

Control Number: 38290



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Addendum StartPage: 0





August 10, 2010

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Mr. Brian Almon, P.E. Public Utilities Commission P.O. Box 13326 Austin, TX 78711-3326

RE: Sharyland Utilities, LP (Sharyland), Hereford (Panhandle AB) to White Deer (Panhandle BA) 345-kilovolt (kV) Transmission Line Project, (PUC Docket No. 38290) Armstrong, Carson, Deaf Smith, Oldham, Potter, and Randall Counties

Dear Mr. Almon:

Texas Parks and Wildlife Department (TPWD) received the Environmental Assessment (EA) and Alternative Route Analysis regarding the above-referenced proposed transmission line, which is part of the Competitive Renewable Energy Zones (CREZ) Scenario 2 Transmission Plan. TPWD staff has reviewed the EA and offers the following comments concerning this project.

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency on or after September 1, 2009 may be required by state law. For further guidance, see the Texas Parks and Wildlife Code, Section 12.0011 which can be found online at <u>http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm#12.0011</u>. For tracking purposes, please refer to TPWD project number 15204 in any return correspondence regarding this project.

# **Project Description**

The proposed project entails the construction of a new single-circuit 345-kV transmission line on double-circuit capable towers between the proposed Hereford Collection Station, to be located in southeastern Deaf Smith County, and the proposed White Deer Collection Station, to be located in southern Carson County. Depending on the route selected, the line would be between 64.61 and 92.23 miles long. Sharyland proposes to use self-supporting, double-circuit lattice steel towers for this line. Although the towers will be capable of supporting two circuits, only one circuit will be installed initially. Typical structure height will range between 123 feet and 143 feet, and the proposed project would utilize an approximately 175-foot wide right-of-way (ROW). Sharyland retained PBS&J to delineate and evaluate alternative routes and to prepare an EA and Alternative Route Analysis to support its application to amend its Certificate of Convenience and Necessity (CCN).

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TPWD provided preliminary information and recommendations regarding the entire CREZ Scenario 2 transmission plan to the PUC on January 21, 2009. Also, as included in Appendix A of the EA, TPWD provided information and recommendations regarding the preliminary study area for this specific project to PBS&J on June 23, 2009. Information regarding the expanded or primary study area as described in Section 2.3.1 of the EA was not requested from TPWD following the initial set of public meetings.

**Recommendation:** Please review previous TPWD correspondence and consider the recommendations provided, as they remain applicable to the project as proposed.

# **Preferred Route of Sharyland**

Various combinations of 78 alternative route links were combined to form 12 alternative routes evaluated in the EA and submitted with the CCN application. PBS&J examined each route considering the 36 environmental criteria shown in Table 2-2. From an environmental and land use perspective, PBS&J selected Route 5 as their preferred route. Sharyland took the environmental evaluation provided by PBS&J and then reviewed the constructability, maintenance and operation issues for each route. Route 1 was selected as the preferred route of Sharyland.

### **Route Selection**

# **Threatened and Endangered Species Information**

Section 6.1 of the EA states that, like each of the primary alternative routes, PBS&J's preferred route crosses no known/occupied habitat of federally endangered or threatened species. Line 26 in Table 6-1 of the EA indicates that none of the 12 alternative routes evaluated in the EA cross through known occupied habitat of federally-listed endangered or threatened species. TPWD assumes that these assertions are based on the absence of Texas Natural Diversity Database (TXNDD) records of federally-protected species along the alternative routes.

**Recommendation:** When choosing a route, TPWD recommends the PUC avoid considering the absence of data in the TXNDD as an indication of absence of rare, unique, or protected species on the landscape. The majority of Texas has never been surveyed for rare, threatened, and endangered species.

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As is explained to developers and consultants who request and receive TXNDD data, records in the TXNDD are provided to users as an indication of resources that have been documented in the general area of their project and therefore may be present on their project site. Presence or absence of rare, threatened, and endangered plant and animal species can only be determined by surveying the project area. TXNDD information cannot be used to determine the absence of a species from an alternative route.

TPWD is concerned that providing incomplete information regarding federallisted species and their habitats, such as in Table 6-1, might be misinterpreted by the PUC and others who read the document.

# Federal Candidate for Listing

### Lesser Prairie-Chicken (Tympanuchus pallidicinctus)

As indicated in many of TPWD's initial coordination letters on the Panhandle CREZ transmission lines, recent research indicates that transmission lines may pose an additional threat to the long-term survival of the Lesser Prairie-Chicken (LPC) in Texas. Not only do transmission lines have the potential to directly impact LPC habitat, but LPCs have also been demonstrated to avoid habitat adjacent to (within 2 miles of) vertical structures such as power lines (see Wind Turbine Guidelines Advisory Committee Recommendations for Wind Energy Development. Version 7, submitted to the Secretary of the Interior March 4, 2010). These lines can cause habitat fragmentation or isolation such that otherwise useable habitat may become unavailable to LPCs.

The U.S. Fish and Wildlife Service (FWS) classified the LPC as a candidate for listing as threatened under the Endangered Species Act (ESA) in 1998 and assigned it a candidate species listing priority number of 8. In December 2008, FWS changed the listing priority number to 2, because the magnitude of imminent threats to the LPC had increased. These threats include ongoing and expected activity in wind energy development and conversion of Conservation Reserve Program lands to croplands. If listing of this species occurs, all future development and maintenance activities that have the potential to impact the LPC or its habitat may require consultation with FWS.

As stated in Section 3.5.6 of the EA, TPWD has identified portions of the project area that may be within segments of the Estimated Occupied Range (EOR) of the LPC. Credible sources recorded these observations in areas south of Buffalo Lake

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National Wildlife Refuge (NWR) and northwest of the proposed White Deer substation. However, as stated in the EA, presence or absence of the LPC in these areas has not been verified by TPWD.

The EA provides no indication that PBS&J or Sharyland performed surveys to verify presence or absence of the LPC in these areas. The portions of the EOR that are based on incidental observation locations are not shown in Figures 2-6a through 2-6d (Primary Alternative Routes in Relation to Environmental and Other Land Use Constraints within the Study Area), and potential impacts to the LPC or its habitat were not addressed in Section 4.3.4 of the EA. PBS&J's preferred route crosses a segment of the EOR where an incidental observation was made south of Buffalo Lake NWR, and Sharyland's preferred route crosses a segment of the EOR where an incidental observation was made northwest of the White Deer substation.

LPCs could be present in the project area if suitable habitat is present. Based on a review of the incidental observation locations on aerial photography, LPCs would be more likely to occur in the area south of Buffalo Lake NWR than the area northwest of the White Deer substation, which appears to consist of mostly cropland.

**Recommendation**: TPWD recommends the PUC consider potential impacts to the LPC when selecting a preferred alternative route. If the preferred alternative is located within the EOR where there has been an incidental observation, TPWD recommends the PUC consider the time and resources that may be needed to perform recommended surveys (see Pre-construction Recommendations below) to verify presence or absence of the LPC in this area, as well as mitigation recommendations if presence is confirmed. The PUC and Sharyland should be aware that if the FWS decides to list the LPC under the ESA, development and future maintenance and operation activities that have the potential to impact the LPC or its habitat may require consultation with FWS.

#### Preferred Route

Section 6.1 of the EA lists reasons that PBS&J recommended Route 5 as their preferred route. This section states that Route 5 is one of the shortest alternative routes, has the fewest number of habitable structures within 500 feet of the ROW, one of the shortest lengths across cropland with mobile irrigation systems, the least number of pipeline crossings, and several other factors. This section also

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states that Route 5, like each of the primary alternative routes, crosses no 100-year floodplains. However, Line 31 of Table 6-1 shows that all of the routes would cross mapped 100-year floodplains, although floodplains have only been mapped for Randall and Potter counties.

According to the information provided in Table 6-1 of the EA, of the 12 alternative routes evaluated, PBS&J's preferred Route 5 would result in the second longest length along new ROW (calculated by subtracting lines 4, 5, and 6 from line 1). Route 5 would also cross the Prairie Dog Town Fork of the Red River. This river is a major waterway in this arid area and provides important remnant riparian habitat that has not been converted to crop land or developed. As stated in previous TPWD correspondence, birds typically establish flight corridors along and within river and creek drainages. Installation of transmission lines across waterways increases the potential for collisions by birds flying along or near the drainage corridors.

As stated above, after PBS&J made their preferred and alternative route recommendations, Sharyland undertook a further evaluation that included environmental considerations as well as other factors. Section 6.2.2 of the EA states that Sharyland choose Route 1 as the preferred route because it provides greater accessibility to areas with wind development potential when compared to other routes, and it is the closest to planned and anticipated wind generation sites in those areas. Sharyland believes that Route 1 provides the best opportunity to connect wind projects to the CREZ lines in the most cost-effective manner, and that Route 1 is most consistent with the overall purpose of the CREZ build out. The EA also states that Route 1 parallels one of the highest percentages of existing or compatible ROW and apparent property lines of any of the alternative routes (61 percent of its length) and has a relatively low number of habitable structures within 500 feet.

According to the information in Table 6-1, Sharyland's preferred Route 1 is the second longest route. Although 61 percent of this route follows existing or compatible ROWs, due to the longer length of the route, this route would result in the sixth longest length along new ROW (calculated by subtracting lines 4, 5, and 6 from line 1). This route would impact the longest length across upland brushlands, the longest length across bottomland/riparian woodlands, and would cross the highest number of streams. Many of the streams crossed by Route 1 are tributaries to the Canadian River.

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#### Alternative Route

The evaluation below is based solely on the natural resource information provided in the CCN application and the EA, as well as publicly available information examined in a Geographic Information System. TPWD does not have sufficient information to support a preferred alternative route because the EA did not provide necessary information regarding potential impacts to rare and protected species based on surveys (aerial or on-the-ground), remote sensing, modeling, or other available analysis techniques.

**Recommendation:** TPWD recommends the PUC select a route that would minimize impacts to natural resources.

Based on the information provided in the CCN application and EA, of the 12 alternative routes, Route 3 appears to better minimize adverse impacts to natural resources than Sharyland's preferred Route 1 or PBS&J's preferred Route 5. Route 3 would not cross the Prairie Dog Town Fork of the Red River or tributaries to the Canadian River and would not impact upland brushlands or bottomland/riparian woodlands. Although Route 3 is longer than Route 5, it would parallel a shorter distance along new ROW (calculated by subtracting lines 4, 5, and 6 from line 1) than Route 5, and only slightly more than Route 1. Route 3 would result in the third fewest stream crossings and the fourth smallest number of playa lake crossings. Route 3 does not cross either segment of the EOR where incidental observations of the LPC have been recorded.

### **Pre-Construction Recommendations**

### Federal Regulations

Migratory Bird Treaty Act (MBTA)

Section 4.3.3 of the EA states that individuals of smaller, low mobility species may be permanently displaced, injured, or killed during construction related activities. In TPWD correspondence on previously approved CREZ CCN applications, TPWD recommended that vegetation removal be avoided during the primary migratory bird nesting season, March through August, to avoid adverse impacts to this group. In the final order on these projects, the Commission found that there was no evidentiary basis for requiring the transmission service provider Mr. Brian Almon, P.E. Page Seven August 10, 2010

to avoid all clearing activities during the months of March through August (SOAH Docket No. 473-10-0398, Findings of Fact 87D).

**Recommendation:** To avoid a violation of the MBTA, measures should be taken to ensure that migratory bird species within and near the project areas are not adversely impacted by construction and maintenance activities. Please note that it is the responsibility of the project proponent to ensure compliance with the MBTA. The FWS Migratory Bird Office can be contacted at (505) 248-7882 for more information on the MBTA.

If clearing vegetation during the migratory bird nesting season is unavoidable as indicated above, TPWD recommends Sharyland survey the area proposed for construction to ensure that no nests with eggs or young will be disturbed by construction. Any vegetation (trees, shrubs, and grasses) where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged. Additional measures to minimize impacts to migratory birds could include removing old, empty nests outside of the nesting season in areas that are scheduled to be cleared, thereby preventing reuse of old nests.

Federal Candidate for Listing

# Lesser Prairie-Chicken

As indicated earlier, LPCs may be present in the project area if suitable habitat exists. There are segments of the EOR where incidental observations have been recorded south of Buffalo Lake NWR, and occupied habitat in these areas cannot be ruled out based on aerial photography.

**Recommendation:** If a route located south of Buffalo Lake NWR is approved by the PUC, TPWD recommends Sharyland survey the route to determine if the LPC is present in this area. Surveys should be conducted during the "lekking" season (March 15<sup>th</sup> through May 15<sup>th</sup>), when the LPC would be most detectable, and surveys should follow protocols approved by TPWD and FWS. If presence of the LPC is confirmed in this area, TPWD recommends that disturbance of the occupied habitat be avoided to the extent possible. If avoidance of occupied LPC habitat is not possible, TPWD recommends the route follow existing disturbed ROWs to the extent feasible. Due to potential avoidance of vertical structures discussed above, existing

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ROWs with vertical structures are preferable to those that have no vertical structures, such as pipeline and highway ROWs.

# **Construction Recommendations**

# State Regulations

# State-Listed Species

Section 68.015 of the Parks and Wildlife Code regulates state-listed species. Please note that there is no provision for take (incidental or otherwise) of statelisted species. A copy of TPWD Guidelines for *Protection of State-Listed Species* is attached for your reference. This document includes a list of penalties for take of state-listed species. State-listed species may only be handled by persons with a scientific collection permit obtained through TPWD. For more information on this permit, please contact the Wildlife Permits Office at (512) 389-4647.

As stated in Section 4.3.4 of the EA, the state-listed threatened Palo Duro mouse (*Peromyscus truei*) and Texas horned lizard (*Phrynosoma cornutum*) are likely to occur in the project area where potential habitat is present. Although not discussed in the EA, anecdotal evidence suggests that the state-listed threatened Bald Eagle (*Haliaeetus leucocephalus*) may occur in the area along the Prairie Dog Town Fork of the Red River during winter. Due to impacts described in the EA, TPWD believes that take of these state-listed species may occur as a result of the proposed project.

In TPWD correspondence on previously approved CREZ transmission line projects, TPWD recommended that a permitted biological monitor be present during clearing and construction activities within habitat for state-listed species. In the final orders on these projects, the Commission found that the transmission service provider's current practice, which is to employ a permitted biological monitor for only federally-listed species, is adequate, and the transmission service provider is not required to hire an additional monitor for state-listed species (SOAH Docket No. 473-10-0398, page 3).

Texas horned lizards are generally active in this part of Texas from mid-April through September. At that time of year, they may be able to avoid slow (less than 15 miles per hour) moving equipment, although when a threat is perceived they often flatten themselves against the ground to blend into their surroundings. Mr. Brian Almon, P.E. Page Nine August 10, 2010

The remainder of the year, this species hibernates only a few inches underground and they will be much more susceptible to earth moving equipment and compaction.

**Recommendation**: TPWD recommends a biological monitor be present during construction to try and relocate Texas horned lizards and Palo Duro mice if found. If the presence of a biological monitor during construction is not feasible as indicated above, state-listed threatened species observed during construction should be allowed to safely leave the site or relocated by a permitted individual to a nearby area with similar habitat that would not be disturbed during construction.

A mixture of cover, food sources, and open ground is important to the Texas horned lizard and its primary food source, the Harvester ant (*Pogonomyrmex* sp.). Rocky, juniper-mesquite-covered slopes of steep-walled canyons are important habitat for the Palo Duro mouse. Disturbed areas within suitable habitat for the Texas horned lizard and Palo Duro mouse should be revegetated with site-specific native, patchy vegetation rather than sod-forming grasses.

If a route that crosses the Prairie Dog Town Fork of the Red River is approved by the PUC, TPWD recommends avoiding the removal of Bald Eagle wintering habitat and marking the lines to increase visibility and avoid collisions.

### **Mitigation Plan**

#### Federal Candidate for Listing

#### Lesser Prairie-Chicken

It is TPWD's understanding that FWS evaluates conservation measures in balance with identified conservation threats when reviewing the listing status and any proposed actions for candidate species. TPWD, and likely FWS, would prefer avoidance and minimization over compensation (replacement of habitat) because of concerns for stabilization and maintenance of existing habitats. However, if impacts are unavoidable, the following recommendations regarding compensatory mitigation are provided to help offset adverse impacts to this species. Mr. Brian Almon, P.E. Page Ten August 10, 2010

**Recommendation:** As stated above, TPWD recommends the PUC avoid selecting transmission line routes that would impact occupied LPC habitat. If a route that is located in occupied LPC habitat is approved by the PUC, TPWD recommends Sharyland minimize the impacts to the extent possible and provide compensatory mitigation for direct and indirect impacts that are unavoidable. Compensation efforts should be coordinated with TPWD and FWS, and reflect acreage of impact calculated based on the amount of direct impact and the degree of fragmentation caused by the project. TPWD has developed recommendations for voluntary conservation and mitigation for LPC and has provided those to the PUC. A copy of those recommendations is attached.

### Regulated and Unregulated Resources

TPWD recommends Sharyland prepare a mitigation plan to provide compensatory mitigation for those habitats where impacts from the transmission line cannot be avoided or minimized. This would include impacts to species and habitats covered under federal law (wetlands and associated habitats, threatened or endangered species) and state resource habitat types not covered by state or federal law (riparian areas, native prairies). This project is estimated to impact between 1,370 and 1,957 acres. At a minimum, TPWD recommends a replacement ratio of 1:1 for state resource habitat types.

Mitigation plans can be developed after the selection of a route when the acres of impact and the value of impacted habitats can be evaluated on-the-ground. However, mitigation costs and opportunities should be considered when selecting a route. Impact to federally-listed species and their habitats will need to be coordinated with the FWS, and impact to wetlands will need to be coordinated with the U.S. Army Corps of Engineers.

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I appreciate the opportunity to review and comment on this EA and CCN application. Please contact me at (512) 389-4579 if you have any questions.

Sincerely, Killy Bay Vations for

Julie C. Wicker Wildlife Habitat Assessment Program Wildlife Division

JCW:gg.15204

Attachments

cc: Ms. Sherry Kunka, Sharyland (w/attachment) Ms. Heather Whitlaw, FWS (w/out attachment) Mr. Omar Bocanegra, FWS (w/out attachment)

#### Protection of State-Listed Species Texas Parks and Wildlife Department Guidelines

#### **Protection of State-Listed Species**

State law prohibits any take (incidental or otherwise) of state-listed species. State-listed species may only be handled by persons possessing a Scientific Collecting Permit or a Letter of Authorization issued to relocate a species.

- Section 68.002 of the Texas Parks and Wildlife (TPW) Code states that species of fish or wildlife indigenous to Texas are endangered if listed on the United States List of Endangered Native Fish and Wildlife or the list of fish or wildlife threatened with statewide extinction as filed by the director of Texas Park and Wildlife Department. Species listed as Endangered or Threatened by the Endangered Species Act are protected by both Federal and State Law. The State of Texas also lists and protects additional species considered to be threatened with extinction within Texas.
- Animals Laws and regulations pertaining to state-listed endangered or threatened animal species are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code and Sections 65.171 - 65.176 of Title 31 of the Texas Administrative Code (TAC). State-listed animals may be found at 31 TAC §65.175 & 176.
- Plants Laws and regulations pertaining to endangered or threatened plant species are contained in Chapter 88 of the TPW Code and Sections 69.01 69.9 of the TAC. State-listed plants may be found at 31 TAC §69.8(a) & (b).

#### **Prohibitions on Take of State Listed Species**

Section 68.015 of the TPW Code states that no person may capture, trap, take, or kill, or attempt to capture, trap, take, or kill, endangered fish or wildlife.

Section 65.171 of the Texas Administrative Code states that except as otherwise provided in this subchapter or Parks and Wildlife Code, Chapters 67 or 68, no person may take, possess, propagate, transport, export, sell or offer for sale, or ship any species of fish or wildlife listed by the department as endangered or threatened.

"Take" is defined in Section 1.101(5) of the Texas Parks and Wildlife Code as:

"Take," except as otherwise provided by this code, means collect, hook, hunt, net, shoot, or snare, by any means or device, and includes an attempt to take or to pursue in order to take.

### **Penalties**

The penalties for take of state-listed species (TPW Code, Chapter 67 or 68) are:

- 1<sup>ST</sup> Offense = Class C Misdemeanor: \$25-\$500 fine
- One or more prior convictions = Class B Misdemeanor \$200-\$2,000 fine and/or up to 180 days in jail.
- Two or more prior convictions = Class A Misdemeanor \$500-\$4,000 fine and/or up to 1 year in jail.

Restitution values apply and vary by species. Specific values and a list of species may be obtained from the TPWD Wildlife Habitat Assessment Program.

# Texas Parks and Wildlife Department Recommendations for Lesser Prairie-Chicken Voluntary Conservation and Mitigation (CEQ - 40 CFR 1508.20)

**Objective:** To develop strategies, partnerships, and programs aimed at stabilizing declining lesser prairie-chicken populations and at mitigating impacts of habitat loss and degradation from development projects, such as wind energy and transmission lines.

# 1. Background

- Lesser prairie-chicken (*Tympanuchus pallidicinctus*) (LPC) populations are declining in Texas and across the species' 5-state range (CO, KS, OK, NM, TX). The current estimated occupied annual range of LPCs in Texas is presented in Figure 1.
- This decline is primarily in response to direct and indirect habitat loss. Direct habitat loss occurs when otherwise suitable habitat (such as grasslands and prairie) is converted to other land uses (such as crops, roads, and pads). Indirect habitat loss is more subtle and occurs when otherwise suitable habitat becomes "unavailable" or "not usable" by the birds because it is fragmented from other habitat (perhaps by transmission lines or roads) or something is present (i.e., has been developed) that precludes the birds from occupying it (such as wind farm development, high density oil-gas development, transmission infrastructure).
- The LPC is found in large, contiguous blocks of native rangeland, and in Texas is most common in shinnery oak and sand sagebrush habitat types. The range of the LPC has contracted significantly over the past century due to threats such as cultivation of native rangeland, improper range management, and habitat fragmentation due to oil and gas development, and other types of development.
- Since 1998, the U.S. Fish and Wildlife Service (USFWS) has classified the LPC as a candidate for listing as threatened under the Endangered Species Act (ESA), and has reviewed its status on an annual basis since that time. Candidate species are designated as such when sufficient information exists to list them under the ESA, but listing is precluded by the presence of higher priority species. Listing priority is determined by analyzing the magnitude and immediacy of threats to a species.
- In 1998 the LPC was assigned a candidate species listing priority number of 8.
  In December 2008, the USFWS changed the listing priority number to 2, since the magnitude of imminent threats to the LPC had increased to high. This change in classification was due in large part to increased magnitude of threats to the species from wind energy development and conversion of Conservation Reserve Program (CRP) lands to croplands, both which have

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increased recently in terms of ongoing activity and potential activity expected in the next few years. Based on the USFWS 2008 assessment, they found that ongoing threats to the lesser prairie-chicken have increased in terms of the amount of habitat involved and that the overall magnitude of threats to the lesser prairie-chicken throughout its range is high because the threats put the viability of the lesser prairie chicken at substantial risk. The threats are ongoing and thus, imminent. Consequently, the priority for listing the LPC was raised from 8 to 2.

 Developers whose projects may impact LPC habitat can work with TPWD to try and preclude the need to list the LPC under the ESA by voluntarily consulting with TPWD and/or the USFWS to identify avoidance, minimization, and compensation practices. Through voluntary, collaborative efforts the LPC can be conserved for future generations without resorting to formal protection under the ESA, which could result in land use restrictions in some instances.

# 2. Need and Purpose

- The LPC is a species of special conservation concern for state and federal resource agencies as well as non-governmental organizations.
- There is a need for quick response time to current and future events affecting LPC conservation among industry and resource partners.
- TPWD and industry partners can assist each other with decision-making and prioritization tools.
- One such tool is the mitigation process (Council on Environmental Quality (CEQ) 40 CFR 1508.20). The purpose of these recommendations is to develop a habitat-based programmatic mitigation plan that integrates existing and innovative conservation tools.
- This document is a mitigation plan and not a management plan for LPC. More information on management of LPC and their habitat can be found in the literature cited section under Davis et al. 2008, Hagen et al 2004, and the Texas Parks and Wildlife Lesser Prairie Chicken Management Plan.

# 3. Process

According to the CEQ regulations (40 CFR 1508.20), mitigation entails efforts to avoid or minimize impacts to a species of conservation concern or the habitats upon which it depends. When impacts cannot be avoided or minimized, compensation takes place. Compensation includes efforts to repair or restore habitat, as well as purchase, preservation, or maintenance of habitat. Using the CEQ regulations as a guide, the following recommended best management practices have been developed by mitigation category for the LPC in those areas where projects are proposed. This is not an exhaustive list of mitigation opportunities and partners will continue to explore unique voluntary mitigation

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and conservation activities that contribute to mutual goals and project considerations.

# **Recommended Best Management Practices for Development in LPC Habitat**

The extent of the impact of development on LPC leking activitiy (e.g. social structure, mating success, persistence, etc.) and the associated impacts on productivity (e.g. nesting, nest success, chick survival, etc.) is poorly understood (Arnett, et al. 2007, National Research Council 2007, Manville 2004). However, recent research documents that anthropogenic features (e.g. tall structures, buildings, roads, transmission lines, etc.) can adversely impact vital rates (e.g. nesting, nest success, leking behavior, etc) of prairie grouse, including LPC (Pruett et al. 2009, Pitman et al. 2005, Hagen et. al 2009) and greater prairie-chickens (Robel, Pers. Comm.) over long distances. High quality nesting and brood rearing habitats surrounding leks are critical to sustaining viable prairie grouse and sage grouse populations (Giesen and Connelly 1993, Hagen et al. 2004, Connelly et al. 2000). A population assessment study area should include nesting and brood rearing habitats that may extend several miles from leks. For example, greater and lesser prairie-chickens generally nest in suitable habitat within 1 to 2 miles of active leks (Hagen et al. 2004).

The following recommended best management practices are to assist in minimizing impacts of development in LPC habitat.

# Avoid

- Coordinate and communicate with TPWD to avoid transmission-related development in estimated occupied annual range of LPC habitat.
- Avoid any grassland corridors between existing large tracts of LPC habitat; these corridors are important for genetic exchange and dispersal.

# Minimize or limit

<u>Minimize impacts to lek sites</u>

Development within 1 to 2 miles of active leks of LPC is discouraged as it may have significant adverse impacts on the affected population. The magnitudes and proximal causes (e.g., noise, height of structures, movement, human activity, etc.) of those impacts on vital rates in LPC populations are areas of much needed research (Becker et al. 2009). Data accumulated through such research may improve the understanding of the buffer distances necessary to avoid or minimize adverse impacts to LPC populations.

Minimize impacts to broods

Schedule timing of activities to avoid LPC breeding, nesting, and brood rearing activities (March 01 thru July 31).

Install raptor deterrents on poles as indicated by Avian Power Line Interaction Committee (APLIC) Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006.

• Minimize impacts to general cover/foraging habitat

Place new structures in previously disturbed areas or in areas that are low quality habitat for LPC (extensive fragmentation of habitat (e.g., row-cropped agricultural lands)).

Use existing rights-of-way (ROW) where available, preferably those that do not fragment existing LPC habitat. Locating adjacent to highway or pipeline ROWs is least desirable as there are no existing vertical structures in these ROWs.

Use existing roads where available. New access roads should be designed so as not to further fragment remaining habitat.

Where livestock grazing is allowed, grazing practices should support a mixed grassland mosaic with various successional stages of vegetation. This should include the appropriate shrub components with shinnery oak, wild plum and sand sage. The LPC have different vegetation height requirements for different life stages: breeding or leking sites require low vegetation heights while nesting and wintering sites require taller, mature vegetation; brood sites require mid-succession stage vegetation.

Many species of woody vegetation are inappropriate for LPC habitat; tree species and other woody vegetation (with the exception of shinnery oak, wild plum and sand sage) should be removed or maintained at the appropriate height (see above).

Grassland corridors between existing tracts of LPC habitat should be undisturbed and maintained to allow genetic exchange and dispersal.

# <u>Restoration of degraded habitat</u>

Conversion or reseeding of cropland into native grasslands is encouraged. Use of non-native grasses or exotic grasses is strongly discouraged. The seed mix should also incorporate forbs and legumes to provide cover and food sources.

# Compensation

If avoidance is not possible and all measures for minimization have been taken, and there is still a need to compensate for LPC habitat, mitigation practices should be used. For compensatory mitigation the quality and amount of the habitat impacts should be determined by the developer and verified by TPWD and USFWS. Habitat for LPC is classified below as:

- a. High quality: little or no apparent fragmentation of intact habitat
- b. Medium quality: intact habitat exhibiting some recent disturbance activity (e.g., existing roadways)
- c. Low quality: extensive fragmentation of habitat (e.g., row-cropped agricultural lands)

The developer should determine the potential for occupancy of the proposed development site based on the guidance provided for the LPC. The developer should analyze current habitat quality and spatial configuration of area impacted by the development utilizing the following:

- a. Use recent aerial or remote imagery to determine distinct habitat patches, or boundaries, within the proposed development site.
- b. Determine the area of intact habitat lost to the project footprint or by alteration due to the edge effect.
- c. Determine edge and interior habitat metrics of the LPC habitat. Buffer non-habitat cover and fragmenting features appropriate for the LPC, in order to estimate existing edge.
  - Calculate area and acres of edge
  - Calculate area of intact patches of habitat and compare to needs of LPC

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- Assess the expected future size and quality of habitat patches for the LPC and the additional fragmenting features, and categorize into high, medium and low quality as described above.
- Determine expected future acreages of edge and interior habitats.
- Calculate the area of the remaining patches of intact habitat.
- d. Identify habitat patches that are expected to be moved to a lower habitat quality classification as a result of the proposed development.
- e. Determine potential changes in quality and spatial configuration of the LPC habitat in the proposed development sites using existing site information and the best available spatial data regarding placement of wind turbines, ancillary infrastructure or electrical transmission lines.
- f. Identify, delineate, and classify all additional features added by the proposed development that potentially fragment habitat for the LPC (e.g., roads, transmission lines, maintenance structures, etc.).

Utilizing this process should help determine the total acreage of LPC habitat impacted by the proposed project, and quality of that habitat. TPWD and USFWS will assess the likelihood of a significant reduction in the demographic and genetic viability of the local population of the LPC using the information provided by the developer. Based on this assessment, if TPWD and USFWS find that the analysis shows the likelihood of a significant reduction, the developer should consider items 1-6 below:

- 1) Consider alternative locations and development configurations to minimize fragmentation of habitat in consultation with TPWD and USFWS personnel.
- 2) Protect high quality habitat parcels identified by TPWD and USFWS that may be included as part of a plan to limit future loss of habitat for the LPC.
- 3) Identify areas for restoration of LPC habitat such as historic LPC habitat adjacent to or could be connected to existing LPC habitat through restoration practices.
- 4) Fund/perform monitoring, habitat maintenance, aerial surveys with data sharing among partners, habitat mapping, and/or research efforts such as spatial population viability analyses, pre and post development monitoring, trans-locations to sites that have habitat acquisition/easement/restoration component.

- 5) Replace or provide substitutes such as habitat acquisition, conservation easements, restoration of historic habitat, enrollment of suitable acres in Candidate Conservation Agreement with Assurances (CCAA), mitigation banking.
- 6) Payment per acre to pre-determined non-profit entity based on agreed-upon LPC to-be-determined habitat value(s). These funds can and should be used by a suitable non-profit entity for LPC conservation in Texas through agreement with TPWD. May include, but is not limited to use of funds for match in grant applications, direct payments to landowners for restoration and improvement activities, or surveys for unique resources on private lands.

Figure 1: Estimated lesser prairie-chicken annual occupied range (current as of July 20, 2009) and historic range in Texas.



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