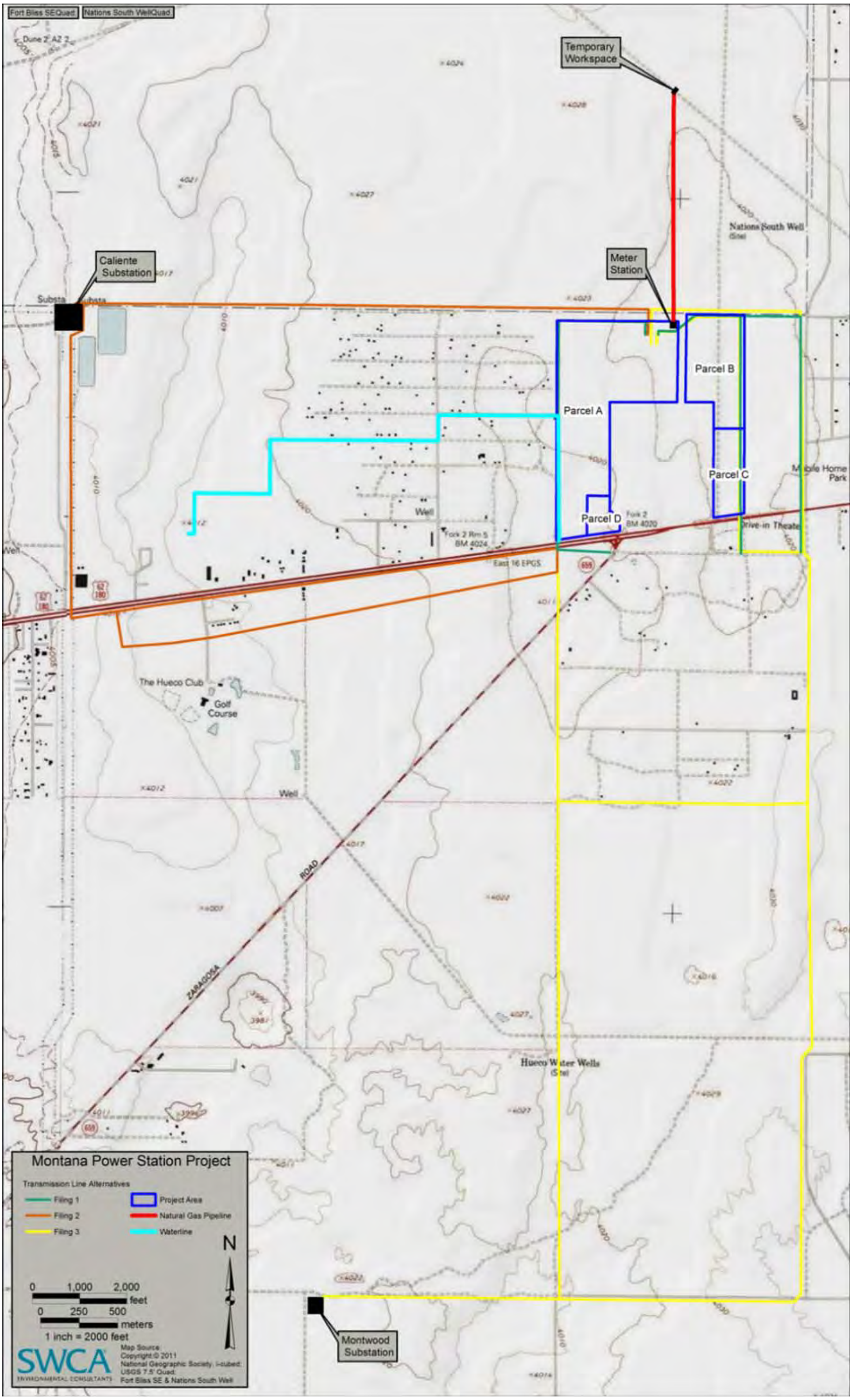


Figure 2. Project Area.

2.2 Endangered Species Act

The ESA of 1973 (16 United States Code [USC] 1531) prohibits unauthorized taking, possession, sale, and transport of endangered or threatened species and provides broad protection for bird species and their habitats that are listed as threatened/endangered (protected) in the United States or elsewhere. The ESA seeks to conserve protected species by creating provisions for listing species, developing recovery plans, and designating critical habitat. Within the ESA, federal agencies can find the procedures for authorizing, funding, or carrying out actions that may affect listed species. Furthermore, the ESA provides guidance to private or state entities for procedures to follow when implementing actions that may result in incidental take of a listed species.

Section 9 of the ESA prohibits the "take" of any federally listed endangered species (16 USC 1538[a]). The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532[19]). If it is not possible to design an otherwise lawful land use activity so as to avoid take of a listed species, either directly or through habitat modification, Section 10(a)(1)(B) of the ESA (16 USC 1539[a][1][B]) authorizes the USFWS to issue a permit allowing take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–712) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the USFWS. To manage migratory birds, a USFWS Migratory Bird Depredation Permit must be obtained, which is required to take or kill a migratory bird, their eggs, parts, and active nests. However, Section 1 of the Interim Empty Nest Policy of the USFWS, Region 2, states that if the nest is completely inactive at the time of destruction or movement, a permit is not required in order to comply with the MBTA. If an active nest is observed before or during construction, measures should be taken to protect the nest from destruction and to avoid a violation of the MBTA.

2.4 State of Texas Endangered Species Regulations

Under Texas Threatened and Endangered Species Regulations (31 Texas Administrative Code [TAC] 65.171–65.176 [2010]), the State of Texas prohibits the taking, possession, transportation, or sale of state-listed species without the issuance of a permit from the Texas Parks and Wildlife Department (TPWD). Although the USFWS authorizes the take of migratory bird species under a USFWS Migratory Bird Depredation Permit, TPWD authorizes take of protected game birds and mammals under a depredation permit if these species cause economic hardship or pose a threat to public safety (Texas Parks and Wildlife Code, Chapter 43, Subchapter H, Sections 43.151 – 43.158). A permit is not required to kill nuisance fur-bearing animals, such as common raccoons (*Procyon lotor*). Under the TPWD Depredation Permit, any game animal or game bird killed must be immediately field dressed, maintained in edible condition, and donated to a charitable institution, a hospital, a needy person, or any other appropriate recipient.

3.0 METHODS

For the purposes of this BA, the *project area* is defined as all components of the proposed project, including the 260-acre plant site where the proposed project will be constructed and operated, as well as the footprint of all interdependent actions (Figure 2). These interdependent actions (linear facilities) include three proposed 15- to 100-foot wide transmission lines totaling 8.7 miles (105.5 acres) for Filing 1, 11.7 miles (1.41.9 acres) for Filing 2, and 26.3 miles (77.9 acres) for Filing 3; one 50-foot wide natural gas line totaling 0.9 mile (5.7 acres), and one 50-foot wide water line totaling 2.5 miles (2,449 acres) (Figure 2).

The *action area* is defined as the project area plus the area extending 1 kilometer in all directions beyond the plant site boundary (Figure 3). As required by regulations at 50 CFR 402.02, the action area includes all areas in which listed species could be affected directly or indirectly by the federal action. To delineate the action area boundary for the proposed project, SWCA identified the areas where project-related impacts to air quality, water quality, vegetation, and noise levels could have a direct or indirect effect on the species addressed in this BA. Potential impacts to air quality were found to extend no more than 0.7 kilometer from the plant site boundary in any direction. Air dispersion modeling was used to determine the maximum distance from the plant site boundary where modeled impacts of any pollutants were above the significant impact level (SIL). The modeled 24-hour PSD increment averaging period SIL for $PM_{2.5}$ is the only pollutant and averaging period with modeled impacts above the SIL and it was found to extend approximately 0.7 kilometer beyond the plant site boundary. Therefore, the action area was conservatively defined as a 1-kilometer buffer beyond the plant site boundary plus any linear facilities that extend beyond this buffer to ensure that all areas that could potentially be directly or indirectly impacted by project related activities are addressed.

SWCA biologists conducted multiple site visits of the action area to assess the potential for federally listed species to occur within the action area. An overview figure depicting the photo point and data point locations is included in Appendix A. An SWCA biologist conducted a field reconnaissance of the plant site portion of the project area on March 14, 2012 (Appendix B). Two SWCA biologists conducted a follow-up field reconnaissance on additional portions of the action area, including the transmission line corridors and their related facilities (i.e., meter station, Caliente Substation, and Montwood Substation) as well as an anticipated water line on January 16-17, 2013 (Appendix C). At the time that this January 2013 reconnaissance occurred, the exact location of the water line was unknown; therefore, the SWCA biologists surveyed a broader area that included all possible water line locations. Representative photographs and observations were made in the vicinity of the water line (Appendix D). Once the alignment was identified in May 2013, SWCA biologists reviewed the alignment footprint and determined that suitable survey representation had occurred during the January 16-17, 2013 field reconnaissance to adequately characterize the habitat based on the following:

- SWCA biologists reviewed the photo documentation collected by SWCA archaeologists who conducted a pedestrian survey of the entire alignment (Appendix D);
- the majority of the water line alignment occurs in disturbed county rights-of-way (Appendix D);
- the remaining portion of the alignment occurs in habitat with the same vegetative structure and characteristics as identified and documented during the January 16-17, 2013 field reconnaissance (Appendix C); and
- representative photos of the same, contiguous habitat were collected by SWCA biologists less than 3,000 feet to the north and west of the alignment during the January 16-17, 2013 field reconnaissance (Appendix C).

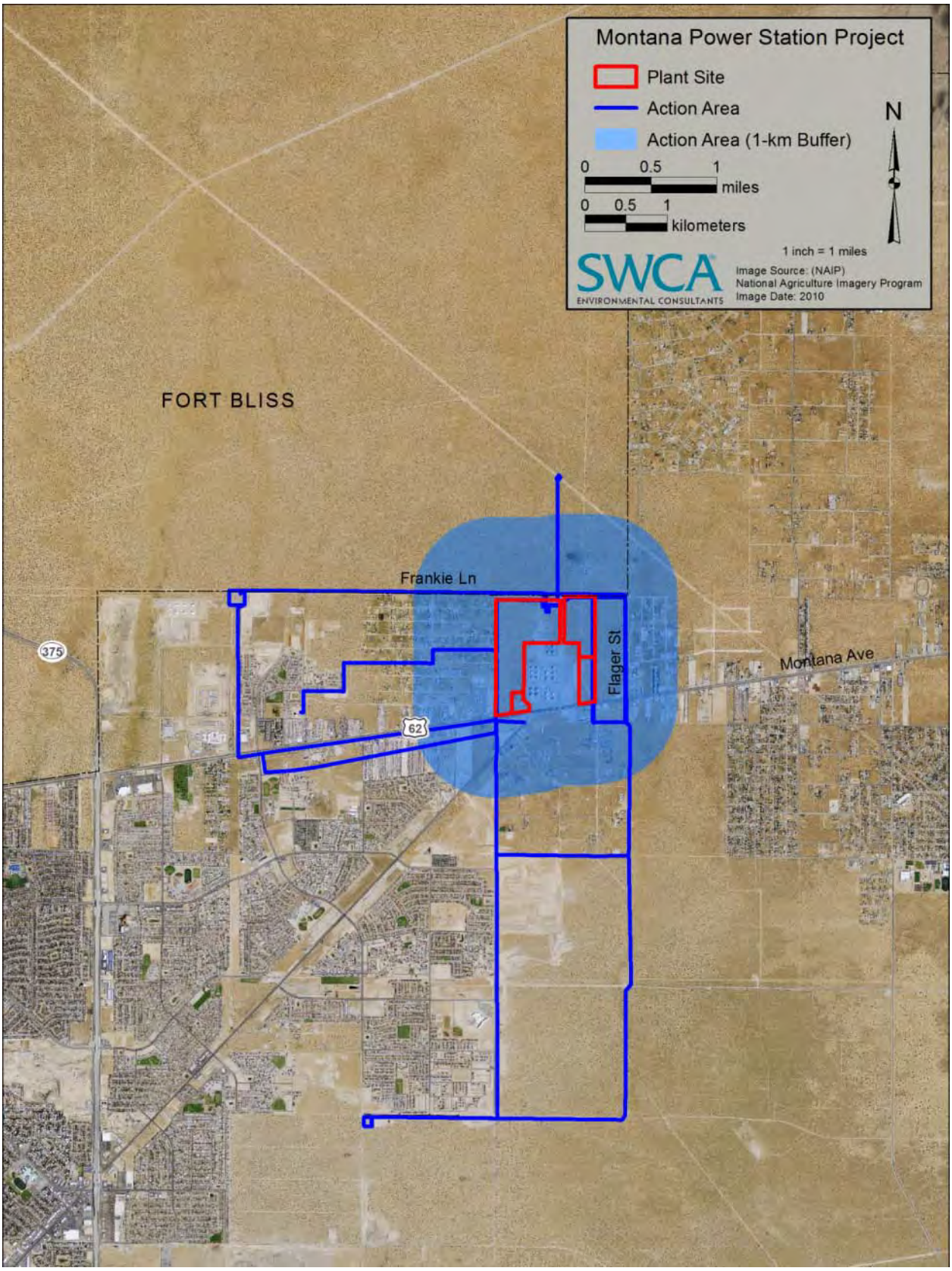


Figure 3. Action Area.

On April 17, 2013, SWCA biologists surveyed the final portion of the project area (the natural gas line) for Kinder Morgan. The results of this survey are provided in Appendix E. Recent aerial photography images and maps provided by the client were used for general orientation and to locate the project boundaries. All field reconnaissance consisted of either a pedestrian survey or vehicle survey to evaluate vegetation and landscape features considered important to the potential occurrence of special-status plant and animal species.

The detailed desktop review of the action area used the following available data: 2010 National Agriculture Imagery Program (NAIP) aerial imagery; U.S. Geological Survey 7.5-minute topographic maps (South Well, Texas); National Wetlands Inventory (NWI) digital data; National HydrographyDataset (NHD) digital data; Natural Resources Conservation Service (NRCS) Soil Data Mart; Bureau of Economic Geology (BEG) Geologic Atlas of Texas (GAT) digital data; TPWD Natural Diversity Database (NDD) searches; peer reviewed literature; and publicly available data from TPWD, USFWS, and other regulatory agencies. Findings of this desktop review revealed homogenous habitat throughout the action area and confirmed that the level of field investigation was sufficient to characterize the action area in its entirety.

The potential of the species addressed in this BA to occur within the action area was based on 1) documented records; 2) existing information on distribution; and 3) qualitative comparisons of the habitat requirements of each species with vegetation communities or landscape features in the action area. Possible impacts to these species were evaluated based on reasonably foreseeable project-related activities.

The potential for occurrence of each species was summarized according to the categories listed below. Because not all species are accommodated precisely by a given category (i.e., category definitions may be too restrictive), an expanded rationale for each category assignment is provided. Potential for occurrence categories are as follows:

- *Known to occur*—the species has been documented in the action area by a reliable observer.
- *May occur*—the action area is within the species' currently known range, and vegetation communities, soils, etc., resemble those known to be used by the species.
- *Unlikely to occur*—the action area is within the species' currently known range, but vegetation communities, soils, etc., do not resemble those known to be used by the species, or the action area is clearly outside the species' currently known range.

The primary purpose of this BA is to determine the character of the effects, if any, on any species present in the action area. As noted in the USFWS *Endangered Species Consultation Handbook—Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* (Consultation Handbook; USFWS and National Marine Fisheries Service 1998), "no effect" determinations are appropriate where the proposed action will not affect a listed species or designated critical habitat. Where species are not present in the action area and no effects are reasonably certain to occur on the species, "no effect" is the appropriate determination for the site. The Consultation Handbook clarifies that a "may affect, not likely to adversely affect" determination is appropriate where effects on listed species are "expected to be discountable, insignificant, or completely beneficial." The Consultation Handbook further explains that "insignificant effects relate to the size of the impact and should never reach the scale where take occurs." Conversely, where an effect is not discountable, insignificant, or completely beneficial or anticipated take is likely to occur as a result of the proposed action, the appropriate determination is "may affect, likely to adversely affect."

A direct effect is the direct or immediate effect of the project on a species or its habitat, whether beneficial or adverse. Direct effects result from the action and include the direct effects of interrelated actions and interdependent actions. Direct effects occur at or very close to the time of the action itself. Interrelated projects include other projects or activities that are part of a larger project and depend on the larger project for their justification (i.e., the proposed action would not occur without the larger project). Interdependent projects have no independent utility apart from the proposed action (i.e., other projects would not occur without the proposed action). Indirect effects are caused by the action and occur later in time after the action is completed. Cumulative effects include the effects of future state, or private actions that are reasonably certain to occur within the area of the federal action subject to consultation (50 CFR 402.02). Cumulative effects are considered together with the effect of the federal action under consultation by the USFWS to determine whether the direct effects of the federal action are likely to jeopardize the continued existence of a listed species. Other future federal actions that may affect a listed species would be subject to consultation requirements established in Section 7 of the ESA and therefore are not considered cumulative effects of the proposed action.

Those species listed by the USFWS were assigned to one of three categories of possible effect, following USFWS recommendations. The effects determinations recommended by USFWS are as follows:

- *May affect, is likely to adversely affect*—the proposed project is likely to adversely affect a species if 1) the species occurs or may occur in the project site; and 2) if any adverse effect on listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event that the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species.

- *May affect, is not likely to adversely affect*—the project is not likely to adversely affect a species if 1) the species may occur but its presence has not been documented and/or surveys following approved protocol have been conducted with negative results; and/or 2) project activity effects on a listed species are expected to be discountable, insignificant, or completely beneficial. **Beneficial effects** are contemporaneous positive effects without any adverse effects on the species. **Insignificant effects** relate to the size of the impact and should never reach the scale where take occurs. **Discountable effects** are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects; or 2) expect discountable effects to occur.

- *No effect*—the project will have no effect on a species if 1) it has no likelihood of effect on a listed species or its designated critical habitat (including effects that may be beneficial, insignificant, or discountable); or 2) the species' habitat does not occur in the project site.

4.0 PROJECT DESCRIPTION

4.1 Project Purpose and Location

EPEC is proposing to construct and operate a greenfield electric generating station, referred to as the Montana Power Station, consisting of four GE simple cycle natural gas–fired turbines, Model LMS100, and associated equipment (also including the interdependent actions that are necessary for operation of the generating station, i.e., a natural gas pipeline, a water distribution line, and transmission lines), for a total of 400 MW of generating capacity during peak summer and winter demand periods. Electrical power generated by the facility would be transmitted to EPEC's existing transmission system through a

switchyard, which would be constructed on-site as part of the proposed project. From the switchyard, a new power line would be constructed and would connect to the existing power line along Frankie Lane, which is planned for upgrades to accommodate this tie-in. Each of the GE LMS100 units would be equipped with a selective catalytic reduction (SCR) and water-injection systems to control emission of NO_x. In addition, the turbines will be equipped with an oxidation catalyst, a GE CO reduction (COR) system, to reduce CO and volatile organic compounds (VOC) emissions. The GE LMS100 is the first inter-cooled gas turbine system developed especially for power generation industry, using the better of two technologies: heavy-duty gas turbines and aero-derivative gas turbine technology that is ideally suited for the intended purpose of meeting peak and intermediate loads efficiently and effectively. The LMS100 is specifically designed for deployment of cyclic applications providing flexible power and shortened (i.e., 10 minutes) start-up times. While the new generating facility is primarily designed to provide power at peak periods of electrical demand, the annual hours of operation for each combustion turbine will be limited to 5,000 hours per year, including startup and shutdown events. Each simple cycle, gas-fired turbine LMS100 Electric Generating Unit (EGU) would have a power generation output capacity of approximately 100 MW during the winter and 89.9 MW during extreme summer temperatures (Trinity 2012a).

Access to the proposed project would be from Montana Avenue; however, no improvements to Montana Avenue are required at this time. Additional infrastructure on-site would include ammonia storage tanks, two wet cooling towers, an administration building, a reverse osmosis water treatment building, transformers, compressors, a wastewater wash tank, a fuel gas waste tank, a gas metering station, a zero liquid discharge (ZLD) building, and a metering station. El Paso Water Utilities would provide water to the site for operational use. The first two LMS100 turbines would be constructed to use reverse osmosis and two 20-acre evaporation ponds; however, after final construction, the plant would be a ZLD facility and would contain an on-site water treatment system. These evaporation ponds would be uncovered, with moderate-sloped sides at a moderate depth and contain water from the cooling tower blow-down process, as well as reject water from the reverse osmosis process. In addition, a 10-acre, uncovered stormwater retention pond would be constructed to retain stormwater on-site during periods of precipitation. Natural gas would be supplied by a newly constructed tap and header specifically constructed for the proposed project. Additional details on these items are provided in the subsequent sections as well as depicted on Figure/Section 5. Plot Plan in the Prevention of Significant Deterioration Permit Application for Greenhouse Gases, which was submitted to the EPA along with this report on April 19, 2012 and amended on July 31, 2012.

In addition to the proposed Montana Power Station, interdependent actions (i.e., actions that have no significant utility apart from the action under consideration [i.e., other projects that would not occur without the proposed action]) were included in the analysis with this proposed project. This proposed project has three interdependent actions: (1) transmission line and substation upgrades to the existing EPEC transmission system in the project vicinity; (2) natural gas pipeline upgrades and new installation on EPNG Line No. 1100 and Line No. 1103 within and in the vicinity of the proposed project; and (3) water line installation in the vicinity of the proposed project. Details on these interdependent actions are provided in the following paragraphs. Their locations are depicted in Figure 3.

EPEC proposes to interconnect the plant site with a double-circuit 115-kilovolt (kV) line from the proposed plant site to intersect and split the existing 1.3-mile long Caliente to Coyote 115-kV line into two circuits and construct a new, double-circuit 115-kV transmission line from the proposed plant site to EPEC's existing Caliente Substation, approximately 2.4 miles east of MPS. These interdependent actions are currently under consideration as part of an Environmental Assessment (EA) and Alternative Route Analysis to support an application for a Certificate of Convenience and Necessity (CCN) and address the requirements of Section 37.056 (c)(4)(A)-(D) of the Texas Utilities Code, the Public Utility Commission of Texas (PUC) CCN application form and PUC Substantive Rule § 25.101. The EA prepared by SWCA

scientists for the proposed transmission lines has been submitted to the PUC and the EA concluded that no significant effects to ESA-listed species would occur due to the transmission project.

Kinder Morgan (i.e., El Paso Natural Gas Company) plans to construct and operate the Montana Power Plant Meter Station and Lateral Line for the proposed project. Kinder Morgan conducted a separate environmental review as part of the Federal Energy Regulatory Commission requirements. A biological evaluation of this proposed pipeline and meter station was conducted by SWCA biologists on April 17, 2013 and the results concluded that no significant effects to ESA-listed species would occur due to the natural gas pipeline project (see Appendix E).

El Paso Water Utilities (EPWU) plans to construct and install a 30-inch diameter water pipeline to provide municipal water to the proposed project. The project is currently in design phase and no agency or permit approvals are likely to be required for the project. The proposed water line would be installed within disturbed rights-of-way, just west of the proposed plant site. No specific pedestrian surveys occurred directly along the current proposed waterline alignment. After review of the desktop analysis and photographic documentation provided by SWCA archaeologists, the habitat was determined to be contiguous with the surrounding habitat along the water line alignment that was previously surveyed and representative photos in the general area were collected less than 3,000 feet to the north and west of the proposed alignment.

4.2 Construction Information

4.2.1 Construction Activities and Schedule

The four EGUs would be constructed in succession over a 4-year period. In early 2013, EPEC would commence construction of one GE LMS100 EGU, which is proposed to be operational in 2014. The next stage of construction for the second LMS100 would begin in 2014, and the final stage of construction for the last two GE LMS100s would commence in 2015. The construction phase of the proposed project, from site preparation and grading to commercial operation, is scheduled to last approximately 6 to 12 months per turbine (approximately 24–36 months for entire facility). During that time, many activities would be taking place, including construction of foundations, installation of piping and equipment, and erection of major structures. During these activities, varying types and numbers of construction equipment and personnel would be in the area of the proposed project. In addition, best management practices (BMPs) for dust abatement and stormwater protection would be adhered to in order to avoid any potential impacts.

4.2.2 Construction Equipment Required

The proposed project would use conventional construction techniques and equipment. Equipment likely to be used during construction includes compactors, excavators, bulldozers, graders, rollers, front-end loaders, backhoes, dump trucks, pickup trucks, and flatbed trucks for construction activities; water trucks, concrete pump trucks, cranes, and concrete mixer trucks for materials handling; and stationary equipment, such as jackhammers, pneumatic tools, generators, pumps, air compressor, and welder's torches. The noise levels resulting from this construction equipment will vary greatly, depending on the type of equipment used (make and model), the operations being performed, and the power level and quantity of equipment. The following measures would be implemented to reduce noise and annoyance at receptors during construction of the facility: 1) all construction equipment will be operated and maintained to minimize noise generation; 2) equipment and vehicles will be kept in good repair and fitted with "manufacturer recommended" mufflers; and 3) regular equipment maintenance and lubrication will be constructed.

4.2.3 Emissions Controls

Air quality analyses for the proposed project were performed by Trinity as part of the EPA and TCEQ permitting requirements. This analysis also included a Best Available Control Technology (BACT) analysis for each emission source. The proposed project would include the following emission sources: four natural gas–fired combustion turbines, two cooling towers, one diesel firewater pump engine, and fugitive emissions from piping components and circuit breakers (Trinity 2012a, 2012b). The following emission controls would be implemented for the proposed project:

- The following is the total annual potential to emit (PTE) for each emission source which includes carbon dioxide (CO_2), methane (CH_4), and nitrogen dioxide (N_2O), with CO_2 emissions accounting for more than 99% of the total projected emissions:
    - Each of the four combustion turbines, i.e., GE LMS100 units, will have proposed carbon dioxide equivalent (CO_2e) emissions of 251,148 tons per year (tpy).
    - The firewater pump engine will have a PTE of 8.69 tpy CO_2e.
    - The fugitive emissions from piping components will have a PTE of 94 tpy CO_2e.
    - The fugitive emissions from sulfur hexafluoride (SF_6) circuit breaker equipment leaks will have a PTE of 335 tpy CO_2e.
- The combustion turbines will be subject to a BACT limit of 1,194 lb CO_2/MW-hr on a 365-day rolling average.
- GHG emissions by the combustion turbines will be minimized by implementing the following BACT: using evaporative cooling in the design; selection of efficient simple cycle combustion turbines (GE LMS100 units); use of natural gas as fuel; and implementation of good combustion, operating, and maintenance practices.
- GHG emissions by the firewater pump engine will be minimized by implementing the following BACT: the selection of an internal combustion engine type that will be certified by the manufacturer to meet applicable standards; and the diesel fuel usage will be monitored monthly.
- Fugitive emissions from the piping components will be minimized by implementing an Audio/Visual/Olfactory (AVO) inspection program to identify and repair system and equipment leaks.
- Fugitive emissions of SF_6 from circuit breakers will be minimized by implementing the following BACT: use of new, state-of-the-art circuit breakers; implementing operations system tracking, including cylinder management and the use of a SF_6 gas recycling cart; and educating and training employees regarding proper SF_6 handling methods and maintenance operations.
- Each of the GE LMS100 units will be equipped with SCR and water-injection systems to control emission of NO_x and a GE COR system, to reduce CO and VOC emissions.

4.3 Operation and Maintenance Information

4.3.1 Operation

The following infrastructure will be required for the operation of the proposed project: four GE gas-fired turbines and associated equipment including two 4-celled cooling towers, a 327-horsepower (hp) diesel-fired firewater pump engine for emergency use, two 20,000-gallon horizontal aqueous ammonia storage tanks, 34 SF_6 circuit breakers, an unloading system, and one 300-gallon horizontal diesel storage tank; an administrative control building; a reverse osmosis water treatment building; transformers; compressors; a wastewater wash tank; a fuel gas waste tank; a gas metering station; a ZLD building; and a metering station (Figure 4). The primary objective of the proposed project is to meet peak and intermediate load requirements. The annual hours of operation for each combustion turbine will be limited to 5,000 hours

per year, including startup and shutdown events. The diesel firewater pump engine will be limited to less than 1 hour per week for routine testing, maintenance, and inspection purposes only, with annual hours of operation limited to 52 hours per year (Trinity 2012a). In addition, normal operations will include service and repair, as needed, to the equipment.

4.3.2 Water Use

This project will be a ZLD facility and thus will not involve any off-site discharge. El Paso Water Utilities will provide water to the site for operational use via pipelines. The water circulation rate for the cooling towers is 13,800 gallons per minute per cooling tower. The two LMS100s will be operated on-site and for a maximum of 5,000 hours per year. Thus, the two cooling towers will use a total of 8.28 billion gallons a year. The blow-down water used for cooling the towers, as well as reject water from the reverse osmosis process, would be discharged into the uncovered evaporation ponds. No chemical contaminants other than total dissolved solids would be present in this water and thus within the ponds.

The firewater pump engine will use water on an emergency-only basis. The first two LMS100 turbines will be constructed to use reverse osmosis and two 20-acre evaporation ponds; however, after final construction, the proposed project will be a ZLD facility and will contain an on-site water treatment system. In addition, a 10-acre stormwater retention pond will be constructed to retain stormwater on-site during periods of precipitation. All wastewater will be monitored for water quality in accordance with local and state regulations. Lastly, water will be used during BMPs to control dust during construction and operation.

4.3.3 National Pollutant Discharge Elimination System

The State of Texas, through the TCEQ Texas Pollutant Discharge Elimination System (TPDES), has the federal authority to regulate the National Pollutant Discharge Elimination System program regarding discharge of pollutants to Texas surface water. A permit from TPDES will not be required, since no off-site discharge will occur as part of the proposed project. Refer to Sections 4.1 and 4.3.2 for additional details on water use involved with the proposed project.

4.3.4 Noise Levels

A noise assessment was conducted specifically for this proposed project by SWCA (2012). The results revealed that the maximum sound levels from the construction and operation of the proposed project would comply with all regulatory noise limits and guidelines established for the City of El Paso and the EPA. Those results are summarized below.

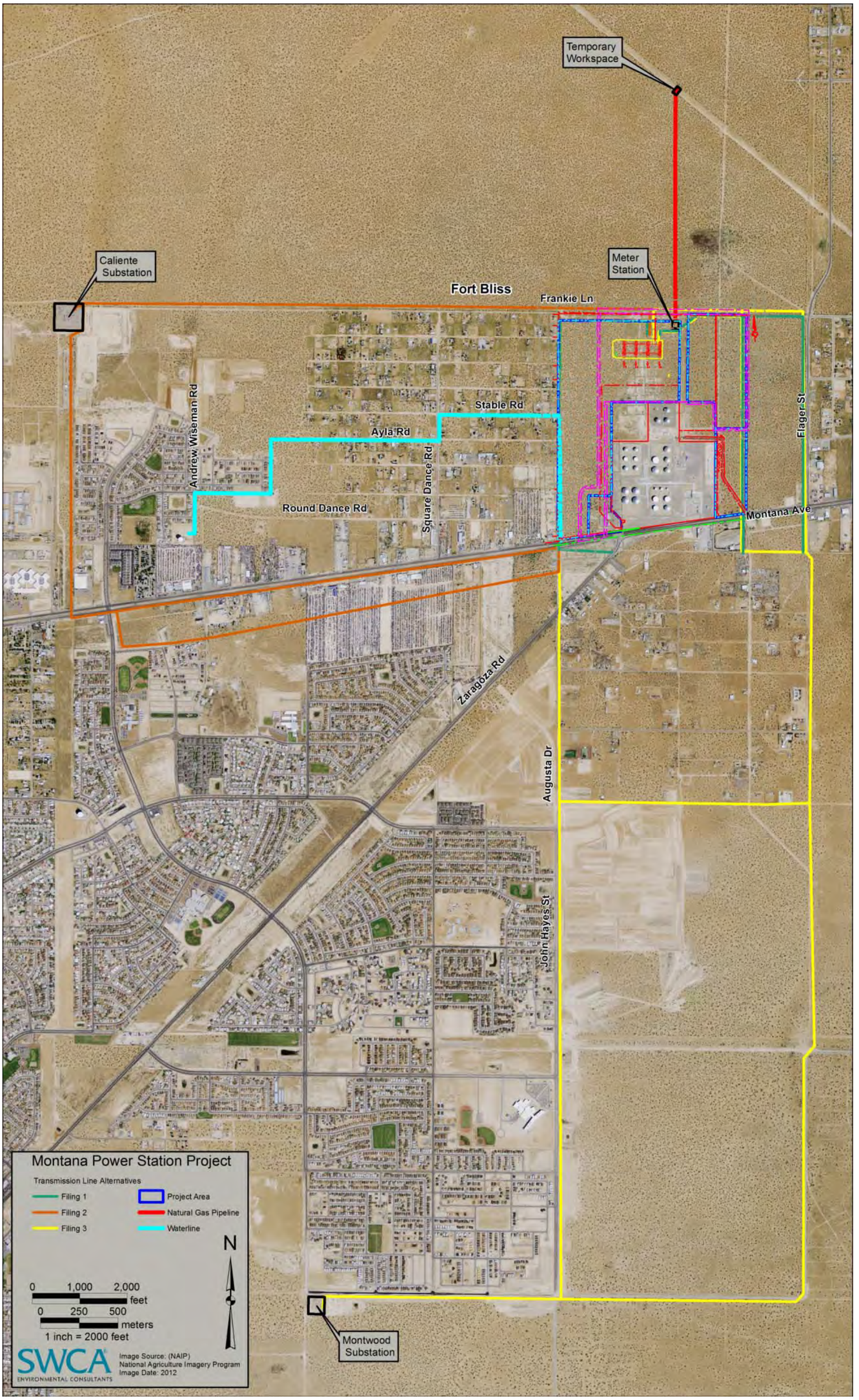


Figure 4. Proposed site plan.

EXISTING CONDITIONS/AMBIENT NOISE LEVELS

Baseline noise measurements were not readily available or identified during the review of public published sources for the vicinity of the proposed project. Local conditions, such as traffic, topography, and winds characteristic of the region, can alter background noise conditions. In general, the Day-Night Sound Levels at outdoor quiet urban night-time noise levels range from 40 to 50 A-weighted decibels (dBA) (EPA 1974). However, the action area, particularly near the project area, contains a mixture of residential, commercial, and industrial zoned properties. Therefore, the existing average ambient noise levels at the proposed project site are expected to be in the range of 35 to 65 dBA for day and night conditions.

CONSTRUCTION NOISE AND VIBRATION IMPACTS

The four GE LMS100 EGUs would be sequentially built over a three year period. The construction phase of the proposed project, from site preparation and grading to commercial operation, is scheduled to last approximately 6 to 12 months per turbine (approximately 24–36 months for the entire facility). During that time, many activities would take place, including construction of foundations, installation of piping and equipment, and erection of major structures. During these activities, varying types and numbers of construction equipment and personnel would be in the area of the proposed project, resulting in varying levels of construction noise. The proposed project would use conventional construction techniques and equipment such as excavators, bulldozers, heavy trucks (water truck, dump truck), and other similar heavy construction equipment. The construction of the proposed project would require the use of equipment that may be audible from off-site locations. These activities will also overlap. Pile driving is generally considered the nosiest construction activity and would be a part of the construction process. The noise levels resulting from construction activities vary greatly, depending on the type of equipment used (make and model), the operations being performed, and the power level and quantity of equipment.

Acoustical calculations were performed to estimate noise from conventional construction activities at the closest residences. The closest off-site residential uses to the project area consist of single-family residences approximately 1,200 feet (0.23 mile) to the west, 4,100 feet (0.78 mile) to the east, and 6,500 feet (1.23 miles) to the north-northeast. To the south of the proposed project the closest receptor, besides the Magellan Fuel Storage facility, is a drive-in movie theater (Fiesta Drive-In Theatre), located on the far side of Montana Avenue approximately 2,800 feet (0.53 mile) away. Based on the direct line-of-sight distance from the proposed project components to be constructed, sound levels at the residence 1,200 feet (0.23 mile) to the west would average between 49 to 60 dBA; 42 to 53 dBA at the Fiesta Drive-In Theatre 2,800 feet (0.53 mile) to the south; 39 to 50 dBA at the residence 4,100 feet (0.78 mile) to the east; and 35 to 46 dBA at the residence 6,500 feet (1.23 miles) to the north-northeast. Because of the intermittent nature of construction work, as well as intervening topography, the average sound level for an 8-hour work day would be expected to be substantially less than the calculation predicts.

Calculations were performed to estimate vibration from pile-driving activities at the closest residence. Under normal propagation conditions, vibration levels at the closest residence 1,200 feet (0.23 mile) from the activities would be 0.005 inch per second, which is well below the Federal Transit Administration (FTA) threshold of 0.20 inch per second, resulting in a less than significant impact. Based on construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Administration (OSHA) guidelines for worker noise exposure. Compliance with OSHA regulations would ensure that construction personnel are adequately protected from potential noise hazards. The noise exposure level to protect hearing of workers is regulated at 90 dBA over an 8-hour work shift. The proposed project's construction contractors would comply with all OSHA regulations.

Access to the proposed project site for construction activities would be from Montana Avenue, north on Flager Street, and west on Frankie Lane to the entrance of the proposed project. The construction workforce would typically arrive and depart in private vehicles. Residences within 500 feet could experience increased sound levels from truck pass-bys, but no significant impacts are expected to occur. Because conventional construction noise at the receptors would be well below the 90-dBA hourly level recommended by the FTA and the 120-dBA equivalent noise level to qualify for the exemption to the El Paso Noise Ordinance, there would not be a significant impact.

The following noise mitigation measures may be implemented for the proposed project to reduce noise and annoyance at receptors during construction of the facility, if necessary:

- All construction equipment should be operated and maintained to minimize noise generation. Equipment and vehicles should be kept in good repair and fitted with "manufacturer recommended" mufflers. Regular equipment maintenance and lubrication will be required.

- Noise and vibration created by construction shall not take place between the hours of 8 p.m. and 7 a.m. on weekdays and Saturdays, or at any time on Sunday or a holiday.

- Portable noise screens or enclosures to provide shielding for high noise activities or equipment should be used as necessary. The effectiveness of a barrier depends on factors such as the relative height of the barrier relative to the line-of-sight from the source to the receiver, the distance from the barrier to the source and to the receiver, and the reflections of sound. To be effective, a barrier must block the line-of-sight from the source to the receiver. A properly designed noise barrier can reduce noise by as much as 20 dBA.

- Combine the noisiest operations to occur in the same period. The total noise produced would not be significantly greater than the level produced if the operations were performed separately.

- As the design of the proposed project progresses and construction scheduling becomes finalized, additional measures may also be implemented, if required, to minimize the effects of construction noise.

OPERATIONAL NOISE AND VIBRATION IMPACTS

The major sound sources from the proposed project would be the combustion turbine power block, exhaust stack, cooling towers, electrical transformers, and emergency diesel-fired fire water pump engine. The power block would have an acoustical enclosure, and silencers would be used on the turbine air inlet and stack exhaust. The calculated sound levels, from the operation of the proposed project, at the receptors are less than 33.4-dBA equivalent noise level. A review of the noise assessment data revealed that calculated noise emitted by the proposed project would be below the El Paso City Code nighttime noise standard at all residential locations. Increases in noise would occur, but project noise would remain at or below the specified City Code noise standard (noting that the standard applies to the source, not the total noise level). Therefore, sound levels would be below the El Paso City Code of 50 dBA residential land use requirement and would result in no significant impact.

Ground- and airborne-induced vibration from operation of the proposed project would not affect the local area. The proposed project is primarily driven by turbines exhausted into a selective catalytic reduction duct. These very large ducts greatly reduce low-frequency noise, which is mainly the source of airborne-induced vibration of structures. The equipment that would be used in the proposed project is well balanced and is designed to produce very low vibration levels throughout the life of the project. An imbalance could contribute to ground vibration levels in the vicinity of the equipment; however,

vibration-monitoring systems installed in the equipment are designed to ensure that the equipment remains balanced. If an imbalance occurs, the event would be detected, and the machines would automatically shut down.

Noise mitigation measures have been planned in the design of the proposed project to reduce adverse sound effects on the surrounding community. The principal noise mitigation measures to reduce noise and annoyance at receptors during operation of the facility are as follows:

- High-performance silencers will be used for both the gas turbines air inlets and exhaust stacks.
- The major components of the power block will be contained within an acoustical enclosure.

5.0 BACKGROUND INFORMATION

5.1 General Environmental Information

This section provides applicable environmental characteristics for the general region, including the action area, in which the proposed project is located. The proposed project is located in El Paso County, which is the westernmost county in Texas.

5.1.1 General Region Information

The action area is located within the Level III Chihuahuan Desert Ecoregion and primarily overlaps the Chihuahuan Basins and Playas Level IV Ecoregion, as well as a small section of the Chihuahuan Desert Grasslands Level IV Ecoregion (Griffith et al. 2004). This ecoregion is unusual in that it contains both desert and mountain habitats. However, action area only contains desert habitats. The mountain ranges of this region, the Hueco and Franklin Mountains, are located outside the action area for the proposed project.

The Chihuahuan Desert Grasslands Ecoregion is characterized by alternating mountains and valleys. The very hot and dry climate of the Chihuahuan Desert is most suitable for desert shrub vegetation, which requires a minimal amount of moisture. There are two major river drainages within the ecosystem: the Rio Grande and the Pecos River. Aside from these major drainages, the landscape is almost entirely internally drained (TPWD 2012b). No drainages are located in the action area.

Elevation is highly variable in the region, which creates great ecological diversity among floral and faunal communities. The higher the elevation, the more precipitation is present, creating a greater diversity in plants and animals (TPWD 2012b). Despite the harsh climate conditions, the ecoregion is home to several large mammals such as mountain lions, bobcats, and black bears. Several migratory birds and raptors are common in the Chihuahuan Desert, as well as a variety of reptiles (TPWD 2012b).

The Chihuahuan Desert ecoregion is the northernmost section of the Chihuahuan Desert, spanning central Mexico and 16 counties in Texas (Griffith et al. 2004). Despite the diverse habitats found in this region, the landscape has been altered greatly in the last 120 years as a result of livestock grazing, the suppression of fire, and frequent drought.

5.1.2 Land Use

Although much of the region's landscape has been converted to grazing for livestock and irrigation for agriculture, the remaining land consists of desert grassland, desert scrub, salt basins, sand hills, rugged

plateaus, and wooded mountain slopes (TPWD 2012b). The majority of land cover within the action area is open or vegetated land, but there is also a substantial amount of developed land (Homer et al. 2007). Approximately 25% of the action area is desert lands while the remainder includes developed lands. There is minimal oil and mineral production within El Paso County and the industrial center is in the city of El Paso on the U.S.–Mexico border. There is a close business relationship with Ciudad Juárez, the metropolitan area just across the border from the city of El Paso. Several American industries base the labor-intensive portion of their business there (Conrey 2012).

5.1.3 Climate

Within the El Paso County region, the mean annual precipitation varies from less than 10 inches in the western portion to more than 16 inches in the northern section (Natural Resources Conservation Service 2012). The growing season coincides with the time of year when precipitation is highest, April through October. The average temperature during the winter months is 43.6°F, and the average daily minimum temperature is 28.1°F. During the summer months, the average temperature is 78.9°F, and the average daily maximum temperature is 94.6°F. The prevailing winds are from the north during October to February, from the west from March to May, and from the south from June to September. The average wind speed is at its highest in March and April at up to 12 miles per hour. The average humidity during the day is about 27%, increasing during the night to about 57%.

The U.S. Drought Monitor indicated that the project area is in D1 Drought – Moderate at the time of the field site survey in March 14, 2012, while the remainder of the action area is in D4 Drought – Exceptional (U.S. Department of Agriculture 2012). Based on information from the National Weather Service/Advanced Hydrologic Prediction Service (2012), the action area has received the normal amount of precipitation for the past 30 and 60 days.

Table 1 shows the National Ocean and Atmospheric Administration National Climatic Data Center (NCDC) (2012) Standardized Precipitation Index reported results for the Trans-Pecos region and the state of Texas.

Table 1. NCDC Climate Data for the Trans-Pecos Region and State of Texas

Year	Trans-Pecos Region	Texas
2005	near normal	near normal to exceptionally dry
2006	near normal	moderately dry to very moist
2007	near normal	moderately moist to extremely moist
2008	moderately dry	near normal to extremely dry
2009	moderately dry	near normal to abnormally moist
2010	very dry	extremely dry to moderately moist
2011	exceptionally dry	severely dry to exceptionally dry
YTD	near normal	near normal to very moist

The NCDC Standardized Precipitation Index indicates that west Texas, specifically the Trans-Pecos Region, has only been moderately affected by the drought in 4 of the past 7 years. The majority of Texas

has been significantly impacted by the drought in 4 of the past 7 years, with 2010 and 2011 having some of the driest conditions ever recorded for the state (NCDC 2012).

5.1.4 Topography

El Paso County is at higher elevation than most of the state of Texas, with the Hueco and Franklin Mountains flanking the east and west sides, respectively, of the county. Topography within the action area ranges from 3,970–4,500 feet above mean sea level (amsl). Portions of the action area are relatively flat, such as within the project area itself, where elevations range from 4,110 to 4,020 feet amsl.

According to the Federal Emergency Management Agency (FEMA) flood insurance rate map, the action area is within Zone X, which is defined as an area determined to be outside the 500-year floodplain (FEMA 2012).

5.1.5 Geology

The action area is located within the Hueco Bolson Geologic Formation from the Permian, Pleistocene, and Holocene Eras. Table 2 lists and describes the geologic units found within and surrounding the action area.

Table 2. Description of the Geologic Units Identified in the Action Area

Map Unit	Unit Name and Description	Rock Types
Qs	sand sheet deposits	windblown sand, areas of large dunes
Qds	dune sand sheet deposits	sand or silt
Qb	bolson deposits	clay or mud
Qf	alluvial sand deposits	colluvium and fan deposits
Ph	Hueco limestone	limestone, dolomite, sandstone, shale, mudstone, and conglomerate

5.1.6 Soils

The soils in the majority of the action area are mapped as Hueco-Wink association, hummocky soils (Figure 5). This association consists of Hueco loamy fine sands (45%), Wink fine sandy loam and loamy fine sand cover (35%), and other soils (20%). Hueco soils are found in lower or nearly level areas. They typically have a surface layer of brown, loose, heavy loamy fine sand that is 4 inches thick; and they are non-calcareous and mildly alkaline. Subsoils extend to a depth of approximately 26 inches and are composed of a brown and yellowish brown fine sandy loam; and a layer of indurated caliche approximately 32 inches thick lies below the subsoil. The Wink soils generally have a surface layer of pale brown, friable, fine sturdy loam that is approximately 6 inches thick, calcareous, and moderately alkaline. Extending to a depth of approximately 24 inches, the subsoil is light yellowish brown, friable, calcareous, and moderately alkaline fine sandy loam. A layer of caliche underlies the subsoil. The caliche is about 50 inches thick, strongly cemented in the upper portion, and softer with increasing depth. Below the caliche layer are mixed alluvial deposits. Approximately 20% of this association is attributed to Turney and Berino soils, sand dunes, eroded sections where indurated caliche is less than 20 inches below the surface, and sandy soils that are deeper than 40 inches.

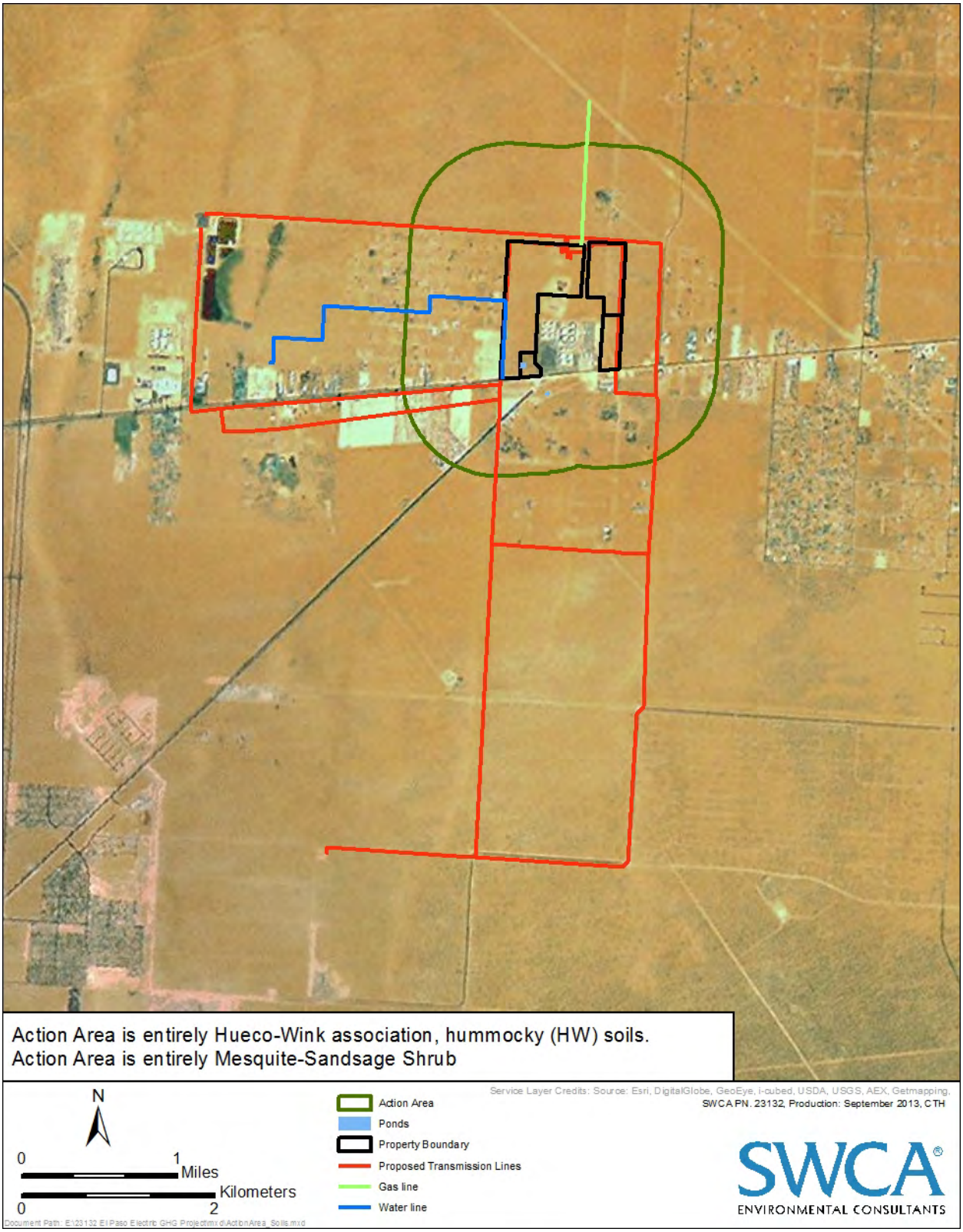


Figure 5. Soils, Water Resources, and Vegetation of the Action Area.

The Copia-Nations complex, 1 to 3 percent slopes, is another extensive soil type within the action area and is mapped north and west of the project area. This soil complex consists of Copia and similar soils (50%), Nations and similar soils (35%), and other minor components (15%). Copia soils are found in shrub-coppice dunes and hill slopes with a parent material of deep Eolian sands. Nations soils occur in alluvial flats with a parent material of Eolian sands over alluvium. Subsoils of fine sandy loam and cemented material extend to depths of approximately 25 and 36 inches, respectively within the Nation complex. Minor components of the Copia-Nations complex include Mcnew soils, Hueco soils, and Patriot soils. Other soils that exist within the action area are described in Table 3.

Table 3. Description of Soils Identified in the Action Area

Soil Unit Name and Description	Area (acres)	Percentage of Action Area
Hueco-Wink association, hummocky	36,109.9	59.30
Copia-Nations complex, 1 to 3 percent slopes	13,594.4	22.32
Dune land	2,797.0	4.59
Wink association, level	2,011.5	3.30
Copia-Mcnew-Pendero complex, 1 to 5 percent slopes	1,425.3	2.34
Copia-Patriot complex, 2 to 5 percent slopes	1,075.0	1.77
Simona association, undulating	909.7	1.49
Elizario-Copia complex, 2 to 5 percent slopes	890.0	1.46
Pendero fine sand, 2 to 5 percent slopes	770.1	1.26
Pendero-Copia-Nations complex, 2 to 5 percent slopes	376.8	0.62
Hueco loamy fine sand, 1 to 3 percent slopes	300.3	0.49
Rock outcrop-Lozier association	220.3	0.36
Infantry-Sonic complex, 3 to 10 percent slopes	161.2	0.27
Lozier association, hilly	102.4	0.17
Crossen gravelly fine sandy loam, 2 to 5 percent slopes	82.7	0.14
Reyab silt loam, 1 to 3 percent slopes	22.7	0.04
Wessly-Copia complex, 1 to 3 percent slopes	15.0	0.02
Mcnew-Copia-Foxtrot complex, 1 to 5 percent slopes	11.7	0.02
Bissett-Rock outcrop complex, 35 to 65 percent slopes	9.9	0.02
Pits	9.8	0.02

5.1.7 Existing Water Resources

West Texas has an arid climate, and aside from the major river drainages of the Rio Grande and the Pecos River, there are limited water resources within the region. El Paso County lies within the Rio Grande Basin watershed, and the action area is approximately 11 miles northeast of the Rio Grande, which runs northwest to southeast of the action area. Based on the background review of the USFWS National Wetlands Inventory data and the National Hydrologic Dataset, there are no significant bodies of water present within the action area. There are three very small isolated, ephemeral ponds totaling 1.5 acres within the action area (0.06 percent of the action area) (Figure 5). Specifically, two old stock tanks approximately 0.47 acre and 0.05 acre and one dry detention basin approximately 0.96 acre are present within the action area. These waterbodies are dry the vast majority of the year and the surrounding habitat is contiguous with the habitat throughout the action area.

5.1.8 Vegetation

The majority of the action area falls within the Mesquite-Sandsage Shrub plant community, with a smaller portion made up of the Tobosa-Black Grama Grassland plant community (Figure 5). The Mesquite-Sandsage Shrub is distributed across the sandy soils of the western Trans-Pecos Region of El Paso and Hudspeth Counties (McMahan et al. 1984). Common plants associated this vegetation type include fourwing saltbush (*Atriplex* spp.), soaptree yucca (*Yucca elata*), mormon tea (*Ephedra viridis* Coville), sotol (*Dasylirion* spp.), sand dropseed (*Sporobolus cryptandrus*), mesa dropseed (*S. flexuosus*), spike dropseed (*S. contractus*), blue grama (*Bouteloua gracilis*), chino grama (*B. ramosa*), broom snakeweed (*Gutierrezia sarothrae*), and devil's claw (*Proboscidea parviflora*).

The Tobosa-Black Grama Grassland is distributed within the low-lying plains of the Trans-Pecos Region (McMahan et al. 1984). Common plants associated with this vegetation type include blue grama, sideoats grama (*B. curtipendula*), hairy grama (*B. hirsuta*), burrograss (*Scleropogon brevifolius*), bush muhly (*Muhlenbergia porteri*), Arizona cottontop (*Digitaria californica*), javelina bush (*Condalia ericoides*), creosotebush (*Larrea tridentata*), butterflybush (*Buddleja* L.), soaptree yucca, whitethorn acacia (*Acacia constricta*), cholla (*Cylindropuntia* spp.), broom snakeweed, and rough menodora (*Menodora scabra*).

5.2 Protected Species

5.2.1 Endangered, Threatened, and Candidate Species List

The USFWS and TPWD maintain the list of protected species and the critical habitat that is known to occur in each Texas county. These species are currently listed or are proposed for listing as endangered or threatened under the ESA (16 USC 1531 *et seq*.). The list also includes candidate species proposed as threatened or endangered. The ESA specifically prohibits the "take" of a listed species. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct." Only species listed by the USFWS are afforded protection under the ESA. The ESA-listed species evaluated in this BA were based on the list of endangered, threatened, and candidate species for El Paso County, Texas, available at the USFWS website (USFWS 2012a and TPWD 2012c). Christina Williams at USFWS Ecological Services in Austin, Texas and Jessica Schmerler with TPWD verified the list on August 28, 2013 via personal communication. Although species listed as candidate are not currently afforded protection under the ESA, one such species was also addressed in this BA, in the event that the species becomes listed during the life of the project. The USFWS and TPWD ESA species list is provided in Appendix F and presented in Table 4.

The USFWS designates critical habitat for ESA-listed species to aid in the recovery of those species. The USFWS Critical Habitat Portal was accessed to determine whether any designated critical habitat for ESA-listed species occurs within the action area. The results revealed that no designated critical habitat is present within the action area and that the closest area of designated critical habitat is more than 80 miles away (USFWS 2012b).

Table 4. Federally Listed Species for El Paso County, Texas

Common Name	Scientific Name	Species Group	Listing Status
Interior least tern	*Sterna antillarum athalassos*	Bird	Endangered
Mexican spotted owl	*Strix occidentalis lucida*	Bird	Threatened

Table 4. Federally Listed Species for El Paso County, Texas

Common Name	Scientific Name	Species Group	Listing Status
Northern Aplomado falcon	*Falco femoralis septentrionalis*	Bird	Endangered
Southwestern willow flycatcher	*Empidonax traillii extimus*	Bird	Endangered
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Bird	Candidate
Rio Grande silvery minnow	*Hybognathus amarus*	Fish	Endangered
Black bear	*Ursus americanus*	Mammal	Eastern Texas Population: Threatened by Similarity of Appearance Western Texas Population: Not Listed
Black-footed ferret	*Mustela nigripes*	Mammal	Endangered
Gray wolf	*Canis lupus*	Mammal	Endangered
Sneed's pincushion cactus	*Escobaria sneedii* var. *sneedii*	Plant	Endangered

Of these 10 species, only the TPWD lists the federally listed Rio Grande silvery minnow (*Hybognathus amarus*), black bear (*Ursus americanus*), black-footed ferret (*Mustela nigripes*), and gray wolf (*Canis lupus*) as having the potential to occur in El Paso County. These four species are briefly discussed below; however, they will not be discussed in more detail in this BA because of the rationale provided below.

Only an experimental population of the Rio Grande silvery minnow, which is listed by the USFWS as non-essential and not endangered, occurs along the Rio Grande in Texas from Little Box Canyon south of Fort Quitman to Amistad Dam and along the Pecos River from its confluence with Independence Creek to its confluence with the Rio Grande. According to the USFWS (2012c), the Rio Grande silvery minnow experimental population in Texas is known to or believed to occur in Brewster, Hudspeth, Jeff Davis, Presidio, and Terrell Counties. This range does not include El Paso County; thus, this species would not occur within the action area for the proposed project.

The USFWS lists the Louisiana black bear (*U. a. luteolus*), a subspecies, as threatened and considers the entire black bear species within the historical range of the Louisiana black bear as threatened, by similarity of appearance to a threatened taxon. Historically, black bears were distributed throughout the state, but only a remnant population occurs in the mountainous areas of the Trans-Pecos. The subspecies found in the mountainous areas of the Trans-Pecos Region and northward along the New Mexican border is *U. a. amblyceps*, and the Trans-Pecos Ecoregion is not included in the historical range of the Louisiana black bear (Campbell 2003; Schmidly 2004). Thus, any black bears potentially found in El Paso County or the action area for this proposed project would not be afforded federal protection.

Historically, the range of the black-footed ferret in Texas extended throughout most of the northwestern one-third of Texas, Trans-Pecos, and Rolling Plains east and southeast of those areas (Schmidly 2004). The distribution of the black-footed ferret coincided with the range of black-tailed prairie dogs (*Cynomys ludovicianus*). The black-footed ferret is now extirpated from Texas, with the last record from Bailey County in 1963. Experimental populations have been established in other states (USFWS 2012d). Therefore, the black-footed ferret does not occur in El Paso County or the action area for this proposed project.

The distribution of the gray wolf formerly extended over the western two-thirds of Texas, but this species is now extirpated in Texas. The last record of gray wolf occurring in Texas was 1970 (Schmidly 2004). Reintroductions of the gray wolf have occurred in Arizona and New Mexico, and there has been discussion to reintroduce gray wolves to Big Bend National Park, but none have been released (Schmidly

2004; USFWS 2012e). All reintroduced populations are classified as experimental and nonessential, not endangered. Thus, the gray wolf does not occur in El Paso County or the action area for this proposed project.

5.2.2 Endangered, Threatened, and Candidate Species Descriptions

A brief description, including listing status, life history, habitat requirements, population status, and current and historical range information, of the remaining six federally endangered, threatened, and candidate species and their habitat requirements are described below.

INTERIOR LEAST TERN

Interior least tern (*Sterna antillarum athalassos*) was listed as endangered by the USFWS in 1985. This shorebird is the smallest of the North American terns, averaging 8 to 10 inches in length, and breeding adults are characterized by gray above and white below, black cap, black nape and eye strip, white forehead, yellow bill with a dark tip, and yellow to orange legs. Least terns feed on small fish and invertebrates in shallow waters near their breeding colony (TPWD 2012c).

There are three subspecies of least terns recognized in the United States, which are differentiated by their separate breeding ranges. The interior least tern breeds along the Missouri, Mississippi, Colorado, Arkansas, Red, and Rio Grande river systems and at reservoirs around San Angelo in Tom Green County, Lake Amistad in Val Verde County, and Falcon Reservoir in Zapata County, Texas (Lockwood and Freeman 2004; TPWD 2012c). The interior least tern prefers nesting on sandbars, islands, salt flat, and bare or sparsely vegetated sand, shell, and gravel beaches associated with braided streams, rivers, and interior reservoirs where prey sources (i.e., fish) are present. As these optimal nesting sites disappear, least terns use human-made sites, such as sand and gravel pits, large, expansive, shallow wastewater treatment plants, and inland beaches, again where prey sources are found. Nesting sites require nearby aquatic sources with fish populations for prey (TPWD 2012c). This species migrates to its wintering grounds along the coast of Central America and northern South America, and it is a rare winter resident on the coast of Texas (Lockwood and Freeman 2004; TPWD 2012c).

MEXICAN SPOTTED OWL

The Mexican spotted owl (*Strix occidentalis lucida*) was listed as threatened by the USFWS in 1993 because of habitat loss and alteration. Mexican spotted owls are a large brown and mottled owl averaging 17.5 inches long and are characterized by black eyes, irregular brown and white spots over much of their body, and brown tails with thin white bands. The diet of Mexican spotted owls comprises woodrats (*Neotoma* sp.), pocket gophers (Family Geomyidae), birds, and insects (TPWD 2012c).

In Texas, this species occurs only in the Guadalupe and Davis Mountains of west Texas; however, this owl has also been reported in El Paso County during the fall and winter months (Oberholser 1974, Lockwood and Freeman 2004). Mexican spotted owls require mature, old-growth forests of southwestern white pine (*Pinus strobiformis*), Douglas-fir (*Pseudotsuga menxiesii*), and ponderosa pine (*Pinus ponderosa*) located on steep slopes and canyons with rocky cliffs (TPWD 2012c). Nests are generally found in the north- or east-facing slopes or on cliffs at elevations of 5,000 to 7,000 feet amsl in deep, cool canyons, and consist of stick platforms made by other birds, natural platforms (such as mistletoe) or caves, crevices, or potholes of cliffs (Cartron 2010). Mexican spotted owls lay one to three eggs in March or April, and owlets leave their nests approximately 35 days after hatching (TPWD 2012c).

NORTHERN APLOMADO FALCON

Listed as endangered in 1986, the northern Aplomado falcon is a medium-sized falcon approximately 14 to 18 inches long with a wingspan of 31 to 40 inches. It is characterized by a steel gray back, a dark band on its belly separating the white upper breast from a cinnamon belly, and a distinct, striped facial marking. Aplomado falcons are fast fliers that eat mostly birds and insects.

Aplomado falcons require grassland or savannah habitat with scattered honey mesquite (*Prosopis glandulosa*), yuccas (Family Yucca), and cactus bordered by woodlands or forests (Cartron 2010). This species does not build their own nests but use stick nests built by other birds. In the Chihuahuan Desert, nests are typically located in soaptree yucca but also have occurred in Torrey's yucca (*Y. torreyi*), honey mesquite, and netleaf hackberry (*Celtis reticulata*); most nests are found in large, complex soaptree yuccas (Cartron 2010). Aplomado falcons lay two to three eggs from February to June, and nestlings fledge approximately 4 to 5 weeks after hatching (Cartron 2010). Current range data for the Aplomado falcon include south Texas and the Trans-Pecos Region but do not include El Paso County (TPWD 2012d).

Since 1997, over 100 captive-reared young have been released annually by The Peregrine Fund. This effort is concentrated along the Texas Gulf Coast. Reintroductions are on-going in New Mexico and Texas, including private lands in the Trans-Pecos Region and south Texas; however, no reintroductions in El Paso County have occurred to date per communications with USFWS Austin Ecological Services Office and The Peregrine Fund 2013 (The Peregrine Fund 2013).

SOUTHWESTERN WILLOW FLYCATCHER

The southwestern willow flycatcher is approximately 5.75 inches long and has a grayish green back and wings, two wingbars, whitish throat, light gray-olive breast, and pale yellowish belly (USFWS 2012f). The eye ring is faint or absent, and the upper mandible is dark and the lower is light. Primarily their song, a sneezy "fitz-bew," distinguishes this subspecies from other willow flycatchers. Southwestern willow flycatchers are insectivorous and primarily catch insects while flying or hovering to glean them from foliage in dense riparian vegetation (USFWS 2012f).

This species migrates to North America by mid-May to breed, and it returns to its wintering grounds between August and September. Southwestern willow flycatchers breed in dense riparian tree and shrub communities associated with rivers, lakes, reservoirs, and other wetlands (USFWS 2012f). This species constructs nests in native and non-native vegetation, including willows (*Salix* spp.), seepwillow (*Baccharis salicifolia*), saltcedar (*Tamarix* spp.), cottonwood (*Populus* spp.), and Russian olive (*Elaeagnus angustifolia*). Current range and distribution data for the southwestern willow flycatcher include southwestern Texas and the Trans-Pecos Region, including El Paso County.

WESTERN YELLOW-BILLED CUCKOO

The range of the yellow-billed cuckoo in Texas is state-wide (Lockwood and Freeman 2004), but the differentiation between the subspecies, the eastern yellow-billed cuckoo (*Coccyzus americanus americanus*) and western yellow-billed cuckoo (*C. a. occidentalis*), is difficult unless the bird is in hand, since the ranges of these subspecies likely overlap in Texas. The western distinct population segment of the yellow-billed cuckoo is listed as a candidate species by the USFWS, and in Texas, this status applies only to western populations beyond the Pecos River drainage. As a federal candidate species, the western yellow-billed cuckoo is not afforded legal protection by the USFWS. In November 2012, the USFWS stated that they are working on a proposed listing rule that they expect to publish prior to making the next

annual resubmitted petition 12-month finding, which is scheduled for fiscal year 2013 (*Federal Register* 2012).

This species is a secretive, slow-moving bird that can vanish into foliage; thus, yellow-billed cuckoos are difficult to observe (Howell and Webb 1995). Western yellow-billed cuckoo occur in Texas from April to October (Oberholser 1974), and the breeding season extends from mid-May to late September. This species breeds in riparian habitat and associated drainages, springs, developed wells, earthen ponds supporting mesic vegetation, and deciduous woodlands with cottonwoods and willows. The nests of western yellow-billed cuckoo have been found in mesquite, willow, cottonwood, and hackberry (*Celtis* sp.). Current range and distribution data for the southwestern willow flycatcher include southwestern Texas and the Trans-Pecos Region, including El Paso County.

SNEED'S PINCUSHION CACTUS

Sneed's (also known as Sneed) pincushion cactus occurs in xeric limestone outcrops on rocky slopes that are usually steep. This endemic species inhabits desert mountain ranges of the Chihuahuan Desert, succulent shrublands, or grasslands (Poole et al. 2007). The elevational range for this species is between 3,900 and 7,770 feet amsl. Sneed's pincushion cactus can have 10 to over 100 stems that form into dense clumps (Poole et al. 2007). This cactus appears snowy white and bristly with spherical to cylindrical stems that are 1.0–5.3 inches (2.5–13.5 cm) long and 0.5–1.8 inches (1.2–4.5 cm) in diameter. The needle-like spines obscure the stem because of their density, and they are 0.1–0.6 inch (3–15 mm) long. The flowers are whitish to pinkish and 0.4–1.0 inch (1.1–2.5 cm) long, and flowering occurs between April and September. The fruit are crimson red or green, cylindrical to obovoid in shape, and 0.3–0.6 inch (6.5–15.5 mm) long.

The current range and distribution of Sneed's pincushion cactus includes El Paso County, Texas, and two counties in New Mexico (Doña Ana and Eddy). For El Paso and Doña Ana Counties, this species is known to occur at approximately 10 locations on rocky slopes and in crevices within the Chihuahuan Desert of the Franklin Mountains (TPWD 2012e).

5.2.3 Texas Natural Diversity Database Results

The results of the Texas Natural Diversity Database records review for El Paso County were received from the TPWD on March 8, 2012. No elements of occurrence (EOs) for federally listed species were identified within the action area. The closest EO of a federally listed species is of Sneed's pincushion cactus (EO ID 6736), located approximately 14 miles west of the action area. All of the other EOs for Sneed's pincushion cactus are located in and around the Franklin Mountains, approximately 4 miles west of the action area. No other EOs for federally listed species are reported for El Paso County; however, the lack of data does not necessarily indicate the absence of occurrence for threatened or endangered species within the action area.

The only EOs occurring within the action area are for Wheeler's spurge (*Chamaesyce geyeri* var. *wheeleriana*), which is not a federally listed species but instead is a rare plant species listed by TPWD. The EO records for Wheeler's spurge indicate this species was last observed in 1952 (EO ID 8587), 1961 (EO ID 5919), and 1972 (EO ID 9084). Wheeler's spurge occurs in areas of sparse vegetation and loose eolian quartz sand on reddish sand dunes or coppice mounds (TPWD 2012c). Current suitable habitat for this species does exist within the action area (since sandy dunes are present). However, these EOs are historical (over 37 years old), and no individuals of this species were observed during field reconnaissance, although a species-specific survey was not conducted because it is not a federally listed species. The proposed project could impact individuals of this species, if present. Wheeler's spurge is not afforded protection under the ESA or state laws; thus, no mitigation is proposed for this species.

6.0 PROTECTED SPECIES HABITAT EVALUATION

Results of both the field survey data obtained from the March 14, 2012, January 16-17, 2013, and April 17, 2013 field reconnaissance and information obtained through the detailed desktop review as described in Section 3 (Methods) above were used to prepare this evaluation. The following sections describe the vegetation communities observed in the action area and the analysis of the potential for species addressed in this BA to occur in the action area.

6.1 Plant Communities Observed

Vegetation association and habitat of the action area are associated primarily with the mesquite-sandsage scrub vegetation community (McMahan et al. 1984). This vegetation community exhibits scattered, low density surface cover, with highest species diversity occurring with seasonal patterns. Honey mesquite (*Prosopis glandulosa* var. *torreyi*) and sandsage (*Artemisia filifolia*) represent the dominant plant species in this vegetation community.

The mesquite-sandsage shrub vegetation community is distributed across sandy soils of El Paso County (McMahan et al. 1984). Other common plant species include four-wing saltbush (*Atriplex canescens*), soaptree yucca (*Yucca elata*), Mormon tea (*Ephedra viridis*), sotol (*Dasylirion leiophyllum*), sand dropseed (S*porobolus cryptandrus*), blue grama (*Bouteloua gracilis*), chino grama (*Bouteloua ramosa*), broom snakeweed (*Gutierrezia sarothrae*), and devil's claw (*Proboscidea parviflora*).

Review of the action area and surrounding landforms is consistent with descriptive nomenclature of the area. Data were recorded in the site visit to document species composition and densities present. The dominant species across the area were honey mesquite, four wing saltbush, and Russian thistle (*Salsola kahli*). The vegetation community across the action area exhibited near uniformity in species composition. A small, localized complex of sandsage was identified southeast of the proposed plant site.

Most of the action area has been impacted by prior land use from the surrounding community and existing infrastructure. Existing electrical distribution and transmission infrastructure is located along portions of the proposed transmission route alternatives. Additionally, numerous paved and unpaved road surfaces are located through the action area as well as abutting residential development lots. Throughout the action area, an abundance of localized trash disposal sites and widespread plastic bags from windblown dispersal were noted.

In regard to species ecology and the result of disturbances, exotic and noxious species are abundant in much of the action area. Russian thistle was a dominant herbaceous species found throughout the action area. Rabbitbush (*Ericameria nauseosa*) is a native species, but proliferates in altered landscape regimes. It was found growing in highest densities near surfaces where sand deposits were absent.

Parts of the project area further from disturbed surfaces exhibited greater vegetation matrices with fewer invasive species present. These areas had an occupation of shrub species such as creosote (*Larrea tridentata*) and four-wing saltbush associated with honey mesquite communities. Within these communities, grasses such as ear muhly (*Muhlenbergia arenacea*) were common.

6.2 Protected Species Habitat Analysis

6.2.1 Interior Least Tern

The interior least tern is not known to breed in El Paso County (TPWD 2012c), and is considered a rare migrant in the region (Peterson and Zimmer 1998). In general, any least terns migrating through El Paso County should occur outside of the action area because they would be expected to follow the riparian corridor of the Rio Grande as they utilize aquatic habitats and primarily eat small fish (Thompson et al. 1997; Schweitzer and Leslie 2000). The 1.5 acres of existing water resources in the action area are ephemeral in nature and are not large enough, nor do they have the habitat or prey sources necessary to attract interior least terns to the area.

Two 20- to 21-acre solar evaporation ponds will be constructed for the proposed project. Little information is provided on the specific interaction of interior least terns on solar evaporation ponds. However, it is considered possible that these ponds would be large enough to very occasionally attract the attention of rare migrant least terns. The evaporation ponds will not be stocked with or conducive for fish or brine shrimp populations due to the shallow nature, which increases surface area, and constant circulation, which maintains a stable pH (between 7 and 8), TDS levels (around 8,000 parts per million), and vastly reduces the potential for algal growth. Therefore, the potential for the tern's main prey source (i.e., fish populations) to persist in the evaporation ponds is eliminated. In addition, the area surrounding the evaporation ponds will be denuded of vegetation and will be covered with fill materials such as caliche and large rocky riprap, making the area unsuitable for interior least tern as they prefer softer, more pliable soils such as sand, silty, or other fine soils for roosting and nesting. Thus, if on the rare chance an interior least tern would fly over the action area, it would investigate the ponds (i.e., circle the pond to search for fish), determine no food sources are present, and continue on. It is not expected that terns would loaf in or consume brine water from the evaporation ponds or nest or roost adjacent to the ponds (San Francisco Bay Conservation and Development Commission 2005). Therefore, the interior least tern would only occur in the action area as a rare fly over and would not be expected to utilize habitat in the action area.

6.2.2 Mexican Spotted Owl

The Mexican spotted owl is unlikely to occur in the project or action area because suitable habitat, (i.e., heavily vegetated canyons or forests), to support this species is not present within the project and/or action area for this proposed project. Furthermore, this species is not currently known to occur in El Paso County (TPWD 2012c). Therefore, the Mexican spotted owl is unlikely to occur in the project and/or action area for this proposed project.

6.2.3 Northern Aplomado Falcon

Although plant species, i.e., honey mesquite and yuccas, associated with habitats used by the northern Aplomado falcon are present in the action area, no grassland or savannah habitat, which is preferred by this species, is present. Thus, the current habitat of action area would not be suitable for this species. In addition, the yuccas within the action area are not mature enough to support nesting for this species. Furthermore, this species is not currently known to occur in El Paso County (TPWD 2012c). Therefore, the northern Aplomado falcon is unlikely to occur in the project and/or action area for this proposed project.

6.2.4 Southwestern Willow Flycatcher

Although the southwestern willow flycatcher is known to occur in El Paso County, the areas they occupy are specifically along water courses, such as the Rio Grande, where suitable, dense riparian vegetation, saturated soils, and standing water are present (USFWS 2012f). The action area for the proposed project does not contain suitable habitat features required to support this species. The closest appropriate breeding habitat is along the Rio Grande, approximately 11 miles to the southwest of the action area. Two 20- to 21-acre solar evaporation ponds will be constructed for the proposed project; however, vegetation will be actively denuded in the vicinity of these ponds, making the area highly unsuitable for use by southwestern willow flycatchers. Therefore, the southwestern willow flycatcher is unlikely to occur in the action area for this proposed project.

6.2.5 Western Yellow-billed Cuckoo

Although the western yellow-billed cuckoo is known to occur in El Paso County, the areas they occupy are along water courses, such as the Rio Grande, where suitable riparian vegetation, saturated soils, and standing water exist (TPWD 2012c). The action area for the proposed project does not contain similar habitat features required to support this riparian woodland species. It instead contains dry scrub-shrub/barren habitat that would make the area highly unsuitable for use by western yellow-billed cuckoos. Thus, the western yellow-billed cuckoo is unlikely to occur in the action area for the proposed project.

6.2.6 Sneed's Pincushion Cactus

Although the action area contains Chihuahuan Desert vegetation, no steep, rocky slopes with limestone are present. Sneed's pincushion cactus is known to occur in approximately 10 locations within the Franklin Mountains, which are approximately 14 miles west of the action area. Although a small portion of the Hueco Mountains is located in the northeastern portion of the action area, surveys in those mountains have not revealed the presence of the Sneed's pincushion cactus (U.S. Army 2001), likely due to the difference in suitable substrates for this species, i.e., limestone types, that are likely not present in the action area. Therefore, this species is unlikely to occur within the action area for the proposed project.

6.2.7 Migratory Birds

Migratory birds were observed during the 2012 field reconnaissance of the project area, including red-tailed hawk (*Buteo jamaicensis*), Gambel's quail (*Callipepla gambelii*), and lark bunting (*Calamospiza melanocorys*). No nests were observed; however, the desert habitats present in the action area do contain suitable nesting habitat for numerous species of migratory birds. Thus, several species of migratory birds could be present within the action area of the proposed project.

7.0 AIR QUALITY ANALYSIS RESULTS

7.1 Estimated Total Annual Emission Rate Overview

An analysis of estimated air quality impacts from the proposed project was completed by Trinity (2012a, 2012b). The analysis included criteria pollutant emissions calculations from the following sources: four combustion turbines, two cooling towers, the firewater pump engine, fugitive emissions of ammonia from piping components, and the diesel storage tank (Trinity 2012b). Tables 5 and 6 present the results of this air emissions analysis.

Table 5. Summary of Estimated Criteria Pollutant Emission Rates for the Proposed Project

Emission Point	Emission	Emission Rate (tpy)
Combustion Turbine 1	CO	36.85
	NO_x	24.08
	$PM/PM_{10}/PM_{2.5}$	15.00
	SO_2	1.50
	VOC	5.48
	NH_3	16.75
	H_2SO_4	0.12
Combustion Turbine 2	CO	36.85
	NO_x	24.08
	$PM/PM_{10}/PM_{2.5}$	15.00
	SO_2	1.50
	VOC	5.48
	NH_3	16.75
	H_2SO_4	0.12
Combustion Turbine 3	CO	36.85
	NO_x	24.08
	$PM/PM_{10}/PM_{2.5}$	15.00
	SO_2	1.50
	VOC	5.48
	NH_3	16.75
	H_2SO_4	0.12
Combustion Turbine 4	CO	36.85
	NO_x	24.08
	$PM/PM_{10}/PM_{2.5}$	15.00
	SO_2	1.50
	VOC	5.48
	NH_3	16.75
	H_2SO_4	0.12
Cooling Tower 1	PM	0.78
	PM_{10}	0.25
	$PM_{2.5}$	<0.01
Cooling Tower 2	PM	0.78
	PM_{10}	0.25
	$PM_{2.5}$	<0.01
Firewater Pump Engine	CO	0.01
	NO_x	0.05

Table 5. Summary of Estimated Criteria Pollutant Emission Rates for the Proposed Project

Emission Point	Emission	Emission Rate (tpy)
	$PM/PM_{10}/PM_{2.5}$	<0.01
	SO_2	0.02
	VOC	<0.01
Ammonia Fugitives	NH_3	0.02
Diesel Storage Tank	VOC	<0.01

Source: Trinity 2012b, 2012c. Note: H2SO4 = sulfuric acid; NH3 = ammonium; SO2 = sulfur dioxide; VOC = volatile organic compound; PM = particulate matter.

Table 6. Summary of Estimated Emission Limits for the Proposed Project

Source	Emission	Limit	Averaging Period
Each Combustion Turbine (Four total for proposed project)	NO_x	2.5 ppmvd @15% O_2	3-hour
	CO	6.0 ppmvd @15% O_2	3-hour
	$PM/PM_{10}/PM_{2.5}$	6.0 lb/hr	1-hour
	SO_2	0.6 gr S/100 scf fuel	N/A

Note: ppmvd @15% O_2 = parts per million volume dry at 15% of oxygen in its molecular form; gr S/100 scf fuel = grains of sulfur per 100 square cubic foot of fuel; N/A = not applicable.

7.2 Area of Impact Dispersion Modeling Results

Significance analysis dispersion modeling for air emissions from the proposed project was conducted by Trinity for the proposed project (Trinity 2012d). The following sections provide information related the methods and results for the significance analysis.

7.2.1 Dispersion Modeling Methods

The air quality analysis for the proposed project followed the TCEQ modeling guidelines and the EPA guidelines at 40 CFR Part 51, Appendix W, Guidelines on Air Quality Models (TCEQ 1999). The EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD, version 12060) was used for this air quality analysis. Specific details of the modeling methodology (PSD Air Quality Analysis – El Paso Electric Company's Montana Power Station) were submitted to TCEQ and copied to EPA under separate cover on September 12, 2012. For this project, a PSD air quality analysis was triggered for the emissions of the following criteria pollutants: CO, NO_2, PM_{10}, and $PM_{2.5}$. PSD air quality dispersion modeling analyses are organized into two major subsections based on EPA modeling guidance: the Significance Analysis and the Full Impact Analysis. In accordance with EPA guidance, the Significance Analysis considers the criteria pollutant emissions associated only with the proposed project to determine whether they will have a significant impact on the surrounding area. In the Significance Analysis, the modeled ground-level concentrations are compared with the corresponding

significant impact levels (SILs). Only if the Significance Analysis indicates that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL does a Full Impact Analysis need to be performed. A Full Impact Analysis is limited to those receptors where the Significance Analysis indicates that modeled ground-level concentrations are greater than the SILs ("significant receptors") due to emissions from the proposed project. A Full Impact Analysis consists of two parts, a PSD National Ambient Air Quality Standard (NAAQS) Analysis and a PSD Increment Analysis. If a Full Impact Analysis is triggered, emissions from nearby sources are incorporated into the model for both the PSD NAAQS and PSD Increment Analyses, and monitored background concentrations are added to the modeling results for the PSD NAAQS Analyses as part of the ambient air quality impact assessment at the significant receptors.

7.2.2 Dispersion Modeling Results

Based on emissions calculations, CO, NO_x, particulate matter (PM), PM_{10}, and $PM_{2.5}$ are the only criteria pollutant emissions from the proposed project that exceed the significant emission rates (Table 7), and therefore, must be included in the air dispersion modeling analysis for the facility. Trinity conducted dispersion modeling of air emissions for these pollutants (Trinity 2012d). The results of the modeling analysis demonstrated that all pollutants and averaging periods were below the significant impact level (SIL), except for the 24-hour PSD Increment averaging period for $PM_{2.5}$. The results of the air dispersion modeling analysis demonstrated that air quality impacts from the proposed project will be insignificant (i.e., below the all applicable SILs) at a distance beyond 0.7 km from the plant site property boundary. Therefore, the establishment of the 1-kilometer buffer area around the plant site for the purposed of establishing the biological assessment action area provides a conservative approach to ensure all potential air quality impacts are evaluated.

Table 7. Summary of Modeled Air Quality Impacts for the Proposed Project, Compared with Applicable Significant Impact Levels

Emission	Significant Emission Rate per PSD Guidelines (tpy)	Exceeds Significant Emission Rate? (Yes or No)	Exceeds Significant Impact Levels (SILs)? (Yes or No)	Exceeds Significant Impact Levels >1 mile? (Yes or No)
CO	100	Yes	No	No
NO_x	40	Yes	No	No
PM	25	Yes	No	No
PM_{10}	15	Yes	No	No
$PM_{2.5}$	10	Yes	Yes, but only for the 24-hour averaging period	No
SO_2	40	No	No	No
VOC	40	No	No	No
H_2SO_4 Mist	7	No	No	No

Note: H_2SO_4 = sulfuric acid; SO_2 = sulfur dioxide; VOC = volatile organic compound.

8.0 EFFECTS OF THE PROPOSED ACTION

The following sections present the effects analysis for protected species from the construction and operation of the proposed project.

8.1 Air Pollution Effects Background Research

A literature review was conducted regarding the effects from air pollution on flora and fauna in order to complete an effects analysis for the proposed project. Air pollution contaminant types that were researched in this literature review incorporated only those associated with this proposed project. Furthermore, this review focused on potential impacts to plants and wildlife but did not include human-related effects, and it also focused on potential terrestrial impacts since no aquatic systems are present within the action area. Lastly, since this proposed project did not have the potential for ESA-listed species to occur in the action area, the species-specific research portion of this review focused on the potential effects to migratory birds, their habitats, including plants, and their food sources because they were the only protected species with the potential to present and thus potentially affected by the proposed project. However, very little specific information regarding the sensitivity of soils, plants, or animals, which have been discussed in this report as known to this region of Texas, was found during the extensive literature review.

Generalized conclusions regarding the effects of air pollution on biodiversity of ecosystems include 1) lower life forms are usually more affected than high life forms; 2) terrestrial plants are normally more affected then terrestrial wildlife; and 3) typically, populations of species that are affected decline, but not always (Dudley and Stolton 1996). Effects to higher life forms, such as mammals and birds, are usually indirect effects to food chain changes or food availability reduction or effects to reproductive success (Dudley and Stolton 1996). Many species of animals have at least some level of tolerance to air pollution; and for those that are affected, the level of effect can vary from one individual to another (Dudley and Stolton 1996).

Impacts to flora and fauna from air pollutants can be categorized as acute or chronic. Where acute effects represent short-term (e.g., 3-hour averaging) exposures to relatively high levels and chronic effects represent longer term (e.g., months and years) exposures to lower levels of pollutants (Smith and Levenson 1980). Pathways in which air pollutants can have direct and indirect effects on plants and animals include: 1) direct exposure to animals; 2) direct exposure to plants; 3) animals can ingest plants with toxin on their surfaces; and 4) toxins deposited in soil can be taken up by plants, or animals can ingest plants that have undergone uptake of toxins (Smith and Levenson 1980). In addition, these effects to species of plants and wildlife from exposures to air pollutants can have varying degrees of effects to different species and also vary between individuals of one species (Smith and Levenson 1980).

Air pollution components including photochemical oxidants, such as NO_x, have been shown to affect animals, mainly as eye irritation and eye or respiratory injury (Peterson 1982). Research has revealed that low-level chronic exposures can be reversible and also that localized tolerance can occur (Peterson 1982). Air pollutants in acid form or which have acid-forming properties, such as SO_2 and NO_x, can be deposited in wet (i.e., acid rain) or dry forms (EPA 2012). As SO_2 and NO_x gases are emitted into the atmosphere, they react to form sulfate (SO_2), nitrate (NO_x), sulfuric acid (SO_2), and nitric acid (NO_x), which are then deposited back to the Earth's surface as pollutants (Lovett and Tear 2008). Deposition of acid particles, wet and dry, can have direct visible effects to plant surfaces from short-term, high level exposure and also have adverse metabolic effects from long-term, low level exposure (Peterson 1982). In addition, adverse effects of PM pollution include impaired visibility; alteration of ecosystem processes; soil structure changes; and the modifications to timing and location of traditional precipitation patterns (EPA 2012).

Detrimental effects of sulfur oxides (SO_x) pollutants consist of soil and water acidification; direct injury to plants through direct exposure by the gaseous pollutant; contributes to particle formation with associated effects; and cooling of the atmosphere (EPA 2012; Smith and Levenson 1980). Effects of NO_x include contributing to soil and water acidification and nutrient enrichment, which can lead to losses in biodiversity (EPA 2012). NH_3 effects can range from eutrophication of surface water (i.e., the process by which a waterbody becomes enriched with dissolved nutrients that promote the growth of aquatic plants, and as a result, a depletion of dissolved oxygen can occur); groundwater nitrogen contamination; and a role in the formation of nitrate and sulfate particles that have adverse environmental effects (EPA 2012).

Arid ecosystems, such as low precipitation deserts, are considered nitrogen limiting environments (Yahdjian et al. 2011). Nitrogen saturation of an ecosystem is the long-term removal of nitrogen limitations on biotic activity, along with a decrease in the ability of nitrogen retention (Fenn et al. 2003). This excess in nitrogen availability can in turn affect groundwater quality, eutrophication of waterbodies, toxic effects to freshwater flora and fauna, biodiversity changes, nutrient cycling disruptions, and increased soil emissions of nitrogen (Fenn et al. 2003).

Anthropogenic pollutants, such as SO_2 and PM, can have a variety of effects to desert ecosystems, including degradation of visibility; dry fall contribution to increased nitrogen, which can favor the spread of non-native annuals and perennials that in turn changes the composition of vegetation communities; and direct damage to plant surfaces. In addition, an increase in nitrogen deposition can increase foliar growth in plants, which in turn can increase fuel loads for wildfires and also contribute to invasive species proliferation (Fenn et al. 2003). Damage to cryptogrammic soils, which are important in desert ecosystems for their soil stabilization, moisture retention, and seed germination protection capabilities, can include increased electrolyte loss, degradation of chlorophyll, and a reduction in nitrogen fixation. Variation in responses by desert perennials to SO_2 and NO_2 exposures has included sensitivity by creosote bush through reduced growth and leaf injury to intermediate responses by brittlebush (*Encelia farinosa*) and white bursage (*Ambrosia dumosa*), and also apparent resistance by four-wing saltbush (*Atriplex canescens*) (Lovich and Bainbridge 1999).

Since the only source of potential dust from the construction and operation of the proposed project is related to road use and the initial ground-clearing activities, the literature review of dust effects was limited to soil-related dusts and did not include any potential chemical dusts, such as those associated with coal dust. These mineral dusts are usually are relatively inert; are not particularly acidic or alkaline; are commonly composed of course particles, i.e., large than 2.5 µm in diameter; and usually only have effects close to the source, and any potential effects are usually associated with high dust loads (Chaston and Doley 2006; Doley and Rossato 2010). The deposition of dust on plants has been shown to impact plants in the following ways: reduced light penetration on the leaf surface, increased leaf temperature, decreased photosynthesis, increased transpiration, and inhibition of growth (Chaston and Doley 2006; Doley and Rossato 2010; Sharifi et al. 1997).

8.2 Air Quality Effects

8.2.1 Emissions

As shown in Sections 7.0 through 7.2.2, this proposed project will have emissions that are above the Significant Emission Rate (SER). However, these emissions will not exceed the SILs greater than 0.7-kilometer from the source, i.e., the proposed project. Therefore impacts from emissions are limited to a 1-kilometer radius from the fence line and any interrelated actions (i.e., linear facilities) extending beyond this radius. Thus, impacts of increased CO, NO_x, and $PM/PM_{10}/PM_{2.5}$ could have direct and indirect effects on species present in a portion of the action area. These effects could include increased nitrogen

levels, which could have direct, short-term effects by damaging plant surfaces and also have long-term effects by changing the plant community composition, disrupting nutrient cycling, and increasing GHG soil emissions. An increase in PM levels could also have short-term, direct effect by impairing visibility for animals and long-term, indirect effect through the alternation of ecosystem processes and soil structure changes.

8.2.2 Fugitive Dust

Construction of the proposed project would temporarily increase dust presence in the area, but no dust is likely to result during operation of the project since BMPs to control dust during construction and operation will be implemented. Thus, the short-term increase during the initial construction would likely be negligible in terms of impacts to wildlife (i.e., only migratory birds since they are the only species with the potential for presence).

8.2.3 Impacts of Air Pollution Sources on Flora and Fauna

As presented in Table 8, none of the proposed project's emissions will produce higher levels than the current ambient/background concentration and also will be below the level of impact to sensitive, intermediate, and resistant plant species. However, data regarding the plant species identified in the action area were not found in the literature review regarding their sensitivity to air pollution; thus, it is unknown where they would fall in this range. Furthermore, no specific data regarding birds and the levels at which effects could occur were obtained. Thus, impacts from this proposed project's emissions are unknown. However, since the literature review indicated that air pollution effects could have direct, short-term visibility effects and also long-term indirect effects through ecosystem changes, it is possible that this project's emissions could have short- and long-term effects to both plants and animals. The only protected species potentially present in the action area are migratory birds; thus, these potential impacts are limited to that group.

Table 8. Background Concentrations, Proposed Emission Levels, and Data for Emission Concentration Exposures and the Levels of Effects to Plants

Emission	Background/Ambient Concentrations	Averaging Time	Sensitive Concentration Limits	Intermediate Concentration Limits	Resistant Concentration Limits	Project Concentrations vs. Modeling Significance Levels[7]
CO	2,630 μg/m^3 1-hr Concentration[1]	1 week	1,000 ppmv 1,800,000 μg/m^3	N/A	10,000 ppmv 18,000,000 μg/m^3	< 0.62 ppmv[8] < 710.0 μg/m^3
NO_2	116.3 μg/m^3 1-hr Concentration[2]	4 hours	2.0 ppmv 3,760 μg/m^3	5.0 ppmv 9,400 μg/m^3	9.0 ppmv 16,920 μg/m^3	< 0.00343 ppmv[8] < 6.45 μg/m^3
	N/A	8 hours	2.0 ppmv 3,760 μg/m^3	4.0 ppmv 7,520 μg/m^3	8.0 ppmv 15,040 μg/m^3	< 0.0279 ppmv[8] < 5.25 μg/m^3
	N/A	1 month	0.3 ppmv 564 μg/m^3	0.3 ppmv 564 μg/m^3	0.3 ppmv 564 μg/m^3	< 0.0072 ppmv[8] < 1.35 μg/m^3
	32.3 μg/m^3 Annual Average Concentration[3]	1 year	0.5–0.10 ppmv 94–188 μg/m^3	0.5–0.10 ppmv 94–188 μg/m^3	0.5–0.10 ppmv 94–188 μg/m^3	< 0.0053 ppmv < 1.0 μg/m^3
SO_2	21.3 μg/m^3 1-hr Concentration[4]	1 hour	0.35 ppmv 917 μg/m^3	N/A	N/A	< 0.00298 ppmv < 7.8 μg/m^3
	17.6 μg/m^3 3-hr Concentration[5]	3 hours	0.30 ppmv 786 μg/m^3	0.8 ppmv 2,096 μg/m^3	5.0 ppmv 13,100 μg/m^3	< 0.00955 ppmv < 25.0 μg/m^3

1.8 µg/m^3 Annual Concentration[6]	1 year	0.07 ppmv 18 µg/m^3	0.07 ppmv 18 µg/m^3	0.07 ppmv 18 µg/m^3	< 0.00038 ppmv < 1.0 µg/m^3

Sources: Smith and Levenson 1980; Trinity 2012b, 2012c. Note: ppmv = parts per million volume; N/A = not applicable; µg/m3 = micrograms per cubic meter.

[1] The 1-hour CO concentration is the maximum 1-hour concentration from the Ivanhoe Monitor (EPA ID: 48-141-0029) for 2011.

[2] The 1-hour NO_2 concentration is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour NO_2 concentrations for the years 2009–2011 from the Ascarate Park Monitor (EPA ID: 48-141-0055).

[3] The annual NO_2 concentration is the annual average NO_2 concentration from the Ascarate Park Monitor for 2011.

[4] The 1-hour SO_2 concentration is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour SO_2 concentrations for the years 2009–2011 from the El Paso UTEP Monitor (EPA ID: 48-141-0037).

[5] The 3-hour SO_2 concentration is the maximum 3-hour concentration for 2011 from the El Paso UTEP Monitor.

[6] The annual SO_2 concentration is the annual average concentration for 2011 from the El Paso UTEP Monitor.

[7] The Class II modeled concentrations for CO, NO2, and SO2 resulting from the proposed plant site are below the corresponding Modeling Significance Levels (MSLs) demonstrating insignificant impacts for these criteria pollutants. Significant impacts are defined by ambient concentration thresholds commonly referred to as MSLs. Per EPA guidance, if impacts calculated for a particular pollutant due to the new emissions from a facility are less than the MSLs for all applicable averaging periods, no further analyses are required for that pollutant (i.e., a NAAQS and PSD Increment analysis are not required).

[8] These levels were extrapolated from the 1-hour CO MSL of 2,000 µg/m^3 and 1-hour NO_2 MSL of 7.5 µg/m^3 by using a best-fit exponential trend line ($y = 1.0076e^{-0.039x}$ $R^2 = 0.9923$). Although this is not a standard practice in air quality modeling, it was deemed appropriate for this biological analysis in order to compare levels within the same averaging time to assess potential impacts.

8.3 Water Quality Effects

8.3.1 Wastewater

Once the facility is operational, it would contain an on-site water treatment system and thus be a ZLD facility. Wastewater will be handled in the following methods: the blow-down water used for cooling the towers, as well as reject water from the reverse osmosis process, would be discharged into the two 20-acre uncovered evaporation ponds. No chemical contaminants other than total dissolved solids would be present in this water and thus within the ponds. Furthermore, water quality monitoring would be performed in compliance with wastewater regulations. Vegetation management will occur around the ponds to prevent habitat creation. Although, the ponds will represent a new source of water in the action area, they will not have the constituent habitat components that would support listed species. The ponds will contain brine water, with too high of a salinity level to be capable of supporting fish. In addition, vegetation will be actively denuded, making the area highly unsuitable for use by federally listed species. Thus, no impacts from wastewater are anticipated due to this proposed project.

8.3.2 Surface Water

A 10-acre stormwater retention pond would be constructed to retain stormwater on-site during periods of precipitation. No surface waters exist within the project area where construction or operational disturbance would occur. In addition, the construction and operation of the proposed project would not include any water discharges off-site; thus, no effects on surface water would occur as a result of the proposed project.

8.4 Noise

8.4.1 Noise Effects Background Research

A literature review was conducted regarding the effects from an acoustical stimulus, i.e., noise, on terrestrial wildlife in order to complete an effects analysis for the proposed project. The nature of anthropogenic noise is multifaceted and even more complex in terms of how it affects wildlife. The effects can range from habitat use changes, activity pattern changes, increased stress responses,

decreased immune responses, decrease foraging efficiency and success, reduced reproductive success, increased predation risk, intraspecific diminished communication, and hearing damage (NoiseQuest 2012; Pater et al. 2006; USFWS 2012g). These responses can vary, depending on the nature of the sound, including sound level, rate of onset, duration, number of events, spectral distribution of sound energy, and level of background noise (Pater et al. 2006). Noise is typically presented in terms of decibels (dB), and for the majority of noise assessments, including the one completed for the proposed project (SWCA 2012), it is quantified in terms of dBA, which is an "A-weighted" sound level scale that more closely describes how a person perceives sound. Thus, the sound level when defined as dBA does not always transfer to wildlife since species groups (that is, owls, bats, birds, and ungulates) have different hearing sensitivities and ranges (Pater et al. 2006). Although sound-level data in dB were available for the operational equipment, they were not readily available for the construction equipment (Table 9). Other considerations for noise effects on wildlife include the ambient or background noise level and how that compares with the project's noise level. Also, the sound from a noise expands outward with roughly a 6-dB decrease in each distance-doubling increment (Pater et al. 2006). Furthermore, the perceived sound level from a noise source can be affected by other factors besides distance from the source, such as source noise strength, direction of the source, atmospheric conditions, and topography (Pater et al. 2006; SWCA 2012).

Table 9. Sound-Level Data, Presented in dB and dBA for Comparison, Obtained for the Construction and Operation of the Proposed Project

Sound Source	Sound Levels (L_{eq})											
	At the source		50 feet (0.009 mile) in all directions from source		1,200 feet (0.23 mile) to the west from source		2,800 feet (0.53 mile) to the south from source		4,100 feet (0.78 mile) to the east from source		6,500 feet (1.23 miles) to the north-northeast from source	
	dBA	dB	dBA	dB	dBA	dB	dBA	dB	dBA	dB	dBA	dB
Construction: Excavation	89	N/A	60	N/A	60	N/A	53	N/A	50	N/A	46	N/A
Construction: Foundations	78	N/A	49	N/A	49	N/A	42	N/A	39	N/A	35	N/A
Construction: Erection	85	N/A	56	N/A	56	N/A	49	N/A	46	N/A	42	N/A
Construction: Finishing	89	N/A	60	N/A	60	N/A	50	N/A	50	N/A	46	N/A
Operation: GE LMS 100 power block building*	105.5	119.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation: GE LMS 100 exhaust stack*	82.5	98.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation: Wet cooling towers*	107.2	116.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation: Transformers*	102.0	114.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation: Emergency firewater pump engine*	110.3	111.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operation: All components†	N/A	128.0	N/A	N/A	31.6–33.4	N/A	23.7-25.6	N/A	23.3–25.2	N/A	0	0

N/A = not applicable. * Sound-level data from manufacturer specification documentation for other like-kind equipment.
† Assumes the operation of four GE LMS100 Units, two wet cooling towers, eight transformers, and one emergency firewater pump engine.

The following information provides some of the wildlife-specific data obtained in the literature research in order to better understand how noise levels have the potential to affect wildlife:

- Bat species can hear well at high frequencies; thus, low frequency noises would not likely affect these species (Pater et al. 2006).
- Animals have been shown to habituate to noise sources once they learn that the noise does not pose a threat (Pater et al. 2006).
- Woodland and grassland bird population declines have been shown to occur between 35 to 48 dB (Kaseloo 2006; USFWS 2012g).
- For the average bird, noise levels 24 to 30 dB above background noise is detectable (USFWS 2012g).
- Bird communication can be affected at levels above 20 dB (USFWS 2012g).
- Military activity with associated noise levels at 65 dB only had a marginal effect on an endangered desert ungulate species, Sonoran pronghorn (*Antilocapra americana sonoriensis*) (Krausman et al. 2004).

8.4.2 Noise-Related Effects

As previously discussed, much of the action area, particularly in the project area, has an existing noise level of 35 to 65 dBA. Maximum construction noise levels are projected to be 78 to 89 dBA, and maximum operational noise levels would range from 82 to 100 dBA. However, these noise levels are at the source, and since noise attenuates, the noise levels outside the project area will be much less. At a distance of 6,500 feet (1.23 miles) from the project area, the operational noise would attenuate to 0 dBA. Currently, the majority of the action area is developed and mostly devoid wildlife habitat; thus, only the areas to the north, northwest, and southeast of the project area contain undeveloped areas that could be used by wildlife. As stated in the previous sections, only migratory birds are likely to be present within the action area. Thus, temporary impacts, e.g., communication disruption, avoidance, and/or displacement, from construction noise to any migratory birds present within the immediate vicinity of the project area could occur. However, no impacts from operational noise are expected since the levels will be minimal and similar to existing conditions.

8.5 Infrastructure-Related Effects

In order to construct the proposed project, the entire 260-acre The plant site would be cleared of existing vegetation, and interrelated actions would similarly involve ground disturbing activities; consequently, removing the existing plants and displacing wildlife. However, the only protected species with the potential to be present within the action area are migratory birds. If migratory birds are present during the initial construction phases, individuals, nests, or eggs could be affected as a result of the vegetation-clearing activities. However, EPEC has an active Aviary Compliance Manual and has committed to adhering to the MBTA. Thus, if migratory birds are present on-site prior to construction, EPEC will obtain the necessary permitting in order to avoid impacts to migratory birds and adhere to the MBTA.

8.6 Human Activity Effects

Construction of the proposed project would temporarily increase human-related presence in the area, and operation would increase human-related presence in the long term, both of which could disturb and affect wildlife. However, the additional increase would not be much greater than what currently occurs in the area from residential traffic, commercial traffic, and military operations. Thus, the human-related activity effects from the construction and operation of the proposed project would likely be negligible.

8.7 Federally Protected Species Effects

8.7.1 Federally Listed Species

As discussed in Sections 5.2.1., 5.2.2., and 6.2, none of the 10 species listed by the USFWS and TPWD as endangered, threatened, or candidate under the ESA are likely to occur within the action area for the proposed project. Therefore, the proposed construction and operation of the proposed project would have no effect on any ESA-listed species.

8.7.2 Migratory Birds

If migratory birds are present during the initial construction phases, individuals, nests, or eggs could be affected as a result of the vegetation-clearing activities; however, EPEC has an active Aviary Compliance Manual and has committed to adhering to the MBTA. Thus, if migratory birds are present on-site prior to construction, EPEC will obtain the necessary permitting in order to avoid impacts to migratory birds and adhere to the MBTA. In addition, temporary impacts, e.g., communication disruption, avoidance, displacement, from construction noise to any migratory birds present within the immediate vicinity of the project area could occur. The evaporation ponds and retention pond may attract migratory birds such as shorebirds or eared grebes. However, water quality monitoring would be performed in compliance with wastewater regulations, and vegetation management will occur around the ponds to prevent the creation of nesting habitat. Lastly, because air pollution effects could have direct, short-term visibility effects and also long-term indirect effects through ecosystem changes, it is possible that this project's emissions could have short- and long-term effects to migratory birds. However, any potential impacts are not likely to result in a significant decline of migratory bird species' populations.

Table 10. Summary of Federally Listed Species in El Paso County, their Potential for Occurrence in the Action Area, and Effects Determination

Common Name	Scientific Name	Federal Status	Potential for Occurrence in Action Area	Effects Determination
Birds				
Interior least tern	*Sterna antillarum athalassos*	E	Unlikely to occur. Suitable breeding habitat (sandy areas near water with fish populations) not present within action area. TPWD distribution map does not include El Paso County.	No effect
Northern Aplomado falcon	*Falco femoralis septentrionalis*	E	Unlikely to occur. The habitat necessary for the survival of this species (grasslands or savannas) does not occur within the action area. There are no documented occurrences in El Paso County. No reintroductions in El Paso County have occurred to date.	No effect
Mexican spotted owl	*Strix occidentalis lucida*	T	Unlikely to occur. Suitable habitat (heavily vegetated canyons and forests) not present within action area. There are no documented occurrences in El Paso County.	No effect

Southwestern willow flycatcher	*Empidonax traillii extimus*	E	Unlikely to occur. Suitable habitat (water courses with suitable riparian vegetation, saturated soils, and standing water) not present in action area.	No effect
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	C	Unlikely to occur. Suitable habitat (water courses with suitable riparian vegetation, saturated soils, and standing water) not present in action area.	No effect
Fish				
Rio Grande silvery minnow	*Hybognathus amarus*	E	Unlikely to occur. An experimental population, listed by the USFWS as non-essential and not endangered, occurs along the Rio Grande in Texas. However, the range for this population does not include El Paso County.	No effect
Mammals				
Black bear	*Ursus americanus*	N/A	Unlikely to occur. The Trans-Pecos Ecoregion is not included in the historical range of the Louisiana black bear.	No effect
Black-footed ferret	*Mustela nigripes*	E	Not expected to occur because extirpated from Texas.	No effect
Gray wolf	*Canus lupus*	E	Not expected to occur because extirpated from Texas.	No effect
Flowering Plants				
Sneed's pincushion cactus	*Escobaria sneedii* var. *sneedii*	E	Unlikely to occur. Action area includes Chihuahuan Desert, but does not contain steep, rocky slopes with limestone. Surveys in Hueco Mountains, within action area, have not identified individuals of this species.	No effect

9.0 CONCLUSIONS

9.1 Determination of Effect

As discussed in previous sections, no effects on any ESA-listed species would occur since they are unlikely to be present within the action area for the proposed project. Therefore, the proposed project will have no effect on any threatened or endangered species.

9.2 Interdependent and Interrelated Actions

Interrelated actions are those that are part of a larger action and depend on the larger action for their justification (i.e., the proposed action would not occur without the larger project). All interrelated and independent actions were incorporated into the project actions and description as part of the associated infrastructure description. Thus, no additional discussion regarding interrelated or interdependent actions related to the proposed project is required for the analysis of the proposed project.

9.3 Cumulative Effects

Cumulative effects include the effects of future State or private actions that are reasonably certain to occur in the action area considered in this BA. Future federal actions that are unrelated to the proposed project are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. It is unknown what currently proposed and future developments in the surrounding area on federal and non-federal lands will occur; however, if numerous new developments do occur, then the potential for impacts to the region's flora and fauna could occur when combined with the effects from this proposed project.

9.4 Conservation Measures

All conservation measures were incorporated into the proposed project description. No significant impacts would occur as a result of the construction and operation of the proposed project; thus, no additional conservation measures are required for the proposed project.

10.0 LITERATURE CITED

Brown, D.E. (ed.). 1994. *Biotic Communities: Southwestern United States and Northwestern Mexico*. Salt Lake City: University of Utah Press.

Campbell, L. 2003. Endangered and threatened animals of Texas: Their life history and management. Available at: http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_louisiana_black_bear.pdf. Accessed March 16, 2012.

Cartron, J.-L.E. 2010. *Raptors of New Mexico*. Albuquerque: University of New Mexico Press.

Chaston, K., and D. Doley. 2006. Mineral particulates and vegetation: Effects of coal dust, overburden and flyash on light interception and leaf temperature. *Clean Air and Environmental Quality* 40(1):40–44.

Conrey, B. 2012. El Paso County. In *Handbook of Texas Online*. Available at: http://www.tshaonline.org/handbook/online/articles/hce05. Accessed March 14, 2012.

Doley, D., and L. Rossato. 2010. Mineral particulates and vegetation: Modeled effects of dust on photosynthesis in plant canopies. *Air Quality and Climate Change* 44(2):22–27.

Dudley, N., and S. Stolton. 1996. Air pollution and biodiversity: A review. World Wildlife Fund International, Switzerland.

Federal Emergency Management Agency (FEMA). 2012. FIRM map. Available at: https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1&userType=G. Accessed March 19, 2012.

Federal Register. 2012. Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions; Proposed Rule. 50 Code of Federal Regulations Part 17, Vol. 77, No. 225 (21 November 2012).

Fenn, M.E., J.S. Baron, E.B. Allen, H.M. Rueth, K.R. Nydick, L. Geiser, W.D. Bowman, J.O. Sickman, T. Meixner, D.W. Johnson, and P. Neitlich. 2003. Ecological effects of nitrogen deposition in the Western United States. *Bioscience* 53(4):404–420.

Griffith, G.E., S.A. Bryce, J.M. Omernik, J.A. Comstock, A.C. Rogers, B. Harrison, S.L. Hatch, and D. Bezanson. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs). Map scale 1:2,500,000. Reston, Virginia: U.S. Geological Survey.

Homer, C., J. Dewitz, J. Fry, M. Coan, N. Hossain, C. Larson, N. Herold, A. McKerrow, J.N. VanDriel, and J. Wickham. 2007. Completion of the 2001 National Land Cover Database for the Conterminous United States. *Photogrammetric Engineering and Remote Sensing* 73(4):337–341.

Howell, S.N.G., and S. Webb. 1995. *A Guide to the Birds of Mexico and Northern Central America*. New York: Oxford University Press.

Kaseloo, PA. 2006. Synthesis of noise effects on wildlife populations. In *Proceedings of the 2005 International Conference on Ecology and Transportation*, edited by C.L. Irwin, P. Garrett, and K.P. McDermott, pp. 33–35. Raleigh, North Carolina: Center for Transportation and the Environment, North Carolina State University.

Krausman, P.R., L.K. Harris, C.L. Blasch, K.K.G. Koenen, and J. Francine. 2004. Effects of military operations on behavior and hearing of endangered Sonoran pronghorn. *Wildlife Monographs* 157:1–41.

Lockwood, M.W., and B. Freeman. 2004. *The Texas Ornithological Society Handbook of Texas Birds*. College Station, Texas: Texas A&M University Press.

Lovett, G.M., and T.H. Tear. 2008. Threats from above: Air pollution effects on ecosystems and biological diversity in the Eastern United States. The Nature Conservancy and the Cary Institute of Ecosystem Studies.

Lovich, J.E., and D. Bainbridge. 1999. Anthropogenic degradation of the Southern California desert ecosystem and prospects for natural recovery and restoration. *Environmental Management* 24(3):309–326.

McMahan, C.A., R.G. Frye, and K.L. Brown. 1984. *The Vegetation Types of Texas, Including Cropland*. PWD Bulletin 7000-120. Austin, Texas: Texas Parks and Wildlife Department.

National Oceanic and Atmospheric Administration National Climatic Data Center (NCDC). State of the climate: drought. Available at: http://www.ncdc.noaa.gov/sotc/drought/. Accessed March 19, 2012.

National Weather Service/Advanced Hydrologic Prediction Service. 2012. Precipitation analysis. Available at: http://water.weather.gov/precip/. Accessed March 19, 2012.

Natural Resources Conservation Service. 2012. Climate narrative for Fort Bliss Military Reservation, New Mexico. Available at: http://www.wcc.nrcs.usda.gov/ftpref/support/climate/soil-nar/nm/ftbliss.doc. Accessed March 19, 2012.

NoiseQuest. 2012. What does noise affect? Available at: http://www.noisequest.psu.edu/pmwiki.php?n=NoiseAffect.Wildlife. Accessed April 28, 2012.

Oberholser, H.C. 1974. *The Bird Life of Texas*. Austin: University of Texas Press.

Pater, L.L, T.G. Grubb, and D.K. Delaney. 2006. Recommendations for improved assessment of noise impacts on wildlife. *The Journal of Wildlife Management* 73(5):788–795.

Peterson, M.A. 1982. The effects of air pollution and acid rain on fish, wildlife, and their habitats—urban ecosystems. U.S. Fish and Wildlife Service, Biological Services Program, Eastern Energy and Land Use Team, FWS/OBS-80/40.10.

Poole, J.M., W.R. Carr, D.M. Price, and J.R. Singhurst. 2007. *Rare Plants of Texas*. College Station, Texas: Texas A&M University Press.

San Francisco Bay Conservation and Development Commission. 2005. Staff Report: Salt Ponds. San Francisco, CA. Accessed on September 9, 2013. Available at: http://www.bcdc.ca.gov/pdf/planning/reports/salt_ponds.pdf

Schmidly, D.J. 2004. *The Mammals of Texas*. Austin: University of Texas Press.

Schweitzer, S. H. and D.M. Leslie, Jr. 2000. Stage-specific Survival Rates of the Endangered Least Tern (Sterna antillarum) in Northwestern Oklahoma. Oklahoma Academy of Science 80: 53-60. Accessed on September 9, 2013. Available at: http://digital.library.okstate.edu/oas/oas_pdf/v80/p53_60.pdf

Sharifi, M.R., A.C. Gibson, and P.W. Rundel. 1997. Surface dust impacts on gas exchange in Mojave Desert shrubs. *Journal of Applied Ecology* 34(4):837–846.

Smith, A.E., and J.B. Levenson. 1980. A screening procedure for the impacts of air pollution sources on plants, soils, and animals. Report No. EPA 450/2-81-078. Prepared for U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, Triangle Research Park, North Carolina. Argonne, Illinois: Argonne National Laboratory.

SWCA Environmental Consultants (SWCA). 2012. *Noise Assessment for El Paso Electric Company*. Phoenix, Arizona: SWCA Environmental Consultants.

Texas Commission on Environmental Quality (TCEQ). 1999. Air Dispersion Modeling Guidelines, RG-25 (Revised), February 1999. Available at: http://www.tceq.texas.gov/permitting/air/guidance/newsourcereview/nsr_mod_guidance.html. Accessed May 2, 2012.

Texas Parks and Wildlife Department (TPWD). 2012a. Texas Wildlife Management Information Services: Depredation permit. Available at: https://apps.tpwd.state.tx.us/privatelands/permitDepredationHelp.seam;jsessionid=A52E8908DDA9933C36B2200E93BA87F9?cid=2210. Accessed April 11, 2012.

———. 2012b. Plant guidance by Ecoregions: Ecoregion 10, the Trans-Pecos. Available at: http://www.tpwd.state.tx.us/huntwild/wild/wildscapes/guidance/plants/ecoregions/ecoregion_10.phtml. Accessed March 19, 2012.

———. 2012c. Annotated county list of rare species. Available at: http://gis2.tpwd.state.tx.us/ReportServer$GIS_EPASDE_SQL/Pages/ReportViewer.aspx?%2fReport+Project2%2fReport5&rs%3aCommand=Render&county=Kerr. Accessed March 9, 2012 and August 28, 2013.

———. 2012d. Northern Aplomado Falcon. Available at: http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_northern_aplomado_falcon.pdf. Accessed April 14, 2012.

———. 2012e. Sneed's Pincushion Cactus. Available at: http://www.tpwd.state.tx.us/huntwild/wild/species/endang/plants/sneedcac.phtml. Accessed April 14, 2012.

The Peregrine Fund. 2013. Aplomado Falcon Restoration Project. Available at: http://www.peregrinefund.org/aplomado. Accessed April 23, 2013.

Thompson, B.C., J.A. Jackson, J. Burger, L.A. Hill, E.M. Kirsch, and J.L. Atwood. 1997. Least Tern (*Sterna antillarum*), The Birds of North America Online (A. Poole, Ed). Ithaca: Cornell Lab of Ornithology. Retrieved from the Birds of North American Online: http://bna.birds.cornell.edu/bna/species/290.

Trinity Consultants (Trinity). 2012a. *Prevention of Significant Deterioration Permit Application for Greenhouse Gases,El Paso Electric Company, Montana Power Station*. Dallas: Trinity Consultants.

———. 2012b. *TCEQ Air Quality New Source Review Permit Application, El Paso Electric Company, Montana Power Station*. Dallas: Trinity Consultants.

———. 2012c. *Revisions to Cooling Tower Emissions Calculations for TCEQ PSD Application, El Paso Electric Company, Montana Power Station*. Dallas: Trinity Consultants.

———. 2012d. *Air Dispersion Modeling Report in Support of New Source Review (NSR) Permit Application – Permit No. PSD-TX-1290 El Paso Electric Company – Montana Power Station, El Paso, El Paso County, TX*. Dallas: Trinity Consultants.

U.S. Army. 2001. *Fort Bliss Integrated Natural Resources Management Plan*. Prepared by Directorate of Environment, Fort Bliss, Texas and New Mexico.

U.S. Department of Agriculture. 2012. U.S. Drought Monitor. Available at: http://droughtmonitor.unl.edu/. Accessed March 19, 2012.

U.S. Environmental Protection Agency (EPA). 1974. Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. Available at: http://www.nonoise.org/library/levels/levels.htm#levelsof. Accessed January 18, 2012.

———. 2012. Air Pollution, Our Nation's Air. Available at http://www.epa.gov/airtrends/2010/report/airpollution.pdf. Accessed April 15, 2012.

U.S. Fish and Wildlife Service (USFWS). 2012a. ESA-listed species for El Paso County, Texas. Available at: http://www.fws.gov/southwest/es/EndangeredSpecies/EndangeredSpecies_Lists/EndangeredSpecies_ListSpecies.cfm. Accessed March 9 and May 3, 2012 and August 28, 2013.

———. 2012b. USFWS Critical Habitat Portal. Available at: http://criticalhabitat.fws.gov/crithab/. Accessed April 15, 2012.

———. 2012c. Species profile: Rio Grande silvery minnow (*Hybognathus amarus*). Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E07I. Accessed March 15, 2012.

———. 2012d. Species profile: black-footed ferret (*Mustela nigripes*). Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A004. Accessed March 16, 2012.

———. 2012e. Species profile: gray wolf (*Canis lupus*). Available at: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A00D. Accessed March 16, 2012.

———. 2012f. Southwestern willow flycatcher (*Empidonax traillii extimus*). Available at: http://www.fws.gov/nevada/protected_species/birds/species/swwf.html. Accessed March 15, 2012.

———. 2012g. The effect of noise on wildlife. Available at: http://www.fws.gov/windenergy/docs/Noise.pdf. Accessed April 28, 2012.

U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service. 1998. *Endangered Species Consultation Handbook—Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act.* Available at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf. Accessed March 16, 2012.

Yahdjian, L., L. Gherardi, and O.E. Sala. 2011. Nitrogen limitation in arid-subhumid ecosystems: A meta-analysis of fertilization studies. *Journal of Arid Environments* 75(8):675–680.

APPENDIX A

Project Area
Photo Point and Data Point Map

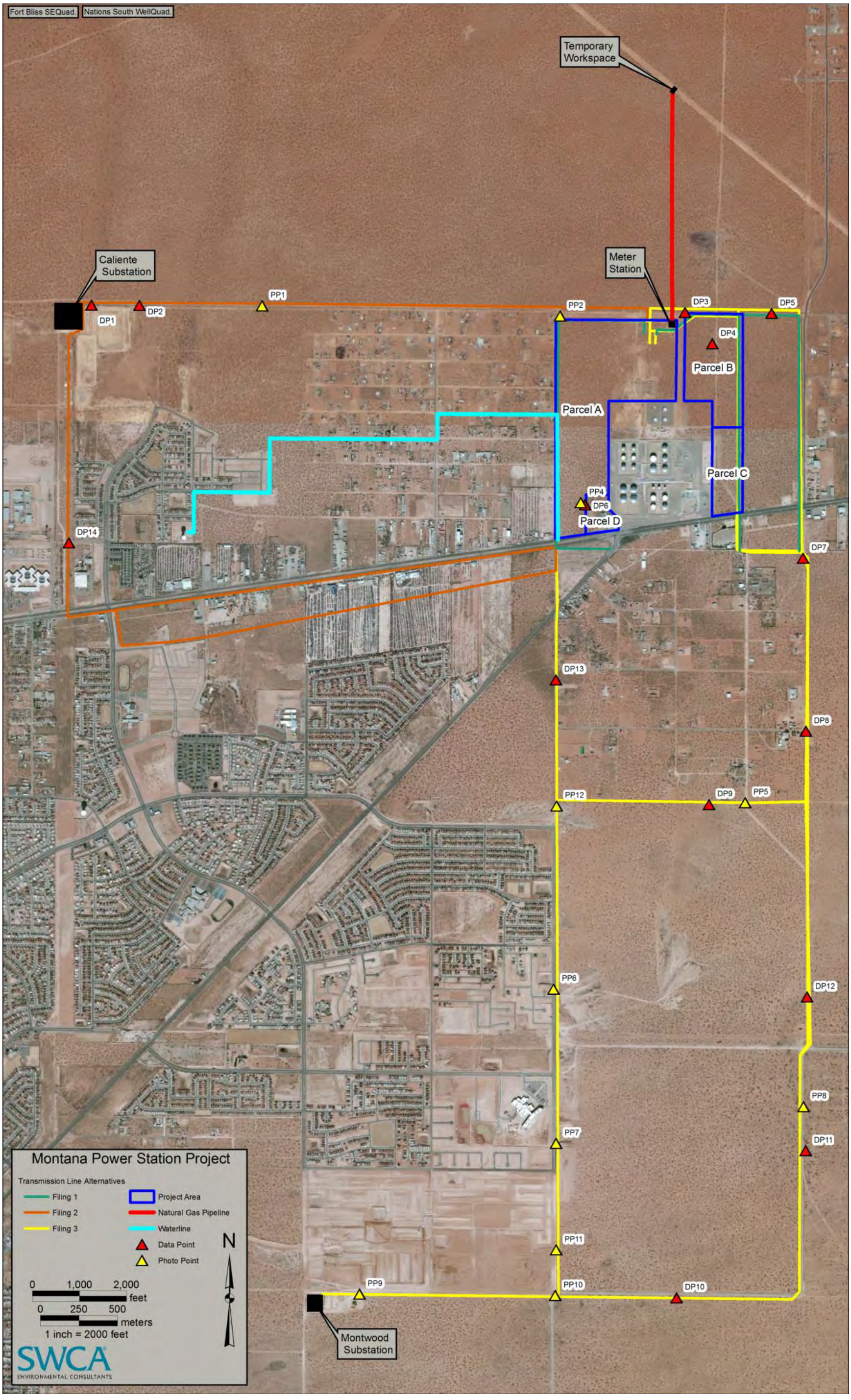


Figure A-1. Photo and data point locations for the proposed project.

APPENDIX B

Plant Site
Photographic Log and Field Notes

Photo B-1. View facing west of typical vegetation at the plant site.

Photo B-2. View facing north of typical vegetation at the plant site.

For Brad — Approximate Height of tank to S on Magellan site? 60ft + 10ft for dome

Question — Difference in two BA examples? TXPWD species analysis?

Field Notes 3/14/12 EPEC BA

* = photo
+ = dominant

Start SE Corner

- soaptree yucca +
- silver leaf nightshade
- Russian thistle
- ** white-flower annual
- Pleuraphis grass +
- * Dasecome sp. +
- * small ~~yucca~~ or bear grass
- hummocks/dunes in area
- sand sagebrush
- * scrubby thorn scrub mesquite? pods on hummocks +
- ~~H. salsola~~
- * small green annual legume - pea flowers w/ purple flowers
- carbonized sign (pellets) & tracks
- small burrows on hammocks (small mammals / lizards)
- * spider hole?
- scattered trash ~~heavy~~ heavy @ perimeters
- jackrabbit sign (pellets)
- GTGR Raven sp? HOFI
- * ~~herb~~ dried small Senna? perennial
- * dried yellow annual fluffy grass

lizard tracks
red sandy fine soils
Bombadier beetle
RTHA
GAQU ~12 in covey
no washes
coyote/dog tracks
lark bunting ♀ group and foraging
side blotched lizard

Cultural Veg

- TX prickly pear
- honey mesquite
- creosotebush
- yucca sp Don Quixote's Lace
- Ephedra sp clapweed
- TX barometer bush
- cholla

APPENDIX C

Transmission Line
Photographic Log and Field Notes

Please note: The year 2012 in the transmission line field notes is incorrect as fieldwork was conducted on January 16 and 17, 2013.

Photo C-1. DP1 – Typical vegetation near the Caliente Substation in the northwest portion of the project area; view facing east along Filing 2 of the proposed transmission line alternatives.

Photo C-2. PP1 – Typical vegetation east of the Caliente Substation in the northern portion of the project area; view facing north toward Fort Bliss.

Photo C-3. PP2 **–** Typical vegetation in the northwest corner of Parcel A, showing ATV activity; view facing southeast toward proposed plant site.

Photo C-4. DP2 – Typical vegetation east of the Caliente Substation in the northwest portion of the project area near Filing 2 for the proposed transmission line alternatives; view facing east.

Photo C-5. DP3 – Typical vegetation in the northwest corner of Parcel B, near the Meter Station; view facing south.

Photo C-6. DP4 – Typical vegetation in the northeast portion of the project area in Parcel B; view facing north toward Fort Bliss.

Photo C-7. DP4 – Typical vegetation in the northeast portion of the project area in Parcel B; view facing northwest towards Meter Station.

Photo C-8. DP5 – Typical vegetation in the northeast portion of the project area near proposed transmission line alternatives for Filing 1 and Filing 3; view facing southeast.

Photo C-9. DP6 – Typical vegetation near Parcel D in the southern portion of Parcel A; view facing north.

Photo C-10. DP6 – Typical vegetation near Parcel D in the southern portion of Parcel A; view facing southeast.

Photo C-11. PP4 – Typical vegetation near Parcel D in the southern portion of Parcel A; view facing northwest.

Photo C-12. DP7 – Typical vegetation in the northeastern portion of the project area near the proposed transmission line alternatives for Filing 3; view facing west.

Photo C-13. DP8 – Typical vegetation in the eastern portion of the project area near the proposed transmission line alternatives for Filing 3; view facing northeast.

Photo C-14. PP5 – Taken in the southern portion of the project area near the proposed transmission line alternatives for Filing 3; view facing west along the proposed transmission line route.

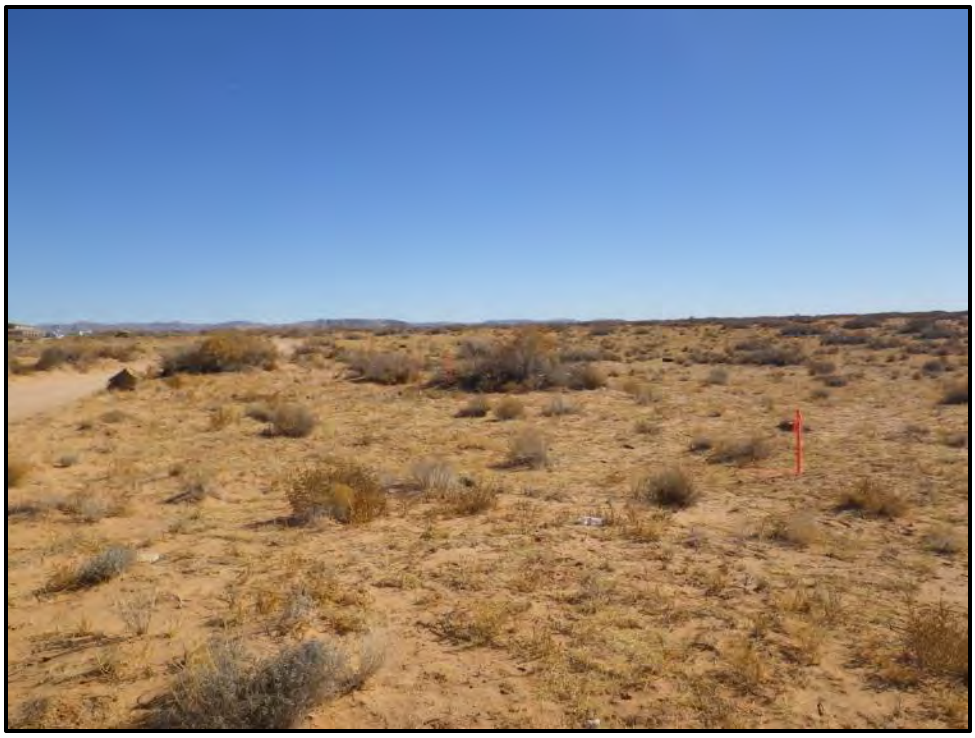


Photo C-15. DP9 – Typical vegetation in the southern portion of the project area near the proposed transmission line alternatives for Filing 3; view facing south.

Photo C-16. PP6 – Taken in the southern portion of the project area near the proposed transmission line alternative for Filing 3; view facing north.

Photo C-17. PP7 – Pit in the southern portion of the project area near the proposed transmission line alternative for Filing 3 and new development; view facing northeast.

Photo C-18. DP10 – Typical vegetation in the southern end of the project area near the proposed transmission line alternative for Filing 3; view facing southwest.

Photo C-19. DP11 – Typical vegetation in the southeastern portion of the project area near the proposed transmission line alternative for Filing 3; view facing northeast.

Photo C-20. PP8 – Pocket of *artemesia* in the southeastern portion of the project area near the proposed transmission line alternative for Filing 3 and new development; view facing east.

Photo C-21. DP12 – Typical vegetation in the southeastern portion of the project area near the proposed transmission line alternative for Filing 3; view facing west.

Photo C-22. PP9 – Taken in the southwestern end of the project area along the proposed transmission line alternative for Filing 3 just east of the Montwood Substation; view facing south.

Photo C-23. PP9 – Taken in the southwestern end of the project area along the proposed transmission line alternative for Filing 3; view facing west towards the Montwood Substation.

Photo C-24. PP10 – Taken in the southern end of the project area along the proposed transmission line alternative for Filing 3; view facing south.

Photo C-25. PP11 – Pit in the southern portion of the project area along the proposed transmission line alternative for Filing 3; view facing northeast.

Photo C-26. DP13 **–** Taken in the southern portion of the project area along transmission line alternatives for Filing 3; view facing north.

Photo C-27. DP13 – Typical vegetation found in the southern portion of the project area along transmission line alternatives for Filing 3; view facing southeast.

Photo C-28. DP14 – Typical vegetation found in the western portion of the project area along the transmission line alternatives for Filing 3; view facing west.

Photo C-29. DP14 – Typical vegetation found in the western portion of the project area along the transmission line alternatives for Filing 3; view facing south.

4

Project: # 24882

DATE: 16 January 2012

TASK: Habitat mapping,
Aquatics,
T.E

Equipment: GeoXH, Laptop computer, Pentax camera

Weather: Cold, windy
clear skies

Surveyor: Robert Hippitts

File: MEPS 20130116

DP1 SSU 16 JAN 2012

LF - Desert/Dunes CR - 0-5%

Linear

Vegetation

Prosopis glandulosa	20%
Atriplex canescens	15%
Salsola kahli	40%
Gutierrezia sarothrae	25%
Yucca elata	5%

Soils

0-20 10YR 6/3 100% SAND

Hydrology

NONE

Photos - 2354 E

2355 NW

6

DPZ SSU 16 JAN 2013

LF - Desert/existing Row LR - 0-56

Linear

Vegetation

Larrea tridentata	{S}	25%
Atriplex canescens	{S}	10%
Prosopis glandulosa	{S}	10%
Salsola kahli	{H}	30%
Guitezzia sarothrae	{H}	15%

Soils

0-20 10YR 6/3 10% C SAND

Hydrology

NONE

photos - 2356 E 2358 E

2357 W

DP 3 SSU 16 JAN 2013

LT - Desert LR - O-56 LINEAR

Vegetation

Prosopis glandulosa	{5}	2@5%
Yucca elata	{5}	5%
Salsola kali	{1}	60%
Dead Lesquerella	{1}	5%
Muhlenbergia arenacea	{1}	10%

Soils

0-20	10YR	5/3	100%	sand

Hydrology

NONE

photos - 2365 N 2366 NE

2367 S

8

PP1

View Northward of dune area
Existing pipeline
Existing caliche road
Heavily disturbed on both sides of fence. Human trash piles abundant
Abundant Salsola in disturbed areas.

photo - 2359, 2360 N
2361 NW

PP2

View South towards proposed generating plant site.
Rolling dunes w/ Prosopis & Atriplex
Abundant human trash.
Signs of active ATV use.

photo - 2362 S 2363 SE
2364 E

HABITAT ASSESSMENT

Area has been significantly altered by Magellan pipeline + construction of transmission lines.

Much of area used as dumping site by humans. Various articles of refuse scattered throughout area.

All habitat / environment comprised of relic dune vegetated by Prosopis glandulosa. Soils very sandy with caliche base below 18 - 20". Few grass species present. Dominant vegetation woody shrubs + invasive Salsola.

Dune shifting not high due to vegetated abundance.

Representative of type habitat of Southern Tularosa basin.

10

DP4 SSV 16 JAN 2016

LF - Desert LR - 0-5G

LINEAR

Vegetation

Prosopis glandulosa	{S}	40G
Atriplex canescens	{S}	10G
Larrea tridentata	{S}	15G
Yucca elata	{S}	5G
Salsola Kahli	{H}	50%
Croton	{H}	5G
Guitezzia Sarothrae	{H}	10G
Astragalus mollisimus	{H}	5G
Muhlenbergia arenacea	{H}	5G

Soils

0-20 10YR 5/3 100% SAND

Hydrology

NONE

photos ~2368 N 2369 W

2370 SW

DP5 SSU 16 JAN 2016

LF - Desert LR - 0.56 Linear

Vegetation

Prosopis glandulosa	{S}	40%	
Larrea tridentata	{S}	5%	
Yucca elata	{S}	10%	
Salsola kali	{H}	60%	
Muhlenbergia arenacea	{H}	15%	
Chrysothamnus	{H}	5%	
Dead Lesquerella	{H}	10%	

Soils

0-20	10YR	6/3	100%	SAND

Hydrology

NONE

photos - 2371 N 2372 NW

2373 SE 2374 W

16 JAN 2013

PHOTOLOG

2354 - 2355	DP1	E, NW
2356 - 2357	DP2	E, W
2358 -	DP2	E
2359 - 2361	PP1	N, N, NW
2362 - 2364	PP2	S, SE, E
2365 - 2367	DP3	N, NE, S
2368 - 2370	DP4	N, SW, SW
2371 - 2374	DP5	N, NW, SE, W

PHOTOLOG

17 JAN 2013

[redacted] 2375 - 2377		PP3	W, E, W
2378 - 2380		DP6	N, NW, SE
2381 - 2384		PP4	NW, N, W, NE
2385 - 2386		DP7	W, SW
2387 - 2388		DP8	SE, NE
2389 - 2391		PP5	E, S, W
2392 - 2393		DP9	S, SE
2394 - 2395		PP6	S, N
2396		PP7	NE
2397 - 2398		DP10	SW, SE
2399 - 2401		DP11	NE, E, SE
2402 - 2405		PP8	SE, E, NE, E
2406 - 2409		DP12	N, NE, W, SW
2410 - 2412		PP9	W, E, S
2413 - 2416		PP10	E, S, W, N
2417		PP11	NE
2418 - 2419		PP12	N, S
2420 - 2422		DP13	E, N, SE
2423 - 2426		DP14	N, NE, S, W

14

Project # 24882

DATE: 17 January 2012

TASK: Habitat mapping
Aquatics
TE Assessment

Equipment: Geo XH, Laptop computer, Pentax

weather: Cold, frigid morning - 22° F
warm afternoon - ± 55° F
Clear skies
Wind 5 - 15 mph East
Smog drifts

Surveyor: Robert Hibbitts

File: MEP 20130117

PP3

17 JAN 2013

Large pit adjacent to non operational fueling station. Adjacent to Magellan tank system.

Small erosional, ephemeral drain @ NE corner. Linear feature w/ Salsola vegetation.

photos — 2375 W 2376 E
2377 West direction of linear drain

PP4 - Habitat photo
undulating dune habitat with tops vegetated by Prosopis
Footprints observed - coyote, jackrabbit, domestic dog,

Deep sand, dune height 4 ft ±
Seasonal herbaceous species

photo - 2381 NW 2382 N
2383 W 2384 NE

16

PP 6 SSU 17 JAN 2013

LF - Desert LR - 0-5%
CONVEX

Vegetation

Prosopis glandulosa	{S}	40%
Atriplex canescens	{S}	15%
Yucca elata	{S}	5%
Muhlenbergia arenacea	{H}	20%
Salsola kahli	{H}	15%
Chrysothamnus	{H}	5%

SOILS

0-20	10YR	5/3	100%	SAND

Hydrology
NONE

photo - 2378 N 2379 NW
2380 SE

DP7 SSU 16 JAN 2013

LF - Desert LR - 0.56

LINEAR

Vegetation

Prosopis glandulosa	{S}	4%
Larrea tridentata	{S}	15%
Artemesia filifolia	{S}	5%
Chrysothamnus	{H}	10%
Salsola kali	{H}	30%

Soils

0 - 20	10 YR	6/3	100%	Sand

Hydrology

NONE

photos - 2385 W 2386 SW

18

DP8 HU JAN 20

LF - Desert CR - 0-5%

LINEAR

Vegetation

Chrysothamnus	{H}	30%
Guitezzia sarothrae	{H}	15%
Muhlenbergia arenacea	{H}	5%
Salsola Kahli	{H}	10%
Prosopis glandulosa	{S}	15%

SOILS

0-20 10YR 6/3 100% SAND

Hydrology

NONE

photos - 2387 SE 2388 NE

PP5

Intersection of roads & Pipeline Row

photos - 2389 E 2390 S 2391 W

PP6

T-Line adjacent to Roadway
New housing development

photo - 2394 S 2395 N

PP7 - Pit

photo - [redacted] 2396 N S

20

DP9 HV 17 JAN. 2013

LF- Desert CR 0-56

Vegetation

Prosopis glandulosa	{S}	5%
Atriplex canescens	{S}	5%
Chrysothamnus	{H}	25%
Guitterrezia sarothrae	{H}	10%
Salsola kali	{H}	30%

SOILS

0-20 10YR 6/4 100% Sand

Hydrology

NONE

Photo - 2392 S 2393 SE

DP 10 SSV 17 JAN 2013

LF - Desert CR - 0-5%

Vegetation

Prosopis glandulosa	{S}	15%
Ephedra trifurca	{S}	5%
Salsola Kahli	{H}	20%
Chrysothamnus	{H}	20%

Soils

0-20	10^{YR}	6/4	100%	SAND

Hydrology

NONE

photo - 2397 SW 2398 SE

22

DP 11 SSV 17JAN 20(

LF - Desert CR - 0-5%

CONVEX

Vegetation

	Prosopis glandulosa	{S}	30%
☐	Artemesia bigloveii	{S}	5%
	Yucca elata	{S}	5%
	Salsola kahli	{H}	40%
	Chrysothamnus	{H}	10%
	Muhlenbergia arenacea	{H}	5%
	Croton dioicus	{H}	5%

Soils

0-20 10YR 6/3 100% SAND

Hydrology

NONE

photos - 2399 NE 2400 E

2401 SE

PP8

Isolated pocket of Artemesia on NE face of slope.

Area is slightly lower than surrounding habitat. Sand of coarser textures.

Area appears to be a large depression

Higher density of Muhlenbergia

photo - 2402 SE 2403 E

2404 NE 2405 E

PP9

Existing T-line

photo - 2410 W 2411 E 2412 S

PP10 Intersection of developments T-Line

photo - 2413 E 2414 S 2415 W

2416 N

PP11 - Pit

photo - 2417 NE

24

DP12 SSJ 17 JAN 2013

LT - Desert LR - 0-5%

CONCAVE

Vegetation

Prosopis glandulosa {S} 15%

Atriplex canescens {S} 10%

Yucca elata {S} 5%

Salsola Kahli {H} 40%

Chrysothamnus {H} 25%

Muhlenbergia arenacea {H} 10%

Soils

0-20 10YR 5/3 100% SAND

Hydrology

NONE

NOTE - Imagery depicts potential ephemeral channel, At survey, no sign of prior water. Potential depression to W of row No evidence of water

photo - 2406 N 2407 NE 2408 W 2409 SW

PP12

cleared pads for houses

photo - 2418 N 2419 S

26

DP #3 SSU

LF - Desert LR - 0-5%

Vegetation

Prosopis glandulosa	{S}	40%
Atriplex canescens	{S}	10%
Larrea tridentata	{S}	5%
Yucca elata	{S}	5%
Salsola kahli	{H}	40%
Chrysothamnus	{H}	15%
Muhlenbergia arenacea	{H}	15%

Soils

0-20 10YR 5/3 100% Sand

Hydrology

NONE

photo +2420 E 2421 N 2422 SE

DP14 SSU 17 JAN 2013

LF - Desert LR-10-56

LINEAR

Vegetation

Prosopis glandulosa	{S}	30%
Atriplex canescens	{S}	15%
Yucca elata	{S}	5%
Salsola kahli	{H}	30%
Chrysothamnus	{H}	10%
Muhlenbergia - arenacea	{H}	10%

Soils:

0-20	10YR	6/3	100%	SAND

Hydrology

NONE

photo - 2423 N 2424 NE 2425 S

2426 W

APPENDIX D

Water Line
Photographic Log and Field Notes

Please note: The field notes (Photo Point 1 and Data Point 14) are representative observation points taken from the January 16-17, 2013 field reconnaissance.

Photo D-1. Representative photo along the water line alignment (Source: SWCA Cultural Resources report).

Photo D-2. Representative photo along the water line alignment (Source: SWCA Cultural Resources report).

Photo D-3. Representative photo along the water line alignment (Source: SWCA Cultural Resources report).

Photo D-4. Representative photo along the water line alignment (Source: SWCA Cultural Resources report).

Photo D-5. Representative photo from PP1 – Typical vegetation east of the Caliente Substation in the northern portion of the project area; view facing north toward Fort Bliss.

Photo D-6. Representative photo from DP14 – Typical vegetation found in the western portion of the project area along the transmission line alternatives for Filing 3; view facing west.

8

PP1

View Northward of dune area
Existing pipeline
Existing caliche road
Heavily disturbed on both sides of fence. Human trash piles abundant
Abundant Salsola in disturbed areas.

photo - 2359, 2360 N
2361 NW

PP2

View South towards proposed generating plant site.
Rolling dunes w/ Prosopis & Atriplex
Abundant human trash.
Signs of active ATV use.

photo - 2362 S 2363 SE
2364 E

DP14 SSU 17 JAN 2013

LF - Desert LR-10-56

LINEAR

Vegetation

Prosopis glandulosa	{S}	30%
Atriplex canescens	{S}	15%
Yucca elata	{S}	5%
Salsola kahli	{H}	30%
Chrysothamnus	{H}	10%
Muhlenbergia arenacea	{H}	10%

Soils.

0-20	10YR	6/3	LOAM	SAND

Hydrology

NONE

photo - 2423 N 2424 NE 2425 S

2426 W

APPENDIX E

Natural Gas Line
Biological Evaluation Report (with Photographic Log)
and Field Notes

Please note: The field notes are from April 17, 2013. An SWCA biologist used existing notes from March 14, 2012 to verify presence of habitat and wildlife.

SWCA®
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions®

Biological Evaluation for the El Paso Natural Gas Project to Construct the Montana Power Plant Meter Station and Lateral Line, in El Paso County, Texas

Prepared for

Kinder Morgan Incorporated

Prepared by

SWCA Environmental Consultants

May 2013

BIOLOGICAL EVALUATION FOR EL PASO NATURAL GAS PROJECT TO CONSTRUCT THE MONTANA POWER PLANT METER STATION AND LATERAL LINE IN EL PASO, EL PASO COUNTY, TEXAS

Prepared for

Kinder Morgan Incorporated
Two North Nevada Avenue
Colorado Springs, CO 80903
Attn: Amy Blythe
(719) 520-4813

Prepared by

Matthew McMillan

SWCA Environmental Consultants
Albuquerque Office
5647 Jefferson Street NE
Albuquerque, NM 87109
(505) 254-1115
www.swca.com

SWCA Project No. 26084

May 2013

EXECUTIVE SUMMARY

This biological evaluation (BE) has been prepared as part of an effort to construct and operate the El Paso Natural Gas Company (EPNG) Montana Power Plant Meter Station and Lateral Line in order to deliver natural gas to El Paso Electric Company in El Paso County, Texas. This proposed project evaluation covers an approximately 19.7-acre project area for the proposed Montana Power Plant Meter Station, Lateral Line, and tie-in location. This project can be accomplished under blanket authority granted EPNG by the Federal Energy Regulatory Commission in its order issued September 8, 1982, in Docket No. CP82-435-000, Section 157.208(a). The objectives of this BE are to 1) describe vegetation communities in the study areas and 2) evaluate habitat suitability for both federally listed and special-status species.

Twelve federally listed species are addressed in this BE, five of which are listed by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered and are therefore protected under the authority of the Endangered Species Act of 1973 (ESA). Two species are listed by USFWS as candidate and currently receive no statutory protection under the ESA. The remaining five are state-listed species and are not protected under the authority of the ESA. Of the 12 species addressed in this BE, only the Texas horned lizard (*Phrynosoma cornutum*) has the potential to regularly occur in the study areas. If individuals of this species are present in the project area, these individuals could easily avoid the disturbance by moving to adjacent habitat during the construction of the proposed project. The proposed project is not likely to adversely affect this species as long as the animals themselves are not intentionally harassed by construction crews. SWCA recommends that all personnel working on the construction of the proposed project are instructed to avoid intentionally harassing all animals.

At this time, no federally listed species are known to regularly occur in the study areas. It is highly unlikely that the project would have an effect on any federally listed species or habitat. However, the lead permitting agency has the authority and final decision regarding what effect this project would have on any federally listed species and whether to require species-specific surveys for any protected species.

This page intentionally blank.

CONTENTS

APPENDICES

FIGURES

TABLES

1. INTRODUCTION

SWCA Environmental Consultants (SWCA) was selected on behalf of El Paso Natural Gas (EPNG), a subsidiary of Kinder Morgan, Inc., to complete a biological evaluation (BE) for the Montana Power Plant Meter Station and Lateral Line in order to deliver natural gas to El Paso Electric Company in El Paso County, Texas (Figure 1 and Figure 2). The project is generally located east of U.S. Highway (U.S.) 375 (Joe Battle Boulevard), north of U.S. 62/U.S. 180 (Montana Avenue), and just south of Fort Bliss. The installation of the Montana Power Plant Meter Station will include one 3-inch rotary meter and three 6-inch ultrasonic meters and related appurtenances at El Paso Electric Company's Montana Power Plant located in Section 24, H.L. Newman, and Section 25, T.&P., R.R. CO, Block 79, El Paso County, Texas. The Lateral Line will include installing approximately 4,700 feet of 12-inch outside diameter lateral line from EPNG's California Line (Line No. 1100) near Milepost 193 to the Montana Power Plant Meter Station located in Section 24, H.L. Newman, and Section 25, T.&P., R.R. CO, Block 79, El Paso County, Texas. The proposed project will deliver natural gas at flows ranging from 15 to 135 million standard cubic feet per day at a maximum allowable operating pressure of 764 pounds per square inch gauge.

The purpose of this BE is to demonstrate compliance with the Endangered Species Act of 1973, as amended (ESA). The objectives of this BE are to 1) describe vegetation community in the study areas and 2) evaluate habitat suitability for both federally listed and special-status species.

2. METHODS

For the purposes of this report, the *study areas* are defined as an approximately 0.52-acre study area for the proposed Montana Power Plant Meter Station and an approximately 11.6-acre study area for the Lateral Line. The total acreage of the project area (including the buffer area) is approximately 19.7 acres.

The scope of work for this BE included the following:

- Review of the U.S. Fish and Wildlife Service (USFWS) species list for El Paso County
- Review of the Texas Parks and Wildlife Department (TPWD) Natural Diversity Database (NDD) online occurrence records for special-status species near the study areas
- Field reconnaissance of the study areas
- Evaluation of the potential for the species listed in this report to occur in the study areas

An SWCA biologist conducted a field reconnaissance of the study areas on April 17, 2013. A U.S. Geological Survey 7.5-minute topographic map (Nations South Well and Ft. Bliss SE, Texas), recent aerial photography images, and maps provided by the client were used for general orientation and to locate the project boundaries. The field reconnaissance consisted of a pedestrian survey of the study areas to evaluate vegetation and landscape features considered important to the potential occurrence of special-status plant and animal species.

Figure 1. Project location map for the Montana Power Plant Meter Station and Lateral Line.

Figure 2. Aerial view of the study area for the Montana Power Plant Meter Station and Lateral Line.

The potential for occurrence on the property of the species addressed in this BE was based on 1) documented records, 2) existing information on distribution, and 3) qualitative comparisons of the habitat requirements of each species with vegetation communities or landscape features in the study areas.[1] Possible impacts to these species were evaluated based on reasonably foreseeable project-related activities.

2.1. Species Identification

The USFWS maintains a list of protected species and the critical habitat that is known to occur in each Texas county. These species are currently listed or are proposed for listing as endangered or threatened under the ESA (16 United States Code [USC] 1531 et seq.). The list also includes candidate species proposed as threatened or endangered, species delisted from protection under the ESA, and species delisted from protection under the ESA but currently proposed for relisting. The ESA specifically prohibits the "take" of a listed species. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct." Some bird species also receive legal protection under the federal Migratory Bird Treaty Act (16 USC 703–712).

Only species listed by the USFWS are afforded protection under the ESA. The special-status species evaluated in this BE were based on the list of endangered, threatened, and candidate species for El Paso County, Texas, available at the USFWS website (USFWS 2013). The USFWS species list is provided in Appendix A.

The TPWD maintains a statewide database, the NDD, which tracks records for federally listed species and other species of special concern. SWCA received the results of the NDD review on January 1, 2013. SWCA also reviewed the TPWD Rare, Threatened, and Endangered Species of Texas website to determine whether any federally proposed or designated critical habitat or special-status species have been documented in or near the study areas (TPWD 2013). The search results are included in Appendix B.

2.2. Species Evaluation

The potential for occurrence of each species was summarized according to the categories listed below. Because not all species are accommodated precisely by a given category (i.e., category definitions may be too restrictive), an expanded rationale for each category assignment is provided. Potential for occurrence categories are as follows:

- *Known to occur:* The species has been documented in the study areas by a reliable observer.
- *May occur:* The study areas are within the species' currently known range, and vegetation communities, soils, etc., resemble those known to be used by the species.

[1] We agree with Hall et al. (1997) that *habitat* is organism-specific and thus not synonymous with *vegetation community*. However, we have refined their definition to read as follows: *habitat* is an area in which some members of a species regularly occur continuously or seasonally. In the field, habitat is operationally defined by the presence or absence of a species. Areas that appear suitable for a species but that have not been surveyed are considered possible habitat. We avoid using the term *potential* with respect to habitat because *potential* is defined as "capable of becoming but not yet in existence;" *possible*, on the other hand, is defined as "of uncertain likelihood." We also avoid using the terms *unoccupied habitat* or *suitable, but unoccupied habitat*, which represent a contradiction in terms.

- *Unlikely to occur:* The study areas are within the species' currently known range, but vegetation communities, soils, etc., do not resemble those known to be used by the species, or the study areas are clearly outside the species' currently known range.

Those species listed by the USFWS were assigned to one of three categories of possible effect, following USFWS recommendations. Because species listed by the TPWD are not protected under the authority of the ESA, effects determinations for these species do not follow USFWS recommendations. The effects determinations recommended by USFWS are as follows:

- *May affect, is likely to adversely affect*: The proposed project is likely to adversely affect a species if 1) the species occurs or may occur in the study areas and 2) any adverse effect on listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. In the event that the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species.
- *May affect, is not likely to adversely affect*: The project is not likely to adversely affect a species if 1) the species may occur but its presence has not been documented and/or surveys following approved protocol have been conducted with negative results, and/or 2) project activity effects on a listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects on the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur.
- *No effect*: The project would have no effect on a species if 1) it has no likelihood of effect on a listed species or its designated critical habitat (including effects that may be beneficial, insignificant, or discountable) or 2) the species' habitat does not occur in the study areas.

3. RESULTS

3.1. Ecological Overview

The study areas are in the Chihuahuan Basin and Playa Level IV ecoregion of Texas (Griffith et al. 2007). Griffith and colleagues characterize the landform of the region as areas of alluvial deposition, internal drained basins, and windblown sand regions. Topography of the basin and playa ecoregion consists of expansive salt flats, low coppice dunes, and alluvial deposition washes. The surrounding ecotype of the region is further segmented into internally drained basins such as the Hueco, Mesilla, Presidio, and Salt bolsons.

Griffith et al. (2007) describe precipitation in the ecoregion as typically the lowest in the state of Texas. As such, most water is derived from large underground bolsons formed from graben depression filling from erosion over geologic eras. The resulting absence of precipitation necessitates that species are drought tolerant and exhibit morphological characteristics able to withstand periods of deficient moisture.

The study areas are bordered by the Rio Grande to the southwest and south with the Franklin Mountains adjacent at the west. To the east, the area is flanked by the Hueco/Otero Uplift. Elevation in the Chihuahua Basin and Playa ecoregion averages 3,000 to 5,000 feet. No ephemeral or perennial waterways, wetlands, or waterbodies are present in the study areas.

Weather during the field reconnaissance was sunny, cool, and very windy. Photographs of the survey areas are provided in Appendix C.

3.2. Vegetation

Vegetation association and habitat of the study areas are associated primarily with the mesquite-sandsage scrub vegetation community (McMahan et al. 1984; Bureau of Economic Geology 2000). This vegetation community exhibits scattered, low density surface cover, with highest species diversity occurring with seasonal patterns. Honey mesquite (*Prosopis glandulosa*) and sand sagebrush (*Artemisia filifolia*) represent the dominant plant species in this vegetation community.

The mesquite- sand sagebrush shrub vegetation community is distributed across sandy soils of El Paso County (McMahan et al. 1984). Other common plant species include fourwing saltbush (*Atriplex canescens*), soaptree yucca (*Yucca elata*), Mormon tea (*Ephedra viridis*), sand dropseed (*Sporobolus cryptandrus*), blue grama (*Bouteloua gracilis*), broom snakeweed (*Gutierrezia sarothrae*), and devil's claw (*Proboscidea parviflora*).

Review of the study areas and surrounding landform is consistent with descriptive nomenclature of the area. Data were recorded in the site visit to document species composition and densities present. The dominant species across the area were honey mesquite, fourwing saltbush, and Russian thistle (*Salsola kali*). The vegetation community across the study area represented near uniformity in species composition.

Most of the study areas have been impacted by prior land uses from the surrounding community and existing infrastructures. Existing pipeline and transmission rights-of-way are located in the project area or in close proximity to the project area. Additionally, numerous paved and unpaved road surfaces are located through the study areas, as well as abutting residential development lots. Across the study areas, an abundance of localized trash disposal sites were noted.

In regard to species ecology and the result of disturbances, exotic and noxious species are abundant in much of the study areas. Russian thistle was a dominant herbaceous species found throughout the study areas. Rabbitbush (*Ericameria nauseosa*) is a native species, but proliferates in altered landscape regimes. It was found growing in highest numbers near surfaces where sand deposits were absent.

Parts of the study areas further from disturbed surfaces exhibited greater vegetation matrices with fewer invasive species present. These areas had an abundance of shrub species such as creosotebush (*Larrea tridentata*) and fourwing saltbush associated with honey mesquite communities. Within these communities, grasses such as ear muhly (*Muhlenbergia arenacea*) were common.

3.3. Wildlife

Avian wildlife observed throughout the survey areas included western kingbird (*Tyrannus verticalis*), white-winged dove (*Zenaida asiatica*), northern mockingbird (*Mimus polyglottos*), loggerhead shrike (*Lanius ludovicianus*), and turkey vulture (*Cathartes aura*). Mammal species or their sign observed throughout the survey included skeletal pieces of coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus audubonii*). Reptiles observed included long-nosed leopard lizard (*Gambelia wislizenii*), common side-blotched lizard (*Uta stansburiana*), and whiptail lizard (*Aspidoscelis* sp.).

3.4. Species Evaluation

Based on a review of the species lists mentioned above, five federally and state-listed species, two federal candidate species, and five state-listed species are identified by the USFWS (2013) and TPWD (2013) as being known or having potential to occur in El Paso County (Table 1). Another three species, the federally endangered gray wolf (*Canis lupus*), the black-footed ferret (*Mustela nigripes*), and the now extinct bluntnose shiner (*Notropis simus simus*) are identified by the TPWD (2013) as having formerly occurred in El Paso County. Because the former two species have been extirpated from Texas and the latter is extinct, these three species are not addressed in this evaluation. The species identified in Table 1 and their potential to occur in the study areas are discussed below.

Table 1 Threatened and Endangered Species of the Project Area

Common Name	Scientific Name	Status*	
		USFWS	TPWD
Birds			
Interior least tern	*Sternula antillarum athalassos*	E	E
Mexican spotted owl	*Strix occidentalis lucida*	T	T
Northern aplomado falcon	*Falco femoralis septentrionalis*	E	E
Peregrine falcon	*Falco peregrinus*	–	T
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	E
Sprague's pipit	*Anthus spragueii*	C	–
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	C	–
Fish			
Rio Grande silvery minnow	*Hybognathus amarus*	E	E
Mammals			
Black bear	*Ursus americanus*	–	T
Reptiles			
Chihuahuan Desert lyre snake	*Trimorphodon vilkinsonli*	–	T
Mountain short-horned lizard	*Phrynosoma hernandesi*	–	T
Texas horned lizard	*Phrynosoma cornutum*	–	T

* E = endangered; T = threatened; C = candidate for federal listing as threatened or endangered.

According to the TPWD NDD review, the study areas do not occur in or near any federally proposed or designated critical habitat, and there are no occurrence records for any federally listed special-status species within 5 miles of the project area (TPWD 2013).

3.4.1. Interior Least Tern

Habitat and Range Requirements

Interior least terns (*Sternula antillarum athalassos*) are small, highly aerial aquatic birds that feed mostly on small fish, which they capture by plucking them from the surface of the water or by making shallow plunge-dives (Thompson et al. 1997). These birds use shallow water habitats and occur both coastally, where they nest on sandy beaches, and inland along some major rivers, where they nest on sandbars, mudflats, dredged spoil deposits, graveled rooftops, and parking lots (Thompson et al. 1997). Least terns that breed inland along major rivers are described as a separate subspecies known as interior least tern. Interior populations of least tern were listed by USFWS as endangered in 1985, largely because of concerns over loss of riverine breeding habitat to reservoir and channelization projects and disturbance to nesting habitat caused by recreational use of sand bars. No critical habitat has been designated for interior populations of least tern. Because of uncertainty regarding the validity of the *S. a. athalassos* taxon, the USFWS listed the "interior population" of least tern as endangered, rather than the interior subspecies. The endangered designation applies to those least terns that breed at least 50 miles inland from a coastline.

Least terns are known to breed in Texas at sites along the Canadian River, the Red River, the Prairie Dog Town Fork of the Red River, and the Rio Grande upstream to Lake Amistad, Val Verde County, as well as at various sites in north-central Texas in the Trinity River Basin and on the margins of reservoirs near the City of San Angelo, Tom Green County (Peterson and Zimmer 1998; Campbell 2003; Lockwood and Freeman 2004; Kasner et al. 2005). Least terns are not known to breed along the Rio Grande in El Paso County, and they are considered a rare migrant through the region (Peterson and Zimmer 1998). Any least terns migrating through El Paso County would almost certainly be following the course of the Rio Grande.

Habitat Evaluation and Suitability

No aquatic habitat occurs in or near the study areas. Occurrence of this species in the study areas is not expected because of lack of appropriate aquatic habitat.

Determination of Effect

The least tern is unlikely to occur in the study areas due a lack of appropriate habitat. No effects to the least tern from any of the proposed project activities are expected.

3.4.2. Mexican Spotted Owl

Habitat and Range Requirements

Mexican spotted owl (*Strix occidentalis lucida*) is a fairly large owl of shady mountain forests that feeds mostly on small rodents (TPWD 2012a). This species is known to occur regularly in

Texas only in the Guadalupe Mountains, but has been found infrequently in the Davis Mountains and has been recorded three times in El Paso County (Peterson and Zimmer 1998).

Habitat Evaluation and Suitability

The study areas do not contain any habitat (e.g., shady mountain forests) that is suitable for this species, so its regular occurrence there is unlikely and even its rare occurrence as a transient is not expected.

Determination of Effect

The Mexican spotted owl is unlikely to occur in the study areas due a lack of appropriate habitat. No effects to the Mexican spotted owl from any of the proposed project activities are expected.

3.4.3. Northern Aplomado Falcon

Habitat and Range Requirements

Northern aplomado falcon is the northernmost-occurring sub-species of a medium-sized bird of prey that ranges from the southern tip of South America north to southern and west Texas, south-central New Mexico, and southeastern Arizona (Keddy-Hector 2000). The northern aplomado falcon was listed as endangered by the USFWS in 1986 in response to extirpation of the sub-species from the United States and evidence of population declines in Mexico, primarily as a result of pesticide contamination (USFWS 1990).

Aplomado falcons occur in grassland habitats from coastal lowlands to montane highlands that, depending on location within the range of the species, contain scattered yucca (*Yucca* sp.), mesquite (*Prosopis* sp.), acacia (*Acacia* sp.), or some other type of tree or shrub that the birds use as nesting sites and hunting perches (Keddy-Hector 2000). Prey of aplomado falcons consists mostly of other species of birds and large insects, although the birds are opportunistic hunters and have been shown to also feed on kangaroo rats (*Dipodomys* sp.), mice, bats, lizards, and fiddler crabs (*Uca subcylindrica*) (Keddy-Hector 2000).

In the early 1900s, northern aplomado falcons were known to occur in West Texas north to Andrews and southern Gaines Counties (USFWS 1990). Extirpation of the northern aplomado falcon as a nesting bird in the United States may have occurred by the mid-twentieth century (USFWS 1990; Keddy-Hector 2000). The primary reasons for loss of aplomado falcons from the United States are believed to have been conversion of grassland habitat to agricultural uses, encroachment of grasslands by woody species, and pesticide contamination (USFWS 1990). Individual aplomado falcons were occasionally recorded in southern New Mexico and the Trans Pecos region of Texas in the 1980s and early 1990s, with these occurrences subsequently explained by the discovery of a breeding population of northern aplomado falcons in the adjacent state of Chihuahua, Mexico, in the 1990s (Montoya 1995; Keddy-Hector 2000).

The Peregrine Fund began an aplomado falcon captive breeding program and started experimental releases of members of this species back into the United States in the 1980s (The Peregrine Fund 2011). The program began larger-scale releases in south Texas in 1993, and then began releasing birds in west Texas in 2002 and New Mexico in 2006 (The Peregrine Fund

2011). The release program has been a success in south Texas, where an apparently self-sustaining breeding population of northern aplomado falcons now exists. It has been much less successful in west Texas and New Mexico, where despite the release of hundreds of birds, very few breeding pairs are known to occur (The Peregrine Fund 2011). According to The Peregrine Fund (2011), birds released in west Texas and New Mexico appear to suffer from high rates of predation by great horned owls (*Bubo virginianus*).

Aplomado falcons have been released in the Trans Pecos region of west Texas in Brewster, Jeff Davis, and Presidio Counties (B. Heinrich/The Peregrine Fund pers. comm. to SWCA on 2 Dec. 2011). These areas coincide with locations of well-developed Chihuahuan Desert grassland habitat. No aplomado falcons have been released in El Paso County; aplomado falcons in New Mexico have been released in an area generally lying between the cities of Las Cruces and Truth or Consequences (B. Heinrich/The Peregrine Fund pers. comm. to SWCA on 2 Dec. 2011).

Habitat Evaluation and Suitability

The project areas contain a combination of open desert scrub and residential/commercial/industrial development. Because there is no appropriate grassland habitat, northern aplomado falcon is not expected to occur in the project areas. Because of reintroductions of this species in the Trans Pecos region of Texas and in south-central New Mexico, and because of the presence of a naturally occurring population in Chihuahua, it is possible that a transient northern aplomado falcon could very rarely fly through the project areas. Although this possibility would be highly unlikely, any such birds would not be expected to remain in the area because of the lack of grassland habitat.

Determination of Effect

The aplomado falcon is not expected to use the project areas as they do not contain any savanna or any grassland with a sparse canopy of woody vegetation, the species' habitat in Texas (Keddy-Hector 2000). The proposed project area does not contain suitable habitat for this species. It is unlikely that a transient northern aplomado falcon may disperse through the project area because suitable habitat does not exist. Thus, the project would have no effect on the aplomado falcon because the species' habitat does not occur in the study area.

3.4.4. Peregrine Falcon

Habitat and Range Requirements

Peregrine falcon is another medium-sized bird of prey that feeds primarily on birds. Two subspecies of peregrine falcon occur in Texas. One, the American peregrine falcon (*F. p. anatum*), is listed by the State of Texas as threatened and is a local breeder in the mountains of the Trans Pecos region of Texas (TPWD 2012a). The other, the Arctic peregrine falcon (*F. p. tundrius*), breeds in far northern North America. Both subspecies of peregrine falcon occur widely across Texas during migration and winter along the Gulf Coast and less commonly at inland locations. Peregrine falcon is considered a rare winter visitor in El Paso County, which is a term used to refer to birds that can be expected to be seen once out of 10 or more trips to appropriate habitat (Peterson and Zimmer 1998).

Habitat Evaluation and Suitability

In El Paso County, peregrine falcons are most likely to occur in winter along the Rio Grande corridor. Because of the presence of water and irrigated fields, this corridor supports waterfowl and other concentrations of birds that would be attractive to this bird of prey. One or more migrant peregrine falcons likely pass through the study areas on an annual basis during the spring and fall migration periods.

Determination of Effect

The study areas lack the permanent water sources and prey base preferred by the peregrine falcon. It is unlikely that a transient peregrine falcon may disperse through the project area because suitable habitat does not exist. Thus, the project would have no effect on the aplomado falcon because the species' habitat does not occur in the study area.

3.4.5. Southwestern Willow Flycatcher

Habitat and Range Requirements

Southwestern willow flycatcher (*Empidonax traillii extimus*) is a small, non-descript, migratory songbird that is a southwestern subspecies that ranges widely across much of the northern two-thirds of the United States (Sibley 2000). Willow flycatchers prefer shrubby, mesic habitats. In the southwestern United States, breeding habitat for this subspecies is largely restricted to woody vegetation that occurs in dense patches interspersed with small openings and that is developed along perennial streams or in wetlands (USFWS 2002). The birds will occur in both native and non-native vegetation communities. Woody species used by the birds include willow (*Salix* sp.), seepwillow (*Baccharis* sp.), box-elder (*Acer negundo*), cottonwood (*Populus* sp.), saltcedar (*Tamarix ramosissima*), and Russian olive (*Elaeagnus angustifolia*) (USFWS 2002).

Habitat Evaluation and Suitability

As described in Section 3.1, no perennial waterways are present in the study areas. As a result, the study areas do not contain any suitable breeding habitat for southwestern willow flycatcher, and its regular occurrence in the area is not expected. Individual southwestern willow flycatchers likely do occur in the study areas on an irregular and infrequent basis during the spring and fall migration periods, although given their preference for mesic habitats, any willow flycatchers stopping over during migration in El Paso County are more likely to select woody habitats occurring in the Rio Grande corridor outside the study areas.

Determination of Effect

The southwestern willow flycatcher is unlikely to occur in the study areas because the species prefers brushy habitat along perennial streams, which are absent from the study areas. No effects resulting from the proposed project activities are expected to occur for this species.

3.4.6. Sprague's Pipit

Habitat and Range Requirements

The Sprague's pipit (*Anthus spragueii*) is a grassland-dwelling songbird that breeds in the northern Great Plains region of North America, generally from Montana and the Dakotas northward. The pipit's wintering range includes grasslands and agricultural areas in portions of south, central, and north-central Texas, and a limited portion of Hudspeth County (Sibley 2000; Lockwood and Freeman 2004). The species is considered accidental in El Paso County, which is a term used to refer to birds that have been recorded less than three times in a subject region (Peterson and Zimmer 1998).

Habitat Evaluation and Suitability

Because of the apparent scarcity of this species in El Paso County and a lack of appropriate grassland habitat, Sprague's pipit is not expected to occur regularly in the study areas. Migrant Sprague's pipits could occur on a very occasional basis in the study areas, but because the area lacks suitable grassland habitat, migrating pipits would only be expected to occur in the area if grounded by inclement weather.

Determination of Effect

The Sprague's pipit is unlikely to occur in the study areas due a lack of appropriate habitat. No effects to the Sprague's pipit from any of the proposed project activities are expected.

3.4.7. Western Yellow-billed Cuckoo

Habitat and Range Requirements

Western yellow-billed cuckoo (*Coccyzus americanus*) is a southwestern subspecies of a migratory, insectivorous bird that occurs widely across the eastern and central United States (Sibley 2000). The USFWS, among others, questions the validity of western yellow-billed cuckoo as a subspecies (see USFWS 2001 for discussion of yellow-billed cuckoo taxonomy) and has designated the western population of the species as a candidate for listing as threatened or endangered as a distinct population segment (DPS) rather than as a subspecies. All yellow-billed cuckoos that breed west of the Pecos River drainage in Texas fall in this DPS. Like the southwestern willow flycatcher, yellow-billed cuckoos in the southwestern United States occur in woody riparian vegetation, particularly in cottonwood/willow associations with dense understory foliage (TPWD 2012a).

Habitat Evaluation and Suitability

As discussed for the southwestern willow flycatcher, because of a lack of perennial and intermittent streams, no wooded riparian habitat suitable for use by yellow-billed cuckoos is present in the study areas. Consequently, the potential for this species to occur in the study areas is limited to transient individuals during the spring and fall migration periods. Like the willow flycatcher, migrant yellow-billed cuckoos occurring in El Paso County are considered most likely to occur outside the study areas in the Rio Grande corridor rather than in desert areas.

Determination of Effect

The western yellow-billed cuckoo is unlikely to occur in the study areas due a lack of appropriate habitat. No effects to the western yellow-billed cuckoo from any of the proposed project activities are expected.

3.4.8. Rio Grande Silvery Minnow

Habitat and Range Requirements

Rio Grande silvery minnow (*Hybognathus amarus*) is a small fish that in Texas may only occur in the main stem Rio Grande near Big Bend National Park, Brewster County, based on introductions made in 2008 (USFWS 2010). Before then, the species was known only to occur in an approximately 174-mile-long reach of the Rio Grande in New Mexico, running between Cochiti Dam and Elephant Butte Reservoir (USFWS 2010). This species typically occurs over silt substrates in shallow water with low to moderate flow rates (USFWS 2010).

Habitat Evaluation and Suitability

Unless some of the minnows released in the Big Bend area in 2008 moved upstream to El Paso County, this species has no potential to occur in the wild in or near the study areas. This species does not occur in the study areas because of a lack of permanent surface water.

Determination of Effect

The Rio Grande silvery minnow only occurs in a mainstem of the Rio Grande near Big Bend National Park. The species does not occur in the study areas because of a lack of permanent surface water. No effects to the Rio Grande silvery minnow are expected to result from any of the proposed project activities.

3.4.9. Chihuahuan Desert Lyre Snake

Habitat and Range Requirements

Chihuahuan Desert lyre snake (*Trimorphodon vilkinsonii*) is a medium-sized, rear-fanged, and mildly venomous snake that occurs in the desert Southwest. The species is primarily nocturnal and feeds mostly on lizards (Werler and Dixon 2000). It typically occurs in scrub-bearing rocky habitats of mountains and foothills, where it has been found at elevations up to 5,940 feet, but it also has been reported from wooded canyons and desert flats dominated by creosotebush (Werler and Dixon 2000). According to Werler and Dixon (2000), most of the Chihuahuan lyre snakes found in Texas have been encountered in the Franklin Mountains of El Paso County or in the Big Bend region.

Habitat Evaluation and Suitability

Because this species is most closely associated with rocky habitats, it is not expected that Chihuahuan Desert lyre snake occurs in the study areas. However, because they have been found in desert flats, occurrence of this species in the study areas is not precluded.

Determination of Impact

The Chihuahuan Desert lyre snake occurs primarily in scrub-bearing rocky habitats of mountains and foothills and is not likely to occur in the study areas. However, the Chihuahuan Desert lyre snake has been reported in desert flats, so the occurrence of this species in the study areas is possible. If individuals of this species are present in the project area, these individuals could easily avoid the disturbance by moving to adjacent habitat during the construction of the proposed project. The proposed project is not likely to adversely affect this species as long as the animals themselves are not intentionally harassed by construction crews. SWCA recommends that all personnel working on the construction of the proposed project are instructed to avoid intentionally harassing all animals. The potential for impacts to this species from any of the proposed project activities considered is negligible.

3.4.10. Mountain Short-horned Lizard

Habitat and Range Requirements

Mountain short-horned lizard (*Phrynosoma hernandesi*) is a squat, broad, and flat-bodied spiny lizard that occurs in mountainous areas and feeds mostly on ants (Garrett and Barker 1987). Traditionally known in Texas only from the Guadalupe Mountains and Davis Mountains, this species has more recently also been discovered in the Hueco Mountains of El Paso County (Dixon 2013). Habitat for this species consists of higher elevation open forests and semiarid grasslands, with some loose soil to allow burrowing (Garrett and Barker 1987).

Habitat Evaluation and Suitability

Mountain short-horned lizard is not likely to occur in the study areas because they only contain low-lying desert that is not suitable for use by the species.

Determination of Impact

The mountain short-horned lizard is unlikely to occur in the study areas due a lack of appropriate habitat. If a transient mountain short-horned lizard occurs in the study areas it would be on a very rare basis. If individuals of this species are present in the project area, these individuals could also easily avoid the disturbance by moving to adjacent habitat during the construction of the proposed project. The proposed project is not likely to adversely affect this species as long as the animals themselves are not intentionally harassed by construction crews. SWCA recommends that all personnel working on the construction of the proposed project are instructed to avoid intentionally harassing all animals. The potential for impacts to the mountain short-horned lizard resulting from any of the proposed project activities is negligible.

3.4.11. Texas Horned Lizard

Habitat and Range Requirements

Texas horned lizard (*Phrynosoma cornutum*) is another squat, broad, and flat-bodied spiny lizard that feeds primarily on ants. Unlike the short-horned lizard, Texas horned lizard occurs widely across western Texas, where it typically occurs in areas that have sandy or otherwise loose soil

that allows burrowing, and relatively sparse vegetation (Garrett and Barker 1987). Texas horned lizard was once common across much of the state, but it disappeared from much of eastern Texas in the latter half of the twentieth century, likely as a result of widespread use of insecticides to control red imported fire ants (*Solenopsis invicta*) (Garrett and Barker 1987).

Habitat Evaluation and Suitability

Habitats in the study areas are suitable for use by Texas horned lizard, and its regular occurrence in the area is expected.

Determination of Impact

The Texas horned lizard likely occurs in the study areas because suitable habitat is present throughout the study areas. Impacts from any of the proposed project activities are not expected because these individuals could easily avoid the disturbance by moving to adjacent habitat during the construction of the proposed project. The proposed project is not likely to adversely affect this species as long as the animals themselves are not intentionally harassed by construction crews. SWCA recommends that all personnel working on the construction of the proposed project are instructed to avoid intentionally harassing all animals. The potential for impacts to the Texas horned lizard resulting from any of the proposed project activities is negligible.

3.4.12. Black Bear

Habitat and Range Requirements

Black bear (*Ursus americanus*) is a large, familiar mammal whose regularly occupied habitat in Texas is extremely limited in distribution. Black bears are omnivorous and typically occur in remote, wooded habitats where they can find shelter and varied foraging opportunities. Black bears occur regularly in Texas only in the Chisos Mountains, Guadalupe Mountains, and possibly the Davis Mountains and Glass Mountains of the Trans Pecos region (Schmidly 2004). However, presumably transient black bears, many believed to have originated from Mexico or New Mexico, have been sighted with some frequency in recent years in the Panhandle, on the Edwards Plateau, and even in south Texas (Schmidly 2004; TPWD 2012b).

Habitat Evaluation and Suitability

Black bears do not occur regularly in the study areas because of a lack of suitable habitat. On a very rare occasion, a black bear could wander through the study areas, but because the areas contain only very open desert scrub and human development, the chances of that occurring are extremely low.

Determination of Effect

The black bear is unlikely to occur in the study areas due a lack of appropriate habitat. No effects to the black bear from any of the proposed project activities are expected.

4. CONCLUSION

Of the 12 species listed for El Paso County by USFWS or TPWD, only the state-threatened Texas horned lizard is likely to regularly occur in the study areas. Although the Chihuahuan Desert lyre snake (state-threatened) has been reported in desert flats and may have the potential to occur in the study areas, it is considered highly unlikely to be present in the project area due to the lack of preferred habitat. If individuals of this species are present in the project area, these individuals could easily avoid the disturbance by moving to adjacent habitat during the construction of the proposed project. The proposed project is not likely to adversely affect Chihuahuan Desert lyre snake. For the remaining ten species, the study areas are clearly beyond the known geographic or elevational range of the species, they do not contain vegetation or landscape features known to support these species, or both.

5. LIMITATIONS AND WARRANTY

Within the limitations of schedule, budget, and scope of work, SWCA warrants that this evaluation was conducted in accordance with accepted environmental science practices, including the technical guidelines, evaluation criteria, and species' listing status in effect at the time this evaluation was performed, as outlined in the species assessment.

The results and conclusions of this evaluation represent the best professional judgment of SWCA scientists and are based on information provided by the project proponent and on information obtained from agencies and other sources during the course of the evaluation. No other warranty, expressed or implied, is made. This report should be reviewed by the appropriate regulatory agencies prior to any detailed site-planning or construction activities.

6. LITERATURE CITED

Avian Power Line Interaction Committee. 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.* Washington, D.C.: Edison Electric Institute.

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006.* Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Bureau of Economic Geology. 2000. *Vegetation/Cover Types of Texas.* Available at: http://www.beg.utexas.edu/UTopia/images/pagesizemaps/vegetation.pdf. Accessed April 10, 2013.

Campbell, L. 2003. *Endangered and Threatened Animals of Texas–Their Life History and Management*. Austin: Texas Parks and Wildlife Department.

Dixon, J.R. 2013. *Amphibians and Reptiles of Texas: with Keys, Taxonomic Synopses, Bibliography, and Distribution Maps.* Third Edition. College Station, Texas: Texas A&M University Press.

Garrett, J.M., and D.G. Barker. 1987. *A Field Guide to Reptiles and Amphibians of Texas*. Austin: Texas Monthly Press.

Gauthreaux, S.A., Jr. 1978. Migratory behavior and flight patterns. In *Impacts of Transmission Lines on Birds in Flight – Proceedings of a Workshop*, edited by M.L. Avery, pp. 12–26. Washington, D.C.: U.S. Fish and Wildlife Service.

Griffith, G.E., S.A. Bryce, J.M. Omernik, J.A. Comstock, A.C. Rogers, B. Harrison, S.L. Hatch, and D. Bezanson. 2007. Ecoregions of Texas (color poster with map, descriptive text, and photographs). Reston, Virginia: U.S. Geological Survey (map scale 1:2,500,000).

Hall, L.S., P.R. Krausman, and M.L. Morrison. 1997. The habitat concept and a plea for standard terminology. Wildl. Soc. Bull. 25:173-182.

Kasner, A.C., T.C. Maxwell, and R.D. Slack. 2005. Breeding Distributions of Selected Charadriiforms (Charadriiformes: Charadriidae, Scolopacidae, Laridae) in Interior Texas. *Texas Journal of Science* 57:273–288.

Keddy-Hector, D.P. 2000. Aplomado Falcon (*Falco femoralis*). In *The Birds of North America Online*, edited by A. Poole, Ed.. Ithaca: Cornell Lab of Ornithology. Available at: http://bna.birds.cornell.edu/bna/species/549. Accessed April 2013.

Lockwood, M.W., and B. Freeman. 2004. *The TOS Handbook of Texas Birds*. College Station, Texas: Texas A&M University Press.

McMahan, Craig A., Roy G. Frye, and Kirby L. Brown. 1984. *The Vegetation Types of Texas, Including Cropland.* Pittman-Robertson Project W-107-R. Austin: Texas Parks and Wildlife Department.

Montoya, A. B. 1995. Habitat Characteristics, Prey Selection, and Home Ranges of the Aplomado Falcon in Chihuahua, Mexico. M.S. thesis, New Mexico State University, Las Cruces.

Peregrine Fund. 2011. Aplomado Falcon Restoration. Available at: http://www.peregrinefund.org/aplomado. Accessed April 2013.

Peterson, J., and B.R. Zimmer. 1998. *Birds of the Trans Pecos*. Austin: University of Texas Press.

Schmidly, D.J. 2004. *The Mammals of Texas, Revised Edition.* Austin: University of Texas Press.

Sibley, D.A. 2000. *The Sibley Guide to Birds*. New York: Chanticleer Press, Inc.

Thompson, B.C., J.A. Jackson, J. Burger, L.A. Hill, E.M. Kirsch, and J.L. Atwood. 1997. Least Tern (*Sterna antillarum*), The Birds of North America Online. Ithaca: Cornell Lab of Ornithology. Available at: http://bna.birds.cornell.edu/bna/species/290. Accessed February 2013.

Thompson, L.S. 1978. Transmission line wire strikes: mitigation through engineering design and habitat modification. In *Impacts of Transmission Lines on Birds in Flight: Proceedings of a Workshop*, edited by M.L. Avery, pp. 27–52. USFWS, Biological Services Program. FWS/OBS-78/48. Oak Ridge, Tennessee: Oak Ridge Associated Universities.

Texas Parks and Wildlife Department (TPWD). 2012a. Annotated County Lists of Rare Species, El Paso County. Last revision 7 August 2012 (Online). Available at: http://www.tpwd.state.tx.us/gis/ris/es/. Accessed April 2013.

———. 2012b. Black Bear Activity on the Upswing in the Hill Country and South Texas. News Release (27 November 2012). Available at: http://www.tpwd.state.tx.us/newsmedia/releases/?req=20121127c. Accessed April 2013.

———. 2013. Annotated County List of Rare Species: El Paso County. Available at: http://www.tpwd.state.tx.us/gis/ris/es/ES_Reports.aspx?county=El%20Paso. Accessed April 10, 2013.

U.S. Fish and Wildlife Service (USFWS). 1990. *Northern Aplomado Falcon Recovery Plan*. Albuquerque: U.S. Fish and Wildlife Service.

———. 2002. *Southwestern Willow Flycatcher Recovery Plan*. Albuquerque: U.S. Fish and Wildlife Service.

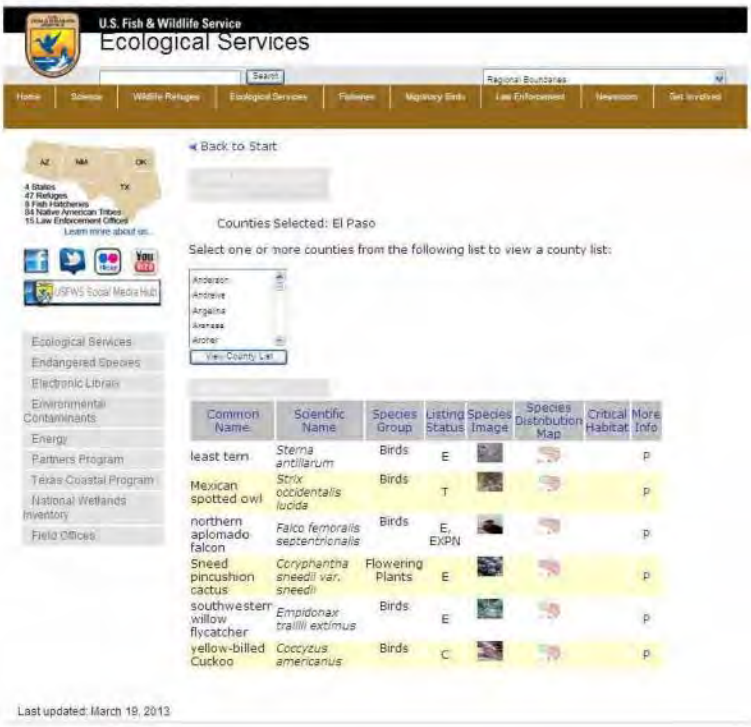
———. 2013. List of threatened and endangered species: El Paso County. Available at: http://www.fws.gov/southwest/es/ES_ListSpecies.cfm. Accessed April 10, 2013.

Werler, J.E., and J.R. Dixon. 2000. *Texas Snakes, Identification, Distribution, and Natural History*. Austin: University of Texas Press.

Willard, D.E. 1978. The impact of transmission lines on birds (and vice versa). In *Impacts of Transmission Lines on Birds in Flight – Proceedings of a Workshop*, edited by M.L. Avery, pp. 12–26. Washington, D.C.: U.S. Fish and Wildlife Service.

Appendix A

USFWS Species List for El Paso County, Texas



U.S. Fish & Wildlife Service

Ecological Services

Search

Regional Boundaries

Home | Science | Wildlife Refuges | Ecological Services | Fisheries | Migratory Birds | Law Enforcement | Newsroom | Get Involved

Back to Start

4 States
47 Refuges
9 Fish Hatcheries
84 Native American Tribes
15 Law Enforcement Offices
Learn more about us...

USFWS Social Media Hub

- Ecological Services
- Endangered Species
- Electronic Library
- Environmental Contaminants
- Energy
- Partners Program
- Texas Coastal Program
- National Wetlands Inventory
- Field Offices

Counties Selected: El Paso

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
least tern	*Sterna antillarum*	Birds	E				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T				P
northern aplomado falcon	*Falco femoralis septentrionalis*	Birds	E, EXPN				P
Sneed pincushion cactus	*Coryphantha sneedii var. sneedii*	Flowering Plants	E				P
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

Last updated: March 19, 2013

A-1

Appendix B

TPWD Species List for El Paso County, Texas

Last Revision: 8/7/2012 3:56:00 PM

EL PASO COUNTY

AMPHIBIANS		Federal Status	State Status

Northern leopard frog *Rana pipiens*

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration

BIRDS		Federal Status	State Status

American Peregrine Falcon *Falco peregrinus anatum* DL T

year-round resident and local breeder in west Texas, 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.

Arctic Peregrine Falcon *Falco peregrinus tundrius* DL

migrant throughout state from subspecies' far northern breeding range, 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.

Baird's Sparrow *Ammodramus bairdii*

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Ferruginous Hawk *Buteo regalis*

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern *Sterna antillarum athalassos* LE E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Spotted Owl *Strix occidentalis lucida* LT T

remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves

Montezuma Quail *Cyrtonyx montezumae*

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

EL PASO COUNTY

BIRDS		Federal Status	State Status
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	LE	E

open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Prairie Falcon	*Falco mexicanus*		

open, mountainous areas, plains and prairie; nests on cliffs

Snowy Plover	*Charadrius alexandrinus*		

formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast

Southwestern Willow Flycatcher	*Empidonax traillii extimus*	LE	E

thickets of willow, cottonwood, mesquite, and other species along desert streams

Sprague's Pipit	*Anthus spragueii*	C	

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Snowy Plover	*Charadrius alexandrinus nivosus*		

uncommon breeder in the Panhandle; potential migrant; winter along coast

Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	C;NL	

status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept

FISHES		Federal Status	State Status
Bluntnose shiner	*Notropis simus simus*		T

extinct; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline

EL PASO COUNTY

FISHES		Federal Status	State Status
Rio Grande silvery minnow	*Hybognathus amarus*	LE	E

extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

INSECTS		Federal Status	State Status
A Royal moth	*Sphingicampa raspa*		

woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (Acacia augustissima) is the documented caterpillar foodplant, but there could be a few other woody legumes used

A tiger beetle *Cicindela hornii*

grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains, the life cycle probably takes two years so larvae would always be present in burrows in the soil

Barbara Ann's tiger beetle *Cicindela politula barbarannae*

limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails

Poling's hairstreak *Fixsenia polingi*

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

MAMMALS		Federal Status	State Status
Big free-tailed bat	*Nyctinomops macrotis*		

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear	*Ursus americanus*	T/SA;NL	T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret	*Mustela nigripes*	LE

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog *Cynomys ludovicianus*

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

EL PASO COUNTY

MAMMALS

		Federal Status	State Status

Cave myotis bat *Myotis velifer*

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Desert pocket gopher *Geomys arenarius*

cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year

Fringed bat *Myotis thysanodes*

habitat variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations; highly migratory species that arrives in Trans-Pecos by May to form nursery colonies; single offspring born June-July; roosts colonially in caves, mine tunnels, rock crevices, and old buildings

Gray wolf *Canis lupus* LE E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Long-legged bat *Myotis volans*

in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July

Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat *Ondatra zibethicus ripensis*

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Western red bat *Lasiurus blossevillii*

roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun

Western small-footed bat *Myotis ciliolabrum*

mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous

EL PASO COUNTY

MAMMALS		Federal Status	State Status

Yuma myotis bat *Myotis yumanensis*

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS		Federal Status	State Status

Franklin Mountain talus snail *Sonorella metcalfi*

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

Franklin Mountain wood snail *Ashmunella pasonis*

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES		Federal Status	State Status

Big Bend slider *Trachemys gaigeae*

almost exclusively aquatic, sliders (Trachemys spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake *Trimorphodon vilkinsonii* T

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard *Phrynosoma hernandesi* T

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake *Thamnophis sirtalis dorsalis*

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard *Phrynosoma cornutum* T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

EL PASO COUNTY

PLANTS

		Federal Status	State Status

Comal snakewood *Colubrina stricta*

in El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico ,found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

Desert night-blooming cereus *Peniocereus greggii var greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

Hueco rock-daisy *Perityle huecoensis*

north-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system; flowering spring-fall

Sand prickly-pear *Opuntia arenaria*

deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos; flowering May-June

Sand sacahuista *Nolina arenicola*

Texas endemic; mesquite-sand sage shrublands on windblown Quarternary reddish sand in dune areas; flowering time uncertain May-June, June-September

Sneed's pincushion cactus *Escobaria sneedii var sneedii* LE E

xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands; flowering April-September (peak usually in April, sometimes opportunistically after summer rains; fruiting August - November

Texas false saltgrass *Allolepis texana*

sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites; flowering (May-) July-October depending on rainfall

Vasey's bitterweed *Hymenoxys vaseyi*

Occurs on xeric limestone cliffs and slopes at mid- to high elevations in desert shrublands.

Wheeler's spurge *Chamaesyce geyeri var wheeleriana*

sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds; flowering and fruiting at least August-September, probably earlier and later, as well

Appendix C

Photographs

Photograph 1. View of the proposed Montana Power Station, facing south.

Photograph 2. View of the proposed Montana Power Station, facing northeast

Photograph 3. View of the Montana Lateral Line, facing north.

Photograph 4. View of the Montana Lateral Line, facing south.

Photograph 5. View of the Montana Lateral Line at the intersection with the tie-in location, facing north.

Photograph 6. View of the Montana Lateral Line at the intersection with the tie-in location, facing west.

For Brad — Approximate Height of tank to S on Magellan site? 60ft + 10ft for dome

Question — Difference in two BA examples? TXPWD species analysis?

* = photo
+ = dominant

Field Notes 3/14/12 EPEC BA

Start SE Corner

- soaptree yucca + — Prosopis
- silver leaf nightshade — Atriplex
- Russian thistle
- ** white flower annual
- Pleuraphis grass +
- * Isocoma sp. +
- * small bluestem or bear grass
- hummocks/dunes in area
- sand sagebrush
- * scrubby thorn scrub mesquite? pole on hummocks +
- H. salsola
- small green annual w/ purple flowers — legume - pea flowers
- cottontail sign (pellets) & tracks
- small burrows on hammocks — small mammals 1/2 acres
- * spider hole?
- scattered trash ~~heavy~~ @ perimeters
- jackrabbit sign (pellets)
- GTGR Raven sp. HOFI
- * hail dried small perennial — Senna?
- * dried yellow annual
- fluffy grass

lizard tracks
red sandy fine soils
Bombadier beetle
RTHA
GAQU ≈ 12 in covey
no washes
coyote/dog tracks — and forage
lark bunting & group
side blotched lizard

start: 1200 hrs/windy

Kingbird + +
sparrows?
Whiptail
Whwing dove
Turkey Vulture
Coyote mandible
Gambelia wislizeni
Mockingbird
Lepus calif.
Shrike

APPENDIX F

USFWS and TPWD Species Lists

Last Revision: 8/7/2012 3:56:00 PM

EL PASO COUNTY

AMPHIBIANS

		Federal Status	State Status
Northern leopard frog	*Rana pipiens*		

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, 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.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, 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.

Baird's Sparrow	*Ammodramus bairdii*		

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Ferruginous Hawk	*Buteo regalis*		

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Spotted Owl	*Strix occidentalis lucida*	LT	T

remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves

Montezuma Quail	*Cyrtonyx montezumae*		

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

EL PASO COUNTY

BIRDS		Federal Status	State Status
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	LE	E

open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Peregrine Falcon *Falco peregrinus* DL T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Prairie Falcon *Falco mexicanus*

open, mountainous areas, plains and prairie; nests on cliffs

Snowy Plover *Charadrius alexandrinus*

formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast

Southwestern Willow Flycatcher *Empidonax traillii extimus* LE E

thickets of willow, cottonwood, mesquite, and other species along desert streams

Sprague's Pipit *Anthus spragueii* C

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl *Athene cunicularia hypugaea*

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Snowy Plover *Charadrius alexandrinus nivosus*

uncommon breeder in the Panhandle; potential migrant; winter along coast

Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis* C;NL

status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept

FISHES		Federal Status	State Status
Bluntnose shiner	*Notropis simus simus*		T

extinct; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline

EL PASO COUNTY

FISHES		Federal Status	State Status
Rio Grande silvery minnow	*Hybognathus amarus*	LE	E

extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

INSECTS		Federal Status	State Status
A Royal moth	*Sphingicampa raspa*		

woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (Acacia augustissima) is the documented caterpillar foodplant, but there could be a few other woody legumes used

A tiger beetle *Cicindela hornii*

grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains, the life cycle probably takes two years so larvae would always be present in burrows in the soil

Barbara Ann's tiger beetle *Cicindela politula barbarannae*

limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails

Poling's hairstreak *Fixsenia polingi*

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

MAMMALS		Federal Status	State Status
Big free-tailed bat	*Nyctinomops macrotis*		

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear	*Ursus americanus*	T/SA;NL	T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret	*Mustela nigripes*	LE	

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog *Cynomys ludovicianus*

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

EL PASO COUNTY

MAMMALS

		Federal Status	State Status

Cave myotis bat *Myotis velifer*

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Desert pocket gopher *Geomys arenarius*

cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year

Fringed bat *Myotis thysanodes*

habitat variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations; highly migratory species that arrives in Trans-Pecos by May to form nursery colonies; single offspring born June-July; roosts colonially in caves, mine tunnels, rock crevices, and old buildings

Gray wolf *Canis lupus* LE E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Long-legged bat *Myotis volans*

in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July

Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat *Ondatra zibethicus ripensis*

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Western red bat *Lasiurus blossevillii*

roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun

Western small-footed bat *Myotis ciliolabrum*

mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous

EL PASO COUNTY

MAMMALS

		Federal Status	State Status
Yuma myotis bat	*Myotis yumanensis*		

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS

		Federal Status	State Status
Franklin Mountain talus snail	*Sonorella metcalfi*		

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

Franklin Mountain wood snail *Ashmunella pasonis*

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES

		Federal Status	State Status
Big Bend slider	*Trachemys gaigeae*		

almost exclusively aquatic, sliders (Trachemys spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake	*Trimorphodon vilkinsonii*		T

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard	*Phrynosoma hernandesi*		T

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake	*Thamnophis sirtalis dorsalis*		

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

EL PASO COUNTY

PLANTS

Federal Status State Status

Comal snakewood *Colubrina stricta*

in El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico ,found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

Desert night-blooming cereus *Peniocereus greggii var greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

Hueco rock-daisy *Perityle huecoensis*

north-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system; flowering spring-fall

Sand prickly-pear *Opuntia arenaria*

deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos; flowering May-June

Sand sacahuista *Nolina arenicola*

Texas endemic; mesquite-sand sage shrublands on windblown Quarternary reddish sand in dune areas; flowering time uncertain May-June, June-September

Sneed's pincushion cactus *Escobaria sneedii var sneedii* LE E

xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands; flowering April-September (peak usually in April, sometimes opportunistically after summer rains; fruiting August - November

Texas false saltgrass *Allolepis texana*

sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites; flowering (May-) July-October depending on rainfall

Vasey's bitterweed *Hymenoxys vaseyi*

Occurs on xeric limestone cliffs and slopes at mid- to high elevations in desert shrublands.

Wheeler's spurge *Chamaesyce geyeri var wheeleriana*

sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds; flowering and fruiting at least August-September, probably earlier and later, as well

Southwest Region

Home Science Wildlife Refuges Ecological Services Fisheries Migratory Birds Law Enforcement Newsroom Get Involved

USFWS Social Media Hub

Media GALLERY

Ecological Services
Contact RO ES
Endangered Species
Electronic Library
Environmental Contaminants
Energy
Partners Program
Texas Coastal Program
National Wetlands Inventory
Field Offices

Back to Start

List of species by county for Texas:

Counties Selected: El Paso

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

El Paso County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
least tern	*Sterna antillarum*	Birds	E				P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T				P
northern aplomado falcon	*Falco femoralis septentrionalis*	Birds	E, EXPN				P
Sneed pincushion cactus	*Coryphantha sneedii var. sneedii*	Flowering Plants	E				P
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				P
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				P

Last updated: August 29, 2013

U.S. Fish and Wildlife Service Home Page
About the U.S. Fish & Wildlife Service
Department of the Interior
USA.gov
Accessibility
Privacy
Notices

DOI logo

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

FWS logo

All images Credit to and Courtesy of the U.S. Fish and Wildlife Service unless specified otherwise.

DOI Children's Privacy Statement
Southwest Home
R2 Photo Credits
Contact Us
Disclaimer
FOIA

HOME	SCIENCE	WILDLIFE REFUGES	ECOLOGICAL SERVICES	FISHERIES	MIGRATORY BIRDS	LAW ENFORCEMENT	NEWSROOM	GET INVOLVED
About the Region	Climate Change	Find a Refuge	Endangered Species	About Us	Migratory Birds	Contacts by State	News Releases	Permits
RD's Corner	Landscape Conservation Cooperative	Biology	Electronic Library	Aquatic Invasive Species	Staff & Functions	State Agencies	FWS Field Notes	Working w/ Tribes
Student Pathways	Strategic Habitat Conservation	Fire Management	Environmental Contaminants	Native American Trust	Migratory Bird Partners	Agent Inspector Jobs	Publications	Jobs
Working w/ Tribes	Surrogate Species	Planning	Energy	Education & Outreach	Joint Ventures	Permit Information	Federal Register	Volunteering
FWS Field Notes	Science Quality Peer Review	Visitor Services	Partners Program	Contact Us	Eagle Permits	CITES Information	Digital Library	Duck Stamps
Contact Us	National Science Resources	Volunteering	Texas Coastal Program	Â	Permits	Hunting Information	Â	Let's Go Outside
USFWS Home	Geographic Information Systems	Water Resources	National Wetlands Inventory	Â	Â	Â	Â	America's Great Outdoors
Â	Â	Â	Field Offices	Â	Â	Â	Â	Contact Us
Â	Â	Â	Â	Â	Â	Â	Â	Â