

# 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

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

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 activity (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**

- Minimize impacts to lek sites

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.

- Restoration of degraded habitat

Conversion or reseeded 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

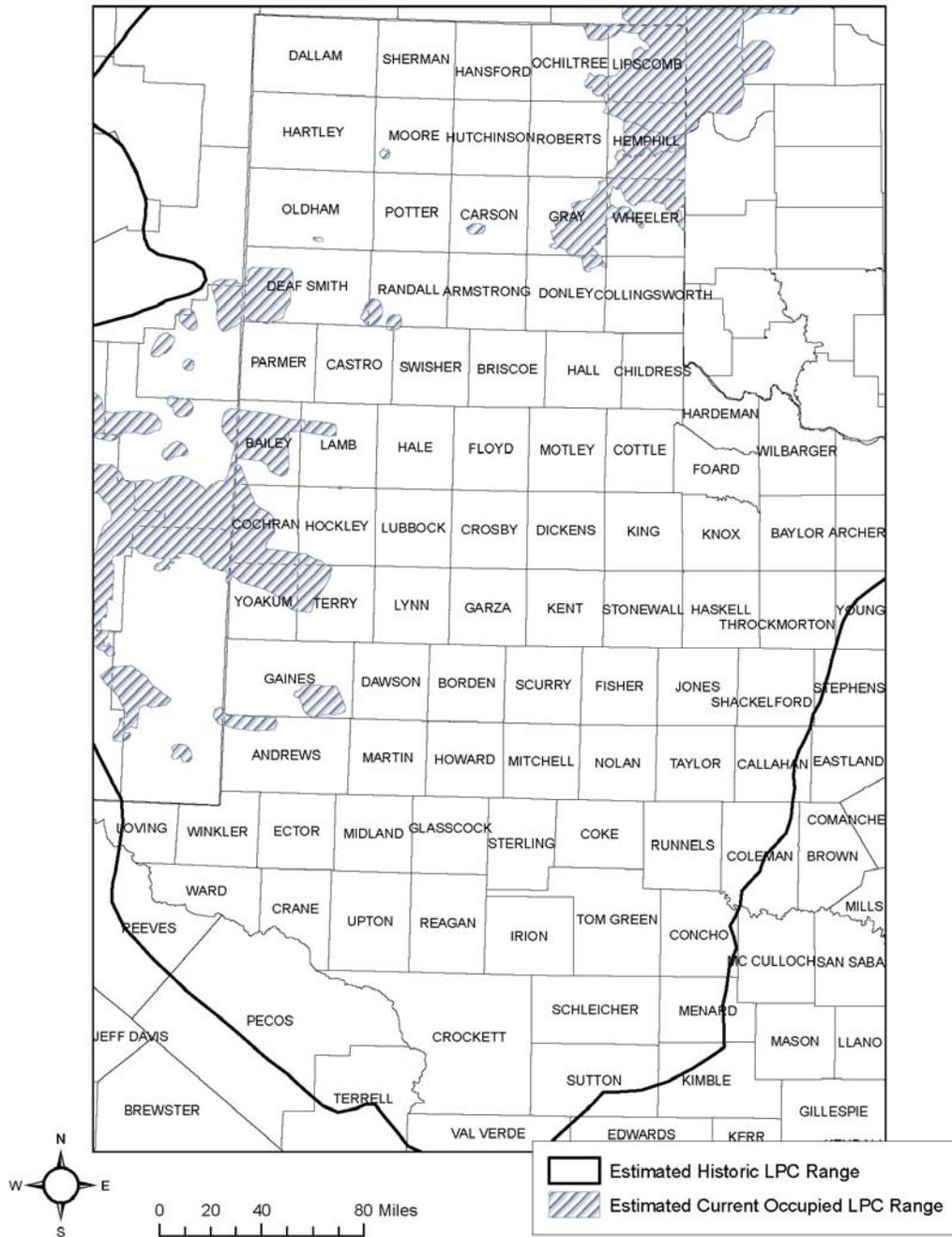
- Assess the expected future size and quality of habitat patches for the LPC and the additional fragmenting features, and categorize into high, medium and low quality as described above.
  - Determine expected future acreages of edge and interior habitats.
  - Calculate the area of the remaining patches 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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