United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services

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Arlington, Texas 76006

In Reply Refer To:
FWS/R2/ARLES
02ETAR00-2015-FC-0802

November 20, 2015

Memorandum

To: U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program, Albuquerque, NM (Attn: Nicole Jimenez)

From: Field Supervisor

Subject: Conference Opinion on the effects of the Wildlife and Sport Fisheries grants for Yoakum Dunes Wildlife Management Area on the lesser prairie-chicken

This memorandum responds to your request dated October 1, 2015, for formal conference pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), on the proposed Federal funding management and construction activities at the Yoakum Dunes Wildlife Management Area (WMA) in Cochran, Terry, and Yoakum Counties, Texas, and its effects on the lesser prairie-chicken (*Tympanuchus pallidicinctus*)(LEPC).

The following conference opinion is based on the Biological Assessment prepared by the applicant (Texas Parks and Wildlife Department (TPWD)), information provided from Wildlife and Sport Fisheries Program (WSFR), and data maintained at the Arlington, Texas, Ecological Services Field Office (ARLES).

Conference Timeline

April 10, 2014 - Final rule listing the lesser prairie-chicken as threatened was published in the Federal Register (79 FR 19973) with a 4(d) special rule.

June 24, 2015 - Meeting with TPWD and the Service's WSFR Program (participated by telephone) at the ARLES to discuss consultation process and project implementation.

July 8, 2015 - Received a first draft of the Biological Assessment for the proposed project from TPWD.

July 9, 2015 - Provided initial comments on the Biological Assessment to TPWD. Comments were directed at general content, noting the next draft would be more extensively reviewed.

July 23, 2015 - Received the second draft of the Biological Assessment from TPWD.

August 11, 2015 - Provided comments on the second draft of the Biological Assessment to TPWD and WSFR.

September 1, 2015 - The U.S District Court, Western District of Texas, issued a court order vacating the final rule for LEPC, which mooted the 4(d) special rule.

October 1, 2015 - Received a request from WSFR to initiate formal conference on proposed action at Yoakum Dunes WMA.

November 3, 2015 - Sent draft conference opinion to WSFR for comments.

November 10, 2015- Comments received from WSFR with request to finalize the document.

CONFERENCE OPINION

I. Description of Proposed Action

The proposed action is the funding of two grants from the Service's Wildlife and Sport Fisheries Program to TPWD for Yoakum Dunes Wildlife Management Area to support the lesser prairie-chicken. Yoakum Dunes WMA is an approximately 13,886-acre property located in Yoakum, Terry, and Cochran counties (Figure 1) comprised of multiple private land tracts purchased in partnership with The Nature Conservancy of Texas, The Conservation Fund, Concho Resources, Inc., and funds from the WSFR Program. The property is currently owned and managed by the TPWD.

The Yoakum Dunes WMA was created to provide a state managed refuge for the LEPC. TPWD proposes to use WSFR funds (grants W-124-M and TX W-151-D-1) to implement habitat management and restoration practices, facilitate research and demonstrations, provide public access on Yoakum Dunes WMA, and construct a headquarters complex on the property. The funding of management actions would occur over a two year period, with subsequent grants for the same or similar actions thereafter. This opinion covers the completion of the construction project and management actions occurring over the next 10 years.

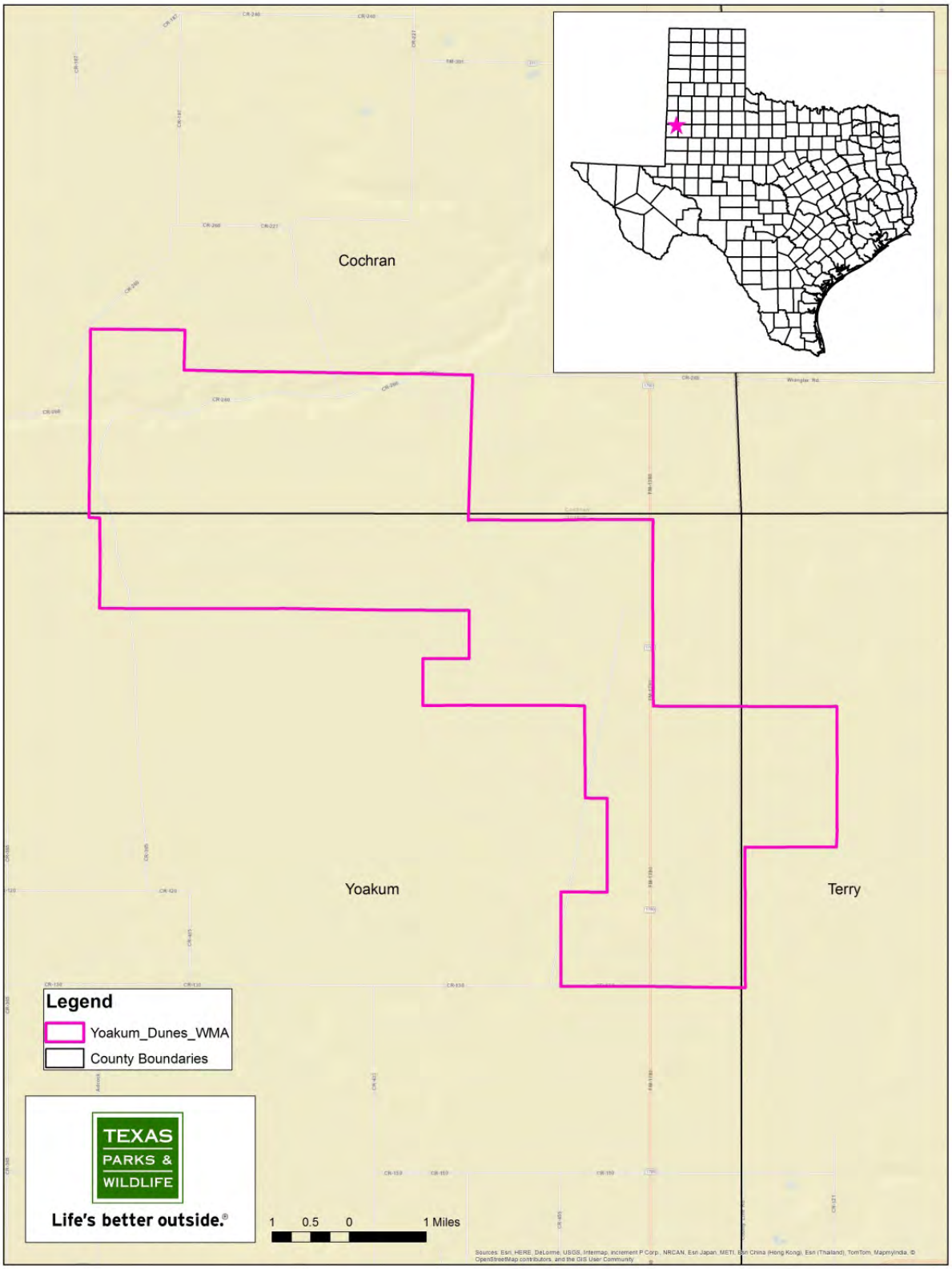

Figure 1: Location of Yoakum Dunes Wildlife Management Area in Texas.

Management Practices

The proposed management practices on the Yoakum Dunes WMA will follow conservation practices as outlined in the Natural Resources Conservation Service's Lesser Prairie-Chicken Initiative, with descriptions of each practice as follows:

- Upland Wildlife Habitat Management- Provide and manage upland habitats and connectivity within the landscape for wildlife.
- Prescribed Grazing- Managing the harvest of vegetation with grazing and/or browsing animals.
- Prescribed Fire- Controlled fire applied to a predetermined area.
- Brush Management- The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.
- Firebreaks- A permanent or temporary strip of bare or vegetated land planned to retard fire.
- Critical Area Planting- Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.
- Watering Facilities- A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and or wildlife.
- Water Well- A hole drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply.
- Fence- A constructed barrier to animals or people.
- Herbaceous Weed Control- The removal or control of herbaceous weeds including invasive, noxious and prohibited plants.
- Woody Residue Treatment- The treatment of residual woody material that is created due to management activities or natural disturbances.

Construction Project

To enable and support maintenance and management operations, and to monitor and maintain security, TPWD proposes to construct a headquarters complex on the WMA (Figure 2). Proposed construction would include one residence for the resident biologist, an office to accommodate one biologist and one wildlife technician, and a shop and equipment storage facility to accommodate maintenance, protection of assets and habitat management operations. Each building would be approximately 2,000 sq. feet in size and would require the installation of a well and septic system and construction of hardened driveways for access from FM 1780.

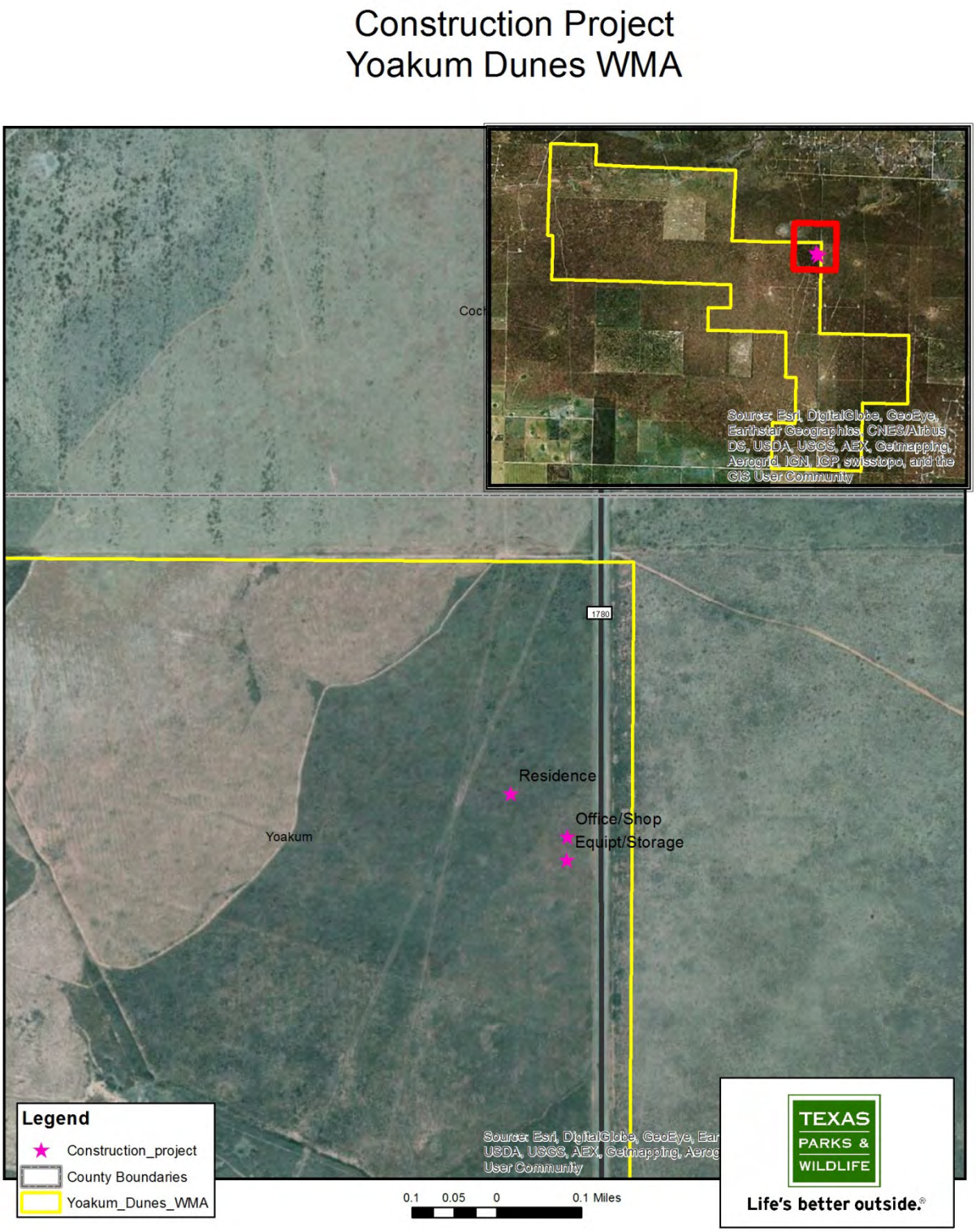

Figure 2: Proposed location of Headquarters Complex at Yoakum Dunes Wildlife Management Area.

Electric Transmission Line

Because no utilities currently exist on site, electric distribution line would need to be constructed directly adjacent to FM 1780 from the nearest existing distribution line to the proposed structures. The proposed distribution line would be approximately 1.85 miles in length.

Conservation measures

TPWD will defer implementation of conservation practices within 3 miles of known leks until all breeding and nesting activities are completed, typically March 1 through July 15. During the installation of management practices TPWD will evaluate the site's potential for soil erosion, minimize soil and vegetative disturbances, and utilize soil erosion protection measures if potential for off-site soil erosion exists. TPWD proposes to regularly monitor, evaluate, and control the presence of invasive and noxious plant species during management. TPWD will use site specific plant community reclamation strategies developed using ecological site descriptions. Native plant species will be used whenever possible to meet practice objectives with preference to forbs, grasses and grass-like plants preferred by the LEPC as well as those plants that reflect the potential of the specific ecological site to optimize LEPC habitat needs.

In addition, each management practice will have unique conservation measures including:

Upland Wildlife Habitat Management

- Utilize TPWD's Baseline Inventory and Monitoring Procedures on TPWD Lands manual to evaluate habitat conditions, on a regular basis, to ensure the management plan is adapted to meet the habitat and wildlife needs.
- This practice may be used to modify existing infrastructure to reduce or eliminate potential adverse effects resulting from those structures; including installation of wildlife escape ramps in open water sources or in open trenches/pits, and marking fence lines to prevent bird collision in critical areas.
- TPWD will ensure that plans and specifications for this practice are prepared by persons with adequate training in the fields of wildlife management, biology or range ecology.
- TPWD will establish photo points at vegetation transects and monitored 4-times (seasonally) per year.

Prescribed Grazing

- TPWD will have a Predictability Plan prepared by the Natural Resource Conservation Service prior to the implementation of grazing to address post-herbicide resting and ensure operations will continue to support LEPC during times of drought.
- Implementation of grazing management plans, to the extent practicable, will meet habitat conditions for each habitat type.

- Frequency- Grazing recurrence will occur at a rate necessary to create or maintain desired habitat structure. Grazing systems which prescribe high intensity or rapid forage removal will allow for adequate recovery time (non-grazed periods) to meet LEPC habitat needs.
- Duration- Grazing periods (days, weeks, or months) for scheduled grazing events will be designed to address limiting habitat factors as identified by the habitat assessments for the LEPC. Scheduled grazing periods will also be used to manipulate or create desired or targeted habitat conditions.
- Timing- Grazing events will be scheduled when possible to avoid potential disturbance to known breeding or lek sites.
- Intensity- The amount of forage removed (or left) during any particular grazing cycle will be in keeping with the specific life cycle requirements (i.e. nesting, lekking, brood rearing, etc.).

Prescribed Fire

- This practice standard will be designed to support other practices which will create the desired habitat conditions for the LEPC.
- Rotational burns within 3 miles of active leks will meet the following conditions:
    - No more than 1,000 acres will be burned in a given year.
    - Burning will occur during the November-February timeframe.
    - A given site will not be burned more than once in a 5-year period.
    - Burns will be conducted in a manner that results in a mosaic. When possible, burns will be conducted under optimal conditions (very light wind with high humidity) to cause the fire to move relatively slowly through the unit creating a mosaic. Mosaics with only 50% of the unit being burned are acceptable (with the exception of woody residue treatments which may require 100% burn coverage).

Brush Management

- This practice standard will be designed to support other practices which will create the desired habitat conditions for the LEPC.
- With the exception of aerial chemical applications that can be applied after 10 am during the breeding and nesting season, defer implementation of this conservation practice within 3 miles of known leks until all breeding and nesting activities are completed, typically March 1 through July 15. Use the conservation measures provided for the facilitative practice of Critical Area Planting in areas where reseeding disturbed areas is needed.
- The practice will be designed to minimize or avoid unintentional damage to non-target plants.
- Sensitive areas, such as riparian areas, wetlands/playas, leks, or habitat of other at-risk species will be identified and avoided.

- High density stands of mesquite will be chemically treated and followed up with mechanical treatments such as aeration and/or prescribed fire to remove vertical structure. For mechanical operations, large brush (>5 ft.) will be felled unless other considerations necessitate leaving them standing.
- Woody slash shall be treated if significant buildup of fuels occurs. Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk.

Firebreaks

- Disked firebreaks will be allowed to re-establish or be seeded to benefit grasses, forbs and legumes to provide bugging or brood rearing habitat.
- Operate machinery in a manner that allows wildlife to flush and escape by methods such as starting operations in the middle of field and working outward, and/or by modifying equipment with flush bar attachments.

Critical Planting

- Use site specific reclamation strategies developed using ecological site descriptions. Native species will be used whenever possible to meet practice objectives with preference to forbs, grasses and grass-like plants preferred by the LEPC as well as those plants that reflect the potential of the specific ecological site to optimize LEPC habitat needs.
- Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species.

Watering Facilities

- Design conservation practice to minimize or avoid loss of shrubs during practice installation.
- If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width.
- Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species.
- Regularly monitor the site after implementation to ensure erosion and weed issues are addressed quickly.
- Install wildlife escape ramps.
- Limit duration of construction period to the minimum practicable.

Water Well

- Install low profile pumping devices and housings and use solar pumps whenever practicable, as the power source for wells rather than electric lines. Although electrical lines are not proposed for use at wells, if site conditions dictate the need for electric lines, they will be buried.

- Place wells and infrastructure as close as possible to existing structures rather than creating new vertical structure in areas presently devoid of such features. These measures will reduce the presence of raptor perch sites and prevent habitat fragmentation by allowing continued use of suitable habitat.
- Design the water well to minimize or avoid the loss of desirable shrubs during practice installation.
- Use the conservation measures provided for the facilitative practice of Critical Area Planting in areas where reseeding disturbed areas is needed.
- Design solar panel mounting pole as short as possible to avoid use as raptor perch. Spikes or other perch deterrents will be installed on solar panels to prevent them from becoming hunting perches for raptors.

Fence

- If future research shows these conservation measures to be unnecessary, these measures may be omitted from management plans or modified. TPWD will coordinate with the Service prior to omitting any conservation measures regarding fencing from management plans.
- Alternatives to fencing will be evaluated prior to fence installation (e.g., water placement, placement of minerals, prescribed fire) to achieve the desired outcome.
- Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species.
- Shrub removal will only occur in a < 20 ft. wide swath where fences are being constructed.
- Mark fences within 0.25 miles of a known lek when construction cannot be avoided or relocated.
- Temporary electric fencing may be used in some cases to minimize potential collision fatalities.
- Permanent interior fence requires a maximum of 4 strands of wire < 44 inches high.
- Permanent exterior fencing must meet local fence laws and insurance liability clauses.
- Use the conservation measures provided for the facilitative practice of Critical Area Planting in areas where reseeding disturbed areas is needed.

Herbaceous weed control

- Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species.
- Use the conservation measures provided for the facilitative practice of Critical Area Planting in areas where reseeding disturbed areas is needed.
- Operate machinery in a manner that allows wildlife to flush and escape by methods such as starting operations in the middle of field and working outward, and/or by modify equipment with flush bar attachments.

Woody residue treatment

- Consider air quality regulations, state and local burning regulations, and safety if utilizing prescribed fire as a treatment.
- Design conservation practice to minimize or avoid loss of shrubs during practice installation.
- If access for operation and maintenance is required, limit access to one side of disturbance and limit access to one vehicle width.
- Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species.
- Mechanical treatments such as aeration and/or prescribed fire used to remove vertical structure. For mechanical operations, large brush (>5 ft.) will be felled unless other considerations necessitate leaving them standing.
- Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk.

Construction Project

- If construction during the March 1 through July 15 timeframe is unavoidable, construction and maintenance activities, schedule daily activities to avoid the time from 3:00 am and 9:00 am.
- During the March 1-July 15 breeding and nesting season, minimize traffic volume, control vehicle speed, control access, and avoid off-road travel associated with the construction project.

Electric Transmission Line

The electric service provider will implement conservation measures required by the LEPC Range-wide Conservation Plan in which the electric service provider is enrolled and obtaining authorization for the impacts though the Range-wide Conservation Plan for the portion of the project not on TPWD property. The approximately 0.35 mi section of the distribution line located on Yoakum Dunes WMA will be buried.

Action Area

Lesser prairie-chickens utilize a “lek” mating strategy, where males gather for courtship display during the breeding season. Nesting and brooding typically takes place within 3 miles of lek locations, which should be managed for conservation of the species (Woodward *et al.* 2001, p. 272). Based on the availability of lekking habitat at the WMA, potential direct and indirect effects of the proposed action may extend approximately 3 miles from the action. For these reasons, the action area for the proposed project includes the entire WMA, the right-of-way for the new electric transmission line, and a 3-mile buffer extending out from these areas.

The action area lies largely within a Focal Area in the LEPC Range-wide Conservation Plan as mapped in the Southern Great Plains Crucial Habitat Assessment Tool (CHAT) (http://kars.ku.edu/geodata/maps/sgpchat/) with 53.2% of the WMA and surrounding buffer occurring in CHAT Category 1 habitat, 36.8% in CHAT Category 3, and 10% in CHAT Category 4 (Figure 3). The CHAT classifies habitat as: Category 1, focal areas for LEPC conservation; Category 3 - modeled habitat; Category 4 – modeled non-habitat.

The area outside of the WMA is composed of private property primarily used for agriculture. The 2,738-acre Tomahawk Conservation Bank is located on the WMA southern border, and intermittent oil and natural gas activities are established to the north and southeast. Few homes occur near the WMA with FM 1780 as the only developed road adjacent to the property. The nearest town, Sundown located in Hockley County, is approximately 8.7 miles northeast of the proposed Yoakum Dunes headquarters complex.

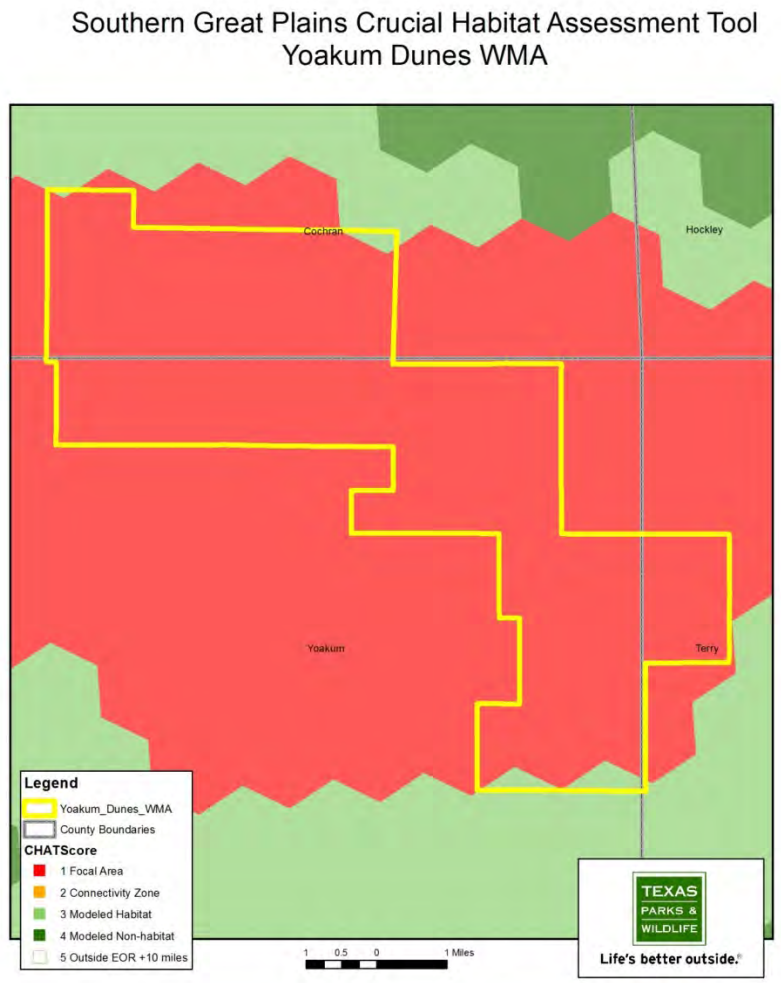

Figure 3: Location of Yoakum Dunes Wildlife Management Area with respect to the Southern Great Plains Crucial Habitat Assessment Tool (CHAT).

II. STATUS OF SPECIES

The only federally-listed species known to occur within the action area is the endangered whooping crane (*Grus americana*). The whooping crane is transient with the action area, occurring infrequently during migration. Stopover habitat for cranes does not occur on the WMA. For these reasons, and the overall conservation nature of the actions to resident species, the proposed project is expected to have no effect on the whooping crane. Therefore, this species will not be considered further this opinion.

The LEPC was listed as a threatened species under the Endangered Species Act on April 10, 2014 (79 FR 19974). No critical habitat has been designated for this species. At the time of listing, a 4(d) special rule was published to allow certain activities to occur which would be exempted from take prohibitions, including the voluntary enrollment in the Lesser Prairie-chicken Range-wide Conservation Plan (79 FR 20073). The 4(d) rule would provide the regulatory relief otherwise obtainable only through the permit process.

On September 1, 2015, the U.S. District Court for the western District of Texas, issued a court order vacating the final listing rule, which also nullified the 4(d) special rule. At the time this conference opinion was developed, the species had not yet been removed from the list of threatened and endangered species by a rulemaking. However, the Service believes the best approach to the current situation is to confer on the action as proposed, and address any future decisions affecting the status of the species as appropriate under the Act.

Species Description

The LEPC is a species of prairie grouse endemic to the southern high plains of the United States, commonly recognized for its feathered feet, stout build, ground-dwelling habit, and lek mating behavior. Plumage is characterized by a cryptic pattern of alternating brown and buff-colored barring, and is similar in mating behavior and appearance, although somewhat lighter in color, to the greater prairie-chicken (*T. cupido pinnatus).* Males have long tufts of feathers on the sides of the neck (pinnae) that are erected during courtship displays. Pinnae are smaller and less prominent in females. Males also display brilliant yellow supraorbital eyecombs and dull reddish esophageal air sacs during courtship displays (Copelin 1963, p. 12; Sutton 1977, entire; Johnsgard 1983, p. 318). Female LEPCs are generally smaller than the males. Adult body length varies from 38 to 41 centimeters (cm) (15 to 16 inches (in)) (Johnsgard 1973, p. 275; Johnsgard 1983, p. 318), and body mass varies from 734 to 813 grams (g) (1.6 to 1.8 pounds (lbs)) for males and 628 to 772 g (1.4 to 1.7 lbs) for females (Giesen 1998, p. 14).

The preferred habitat of the LEPC is native short- and mixed-grass prairies having a shrub component dominated by *Artemesia filifolia* (sand sagebrush) or *Quercus havardii* (shinnery oak) (hereafter described as native rangeland) (Donaldson 1969, pp. 56, 62; Taylor and Guthery

1980, p. 6; Giesen 1998, pp. 3-4). Small shrubs are important for summer shade (Copelin 1963, p. 37; Donaldson 1969, pp. 44-45, 62), winter protection, and as supplemental foods (Johnsgard 1979, p. 112). Landscapes supporting less than 63 percent native rangeland appear incapable of supporting self-sustaining LEPC populations (Crawford and Bolen 1976, p. 102).

LEPCs are polygynous and exhibit a lek mating system where males traditionally gather to conduct a communal, competitive courtship display using their specialized plumage and vocalizations to attract females for mating. Males exhibit strong site fidelity to their display grounds (Copelin 1963, pp. 29-30; Hoffman 1963, p. 731; Campbell 1972, pp. 698-699) whereas females, due to their tendency to nest within 2.5 kilometers (km) (1.5 miles (mi)) of a lek (Giesen 1994, p. 97), also may display fidelity to nesting areas but the degree of fidelity is not clearly established (Schroeder and Robb 1993, p. 292). Haukos and Smith (1999, p. 418) observed that female LEPCs are more likely to visit older, traditionally used lek sites than temporary, nontraditional lek sites (those used for no more than 2 years). It has been reported by some publications that while breeding activities may center on leks and nesting/brooding activities are focused on habitats typically within 3.2 km (2 mi) of the lek, changes in habitat at larger landscape scales seemingly affects population trends (Woodward *et al*. 2001, pg. 272; Fuhlendorf *et al*. 2002, p. 617). Thus, a 4.8 (km) (3 mi) radius around leks would more adequately capture the entirety of seasonal habitat use by the LEPC.

Leks are normally located on the tops of wind-swept ridges, exposed knolls, sparsely vegetated dunes, and similar features in areas having low vegetation height or bare soil and enhanced visibility of the surrounding area (Copelin 1963, p. 26; Jones 1963a, p. 771; Taylor and Guthery 1980, p. 8). Females arrive at the lek in early spring after the males begin displaying, with peak hen attendance at leks typically occurring in early to mid-April (Copelin 1963, p. 26; Hoffman 1963, p. 730; Crawford and Bolen 1975, p. 81 O; Davis *et al.* 1979, p. 84; Merchant 1982, p. 41; Haukos 1988, p. 49). Within 1 to 2 weeks of successful mating, the hen will select a nest site, normally within 1 to 3 km (0.6 to 2 mi) of a lek (Copelin 1963, p. 44; Giesen 1994, p. 97), construct a nest, and lay a clutch of 8 to 14 eggs (Bent 1932, p. 282; Copelin 1963, p. 34; Merchant 1982, p. 44; Fields 2004, pp. 88, 115- 116; Hagen and Giesen 2005, unpaginated; Pitman *et al.* 2006, p. 26). Nesting is generally initiated in mid-April and concludes in late May (Copelin 1963, p. 35; Snyder 1967, p. 124; Merchant 1982, p. 42; Haukos 1988, pp. 7-8). LEPCs forage during the day, usually during the early morning and late afternoon, and roost at night (Jones 1964, p. 69).

Diet is very diverse, primarily consisting of insects, seeds, leaves, and buds and varies by age, location, and season (Giesen 1998, p. 4). They forage on the ground and within the vegetation layer (Jones 1963b, p. 22) and are known to consume a variety of invertebrate and plant materials. Generally, chicks and young juveniles tend to forage almost exclusively on insects, such as grasshoppers and beetles, and other animal matter while adults tend to consume a higher

percentage of vegetative material (Giesen 1998, p. 4). Nests generally consist of bowl-shaped depressions in the soil (Giesen 1998, p. 9) and are lined with dried grasses, leaves, and feathers. Adequate herbaceous cover, including residual cover from the previous growing season, is an important factor influencing nest success, primarily by providing concealment of the nest (Suminski 1977, p. 32; Riley 1978, p. 36; Riley *et al.* 1992, p. 386; Giesen 1998, p. 9). LEPCs have a relatively short lifespan and high annual mortality. Campbell (1972, p. 694) estimated a 5-year maximum lifespan, and a high annual mortality rate of approximately 65% (Audubon 2015, online).

Status and Distribution

Prior to the description by Ridgeway in 1885, most observers did not differentiate between the LEPC and the greater prairie-chicken. Consequently, estimating historical abundance and occupied range is difficult. Historically, the LEPC is known to have occupied native rangeland in portions of Colorado, Kansas, Oklahoma, Texas, and New Mexico. Records also indicate occurrence in Nebraska based on at least four specimens known to have been collected near Danbury in Red Willow County during the 1920s (Sharpe 1968, p. 50); however, none have been observed in Nebraska since that time.

Johnsgard (2002, p. 32) estimated the maximum historical range of the LEPC to have encompassed some 260,000 to 388,500 sq km (100,000 to 150,000 sq mi), with about two-thirds of the historical range occurring in Texas. Taylor and Guthery (1980, p. 1, based on Aldrich 1963, p. 537) estimated that, by the 1880s, the area occupied by LEPC was about 358,000 sq km (138,225 sq mi), and, by 1969, they estimated the occupied range had declined to roughly 125,000 sq km (48,263 sq mi) due to widespread conversion of native prairie to cultivated cropland. Taylor and Guthery (1980, p. 4) estimated that, by 1980, the occupied range encompassed only 27,300 sq km (10,541 sq mi), representing a 90 to 93 percent reduction in occupied range since pre-European settlement and a 92 percent reduction in the occupied range since the 1880s.

In 2007, cooperative mapping efforts by species experts from five State Fish and Wildlife Agencies, in cooperation with the Playa Lakes Joint Venture, re-estimated the maximum historical and occupied ranges. Their estimated total maximum historically occupied range is approximately 466,998 sq km (180,309 sq mi). The approximate occupied range, by State, based on this cooperative mapping effort was 4,216 sq km (1,628 sq mi) in Colorado; 29,130 sq km (11,247 sq mi) in Kansas; 8,570 sq km (3,309 sq mi) in New Mexico; 10,969 sq km (4,235 sq mi) in Oklahoma; and 12,126 sq km (4,682 sq mi) in Texas. Since 2007, the occupied and historical range in Colorado and the occupied range in Kansas have been adjusted to reflect new information. The currently occupied range in Colorado is now estimated to be 4,456 sq km (1,720 sq mi), and, in Kansas, the LEPC is now thought to occupy about 34,479 sq km (13,312

sq mi). The approximate area of occupied LEPC habitat across the entire 5-state range in 2014 was 70,600 sq km (27,258 sq mi)(McDonald *et al.* 2014).

The overall distribution of LEPC within all States except Kansas has been reduced since European settlement, and the species is generally restricted to variously-sized habitat patches within a highly fragmented landscape (Taylor and Guthery 1980, pp. 2- 5) or areas with significant Conservation Reserve Program (CRP) enrollments that were initially seeded with native grasses (Rodgers and Hoffman 2005, pp. 122-123). The species has expanded north and east in Kansas, even near Nebraska; this expansion in the population is being monitored by the Kansas Department of Wildlife and Parks. The estimated current occupied range, based on cooperative mapping efforts described above, and as derived from calculations of the area of each mapped polygon using geographical information software, represents about an 84 percent reduction in overall occupied range since pre-European settlement.

In the spring of 2012, the States, in conjunction with the Western Association of Fish and Wildlife Agencies (WAFWA), implemented a range-wide sampling framework and survey methodology using small aircraft (McDonald *et al.* 2015). This aerial survey protocol was developed to provide a more consistent approach for detecting range-wide trends in LEPC population abundance across the occupied range. The goal of this survey was to estimate the abundance of active leks and provide information that could be used to detect trends in lek abundance over time. The results of the spring 2012 aerial survey indicated a range-wide population estimate of 37,107 birds and 3,427 leks.

In 2013, the surveys were repeated and results indicate a range-wide population estimate of 19,643 birds and 1,856 leks (McDonald *et al.* 2015). Recent aerial surveys utilizing these protocols indicate an estimated total population size of 23,363 in 2014 and 29,162 in 2015 (McDonald *et al.* 2015)(Table 1).

WAFWA's Range-wide Plan has established a mechanism to enroll private or state lands to produce conservation benefits to the LEPC by implementing practices that will improve habitat quality and quantity over time (VanPelt *et al.* 2015). In their March 2015 report, it states that an abundance of spring rainfall, along with ongoing efforts associated with the LEPC Range-wide Conservation Plan, has helped increase the LEPC's range-wide population to an estimated 29,162 birds (McDonald *et al*. 2015). Within the Shinnery Oak region (where the action area is located) the population is estimated to be 814 birds. The Shinnery Oak ecoregion was the only ecoregion with a continued downward population trend (Table 1).

Table 1. Range-wide and Shinnery Oak ecoregion population estimates for LEPC from aerial surveys, 2012-2015 (from McDonald *et al.* 2015).

	2012	2013	2014	2015
Total Rangewide Population	37,107	19,643	23,363	29,162
Shinnery Oak ecoregion (includes Action Area)	3,886	1,999	1,386	814

Reasons for Decline and Threats to Survival

The range of the LEPC has been reduced by an estimated 84 percent primarily due to habitat loss and fragmentation resulting from a variety of mechanisms, such as conversion of native prairie and grassland to cropland; improper grazing, haying, and herbicide spraying that reduces LEPC habitat quality; long-term fire suppression and encroachment by invasive woody plants; habitat fragmentation caused by energy development and petroleum production and associated vertical infrastructure such as turbines, towers, and utility lines; and prolonged drought.

Vertical structures such as power poles, transmission lines, etc. historically were not common in LEPC habitat or on or near lek sites. The presence of those structures now provides perches for hawks and owls to sit, observe, and hunt LEPCs making loss of chicks and adults much more likely than before. Such structures within habitat are generally avoided by LEPC, resulting in habitat loss and fragmentation. Additionally, due to decreases in land parcel size over time, more fencing is needed to delineate property boundaries creating a network of low perches for predators across the landscape that historically did not occur at the scale that it does today. Grazing, haying and mowing can contribute to increased predation as well by reducing grass height. LEPCs have historically relied upon prairie grasses for food and cover. If these activities are applied at an inappropriate frequency, intensity, time, or duration across a larger landscape, the collective effect of loss of cover (to hide from predators), thermal cover (to stay warm in the winter), and reduced food sources can result in significant harm to local populations.

This habitat loss is a significant threat to the LEPC because the species requires large parcels of intact native grassland and shrubland to maintain self-sustaining populations. Due to its reduced population size and ongoing habitat loss and degradation, the LEPC's resiliency to recover from adverse effects resulting from present and future impacts and persist in the long term is compromised.

III. ENVIRONMENTAL BASELINE

Description of Action Area

The Yoakum Dunes WMA is located in the High Plains ecoregion of Texas. The High Plains ecoregion is generally higher and drier than the Central Great Plains to the east, and in contrast to the mostly grassland or grazing land of the Northwestern Great Plains to the north. Much of the High Plains is characterized by smooth or slightly irregular plains with a high percentage of cropland. Natural vegetation is typically grama-buffalograss with a narrow band of sand-shinnery running east to west across the northern halves of both counties. Much of the surface water in this ecoregion occurs in seasonal playas that form in small depressions, many of which have been hydrologically modified for cropland or feedlot uses. The elevation is approximately 1,100 meters (3,609 ft) above sea level, the site slopes from northwest to southeast, and a branch of Sulphur Draw crosses the northwest corner of the WMA property.

Based on the Ecological Mapping Systems of Texas vegetation data, Yoakum Dunes WMA is approximately 43% Sandy Shinnery Shrubland, 31% Sandy Deciduous Shrubland, and 15% Sandhill Shinnery Duneland. The remainder of the WMA is made up of various other ecological systems (Figure 4). The WMA is located in the Shinnery Oak Prairie ecoregion delineated in the LEPC Range-wide Conservation Plan and is located almost entirely within a Focal Area as mapped in the Southern Great Plains CHAT.

Status of Species within Action Area

Annual surveys to determine population trends of Texas Panhandle LEPCs were initiated in 1952 on two study areas; one on a 100,000-acre area in Hemphill County and another on a 6,500-acre area in Wheeler County. Survey efforts were expanded in 1986 to locate leks throughout previously occupied LEPC range in the Panhandle. Survey methodology was modified in 1997 by establishing study areas on private land at various locations to allow monitoring of the major populations through subsampling efforts. The purpose of the study area methodology was to intensively collect demographic data in an area as a subsample of the larger regional population. Data collection efforts on study areas are divided among all leks within the area. Study areas in the Southwest Panhandle included a 12,378-acre area in Yoakum County, which was initiated in 1999 and encompassed what is now the Yoakum Dunes WMA (Table 2.).

In addition to data collected annually on the established study areas, efforts to locate additional leks through driving routes and listening points continued as time, personnel and resources allowed. Lek sites documented since 1999 on the properties that now make up Yoakum Dunes WMA have been generally distributed throughout the WMA. Surveys performed at the action area in April 2015 revealed two leks on the property, one with 7 birds and the other with 2 birds.

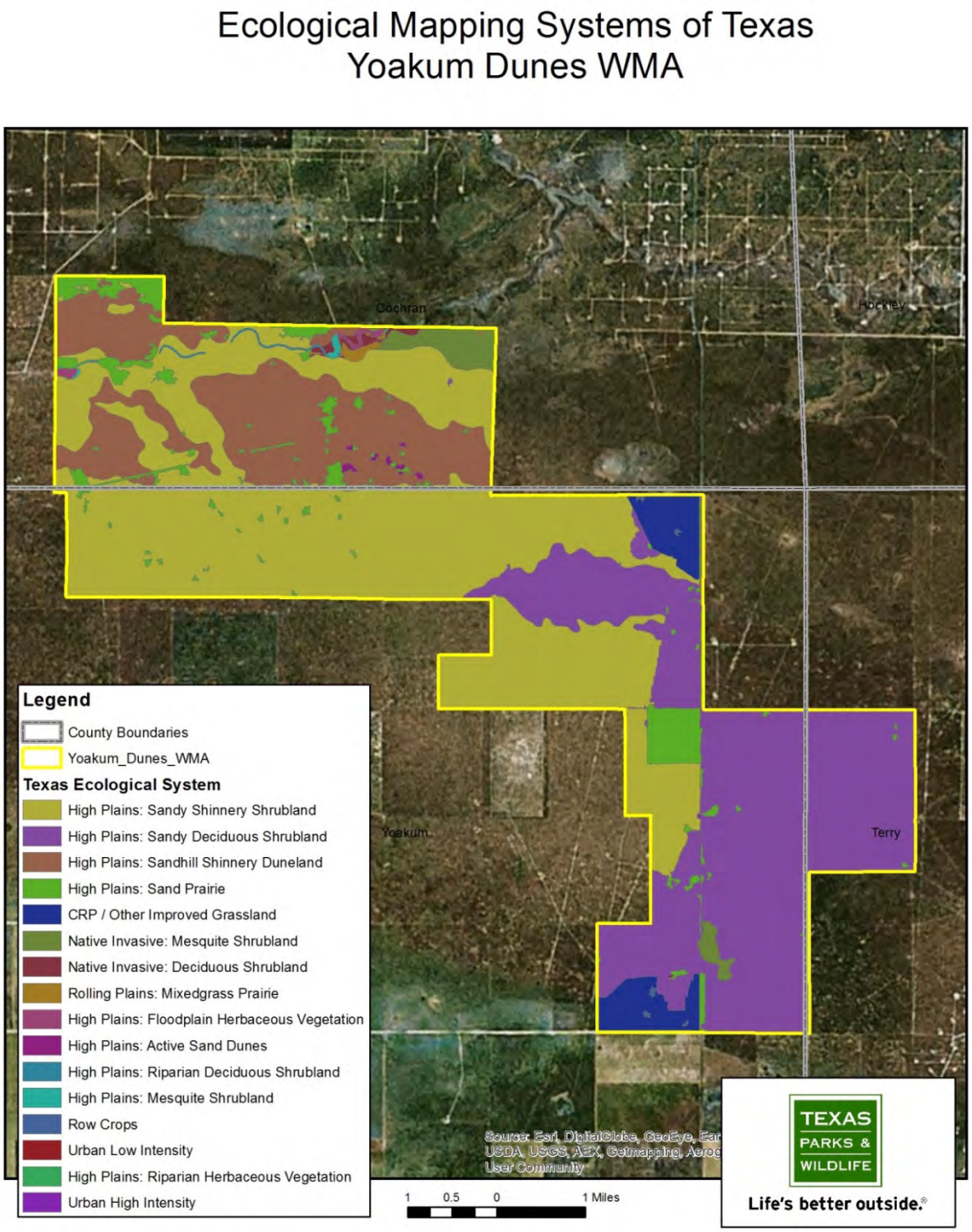

Figure 4: Ecological site descriptions occurring on Yoakum Dunes Wildlife Management Area.

Table 2. Yoakum County Study Area (1999-2014) Population Data

Year	Survey Ac	No. leks	No. males	No. females	No. unknowns	Males /lek	LEP C /lek	Leks /mi2	Ac/lek	LEPC/ mi²	% Δ LEPC / mi²	%Δ Lek/ mi²
1999	**12,378**	**6**	**26**	**2**	**15**	**4.3**	**7.2**	**0.31**	**2,063**	**2.223299**	**N/A**	**N/A**
2000	**12,378**	**8**	**44**	**6**	**57**	**5.5**	**13.4**	**0.41**	**1,547**	**5.532396**	**149%**	**33%**
2001	**12,378**	**9**	**57**	**1**	**21**	**6.3**	**8.8**	**0.47**	**1,375**	**4.084666**	**-26%**	**13%**
2002	**12,378**	**8**	**59**	**3**	**22**	**7.4**	**10.5**	**0.41**	**1,547**	**4.34319**	**6%**	**-11%**
2003	**12,378**	**11**	**81**	**11**	**40**	**7.4**	**12.0**	**0.57**	**1,125**	**6.825012**	**57%**	**38%**
2004	**12,378**	**9**	**54**	**0**	**32**	**6.0**	**9.6**	**0.47**	**1,375**	**4.446599**	**-35%**	**-18%**
2005	**12,378**	**15**	**109**	**2**	**62**	**7.3**	**11.5**	**0.78**	**825**	**8.944902**	**101%**	**67%**
2006	**12,378**	**22**	**173**	**6**	**116**	**7.9**	**13.4**	**1.14**	**563**	**15.25287**	**71%**	**47%**
2007	**12,378**	**18**	**98**	**2**	**70**	**5.4**	**9.4**	**0.93**	**688**	**8.789788**	**-42%**	**-18%**
2008	**12,378**	**19**	**65**	**5**	**79**	**3.4**	**7.8**	**0.98**	**651**	**7.703991**	**-12%**	**6%**
2009	**12,378**	**14**	**63**	**5**	**21**	**4.5**	**6.4**	**0.72**	**884**	**4.601713**	**-40%**	**-26%**
2010	**12,378**	**9**	**54**	**3**	**8**	**6.0**	**7.2**	**0.47**	**1,375**	**3.360801**	**-27%**	**-36%**
2011	**12,378**	**8**	**47**	**18**	**4**	**5.9**	**8.6**	**0.41**	**1,547**	**3.56762**	**6%**	**-11%**
2012	**12,378**	**6**	**23**	**0**	**9**	**3.8**	**5.3**	**0.31**	**2,063**	**1.654548**	**-54%**	**-25%**
2013	**16,189**	**5**	**11**	**0**	**2**	**2.2**	**2.6**	**0.20**	**3,238**	**0.513929**	**-69%**	**-36%**
2014	**18,291**	**3**	**13**	**3**	**0**	**4.3**	**5.3**	**0.10**	**6,097**	**0.559838**	**9%**	**-47%**

2015 – numbers not available

IV. EFFECTS OF THE ACTION

Under section 7(a)(2) "effects of the action" refers to the direct and indirect effects of an action on a species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action. The effects of the proposed action are added to the environmental baseline to determine the future baseline that serves as the basis for the determination in this conference opinion. The impacts discussed below are the Service's evaluation of the direct and indirect effects of the proposed action. Indirect effects are those caused by the proposed action, occur later in time, but are still reasonably certain to occur (50 CFR 402.02).

A. Direct Effects

The potential direct effects associated with the different practices proposed to manage the Yoakum Dunes WMA, as well as the new construction project are discussed below. This discussion includes possible adverse effects to the species, followed by consideration of the proposed conservation measures as appropriate. Not all effects associated with proposed management actions would result in incidental take. The extent that adverse effects result in incidental take requires consideration of impact size and duration, and is analyzed and quantified in the Incidental Take Statement of this opinion.

Grazing- Physical disturbance may be realized from livestock grazing or forage removal (short-term negative grazing impacts may temporarily cause birds to leave the immediate area or reduce availability of nesting cover). The reduction in cover would create adverse impacts by decreasing nest success and possibly through higher exposure to birds of prey. Additionally, injury or damage to nests and/or eggs is possible as a result of trampling. Disturbance may produce a flushing response of individual birds and effects may range from a temporary startle response to injury or subsequent mortality if the response occurs in the presence of a chance/opportunistic predator. While these direct effects are likely to be rare, occurrence is expected to result in take of individuals.

Prescribed Fire- Accidental injury or mortality of nesting hens, eggs, or brood may occur if the burn is conducted during the nesting or brood-rearing seasons. However, due to the conservation measures above, burning will not take place during the nesting and brooding seasons. In addition, a temporary reduction of cover for LEPC may occur for one to three years or longer based on precipitation after fire treatment. Adverse effects from the temporary reduction of cover are expected due to the temporary fragmentation (e.g., decreased nest success and brood survival) of habitat and increased exposure to predators. Such effects may result in incidental take depending on the size of the area burned.

Brush Management- Short-term effects from brush management may result from visual and physical disturbance (including noise) during implementation. Temporary soil and vegetation disturbances resulting from implementation and increased potential for invasive plants on disturbed areas are possible. A potential for increased fire hazard from equipment during implementation or if slash remains on-site may exist. There may be an increased potential for soil erosion, accidental LEPC injury or mortality during implementation, and potential for damage to non-target shrub species during implementation. Due to the limited area for implementation of these practices and implementation of conservation measures, adverse effects would be unlikely.

Firebreaks- Short-term physical disturbances, such as disking or mowing, may cause LEPC to leave the area temporarily. Disked or mowed firebreaks disturb soil and vegetation and result in

a temporary reduction of cover over a small area. Soil disturbance may also allow invasive plants to grow and alter the community structure.

Critical Area Planting- Short-term and occasional physical disturbance (including noise); temporary soil and vegetation disturbances increase the potential for invasive plant establishment.

Watering Facility - Short-term and occasional physical disturbance (including noise) and temporary soil and vegetation disturbance during installation is possible. This action may also promote increased movement by livestock and thus increase chance of physical disturbance to individuals and nests. There may also be an increased potential for invasive plants in the disturbed soil post installation. Although mortality could occur due to drowning, the addition of exit ramps (see Conservation Measures above) makes mortality very unlikely.

Water Well- Adverse impacts may result from digging or drilling the water well during reproductive and nesting periods. These impacts could include disturbance of breeding activities on lek sites, disturbance of nesting hens, or physical destruction of nests and eggs. High profile pumping devices, housing structures, and electric poles/lines could provide vertical structure for raptor perch sites. These potential perch sites could contribute to habitat fragmentation by causing LEPC to avoid areas around the structures that what would otherwise provide suitable habitat.

Fence- Noise and physical disturbance of LEPC may occur during installation. An increase in invasive plants may be observed following fence placement as well as incidental damage or removal of desirable shrub during or prior to implementation. Fences may cause accidental mortality by way of collisions by flying into fence line and potentially altering predator routes during and after implementation.

Herbaceous Weed Control- Herbaceous weed control may cause temporary physical disturbance (including noise), soil and vegetation disturbance and increased potential for invasive plants. Destruction of nesting habitat and loss of nests and/or young may occur when mechanical treatment coincides with nesting season. After implementation a temporary reduction of forage and prey availability for young birds is possible, but this not likely to result in incidental take.

Woody Residue Treatment- Proposed woody residue treatment is prescribed fire and aeration; this entails a tractor pulling a large cylinder covered with large spikes across the landscape. Effects from prescribed fire are described above. Short-term and occasional physical disturbance (including noise) and temporary soil and vegetation disturbance during implementation is possible. This treatment will increase potential for invasive plants in the disturbed soil post installation. Direct mortality due to removal methods and decreased vegetative cover (as described above under Prescribed Fire) in the time period immediately following implementation may occur, but is extremely unlikely under the proposed action as designed.

Construction of headquarters complex- TPWD proposes to build a three-building headquarters complex on the WMA to support management activities. The construction project would be located on approximately 1.8 acres (4,046.9 m^2) in the northeast corner of the site approximately 150 to 500 feet (45.7 to 152.4 meters) from the edge of the FM 1780 right of way. The site of the complex is expected to have limited LEPC use due to its proximity to the existing FM 1780. Thus, no direct effects would occur for the reasons discussed below. The associated power line would be approximately 1.85 mi long and would begin on the east side of FM 1780, cross to the west side of the roadway, and continue south along the west side of FM 1780 to the proposed structures on the WMA (Figure 5). The entire new power line would be constructed utilizing the conservation measures with the LEPC Range-wide Conservation Plan. Therefore, direct effects associated with the powerline are covered under the Range-wide Conservation Plan.

Existing infrastructure (Figure 6) is known to affect LEPC to a certain distance from the structure. These impact distances, or buffers, are summarized in the Service's *Guidelines for the Establishment, Management, and operation of Permanent LEPC Mitigation Lands*. New impacts and associated impact buffers occurring entirely within existing impact buffers would not be expected to result in additional impacts to the species. Therefore, siting new impacts where those impact buffers overlap pre-existing impact buffers is an avoidance/ minimization strategy for the LEPC. The new buildings proposed on Yoakum Dunes WMA and their 200 meter (656 feet) impact buffers would be entirely within the existing 850-meter (2788.7 feet) impact buffer of the existing roadway. Additionally, the structures would be located in an area that was historically cultivated and previously classified as CRP land (Figure 4), indicating the quality of habitat for the LEPC is less than the surrounding rangeland.

Summary of Direct Effects

The effects of proposed activities consist of a) physical disturbance to the species or habitat, b) a reduction (whether short- or long-term) in cover, and/or c) the possibility for an increase in the establishment of invasive plant species. The greatest physical disturbance would be caused by prescribed grazing, brush management, and the headquarters complex construction. Effects due to the headquarters complex are considered negligible due to the lower quality habitat at the site and the existing impacts from FM 1780. Prescribed grazing reduces cover and forage adversely affecting nest success, may cause direct mortality from trampling, and may flush birds potentially increasing predation. Prescribed fire temporarily reduces cover for one to three years, adversely affecting nest success and increasing exposure to predators. Brush management (including herbaceous weed control, and woody residue treatment) creates soil disturbance that could lead to an increase in invasive plant species, decreases cover and forage temporarily, and may cause direct injury or mortality if applied over large areas. Fence installation creates a strike hazard that may result in injury or mortality of birds depending on extent of fence. Minor soil disturbance and erosion is expected from firebreak creation, critical area planting, and water facility installation.

B. Indirect Effects

The aforementioned management practices may cause LEPCs to alter their habitat selection in the short-term due to physical disturbance during initial implementation. However, proposed activities and the associated conservation measures are in place for advancing the conservation of the species and its habitat, and will largely be beneficial to LEPCs in the long-term. Potential indirect effects extending beyond the fenced boundary of the WMA to approximately 3-miles would be similar to those within the boundary, but to a lesser degree. Due in large part to the conservation measures implemented, incidental take of LEPC is not expected to occur outside of the WMA boundaries. The beneficial effects of proposed actions are discussed in greater detail in the following section.

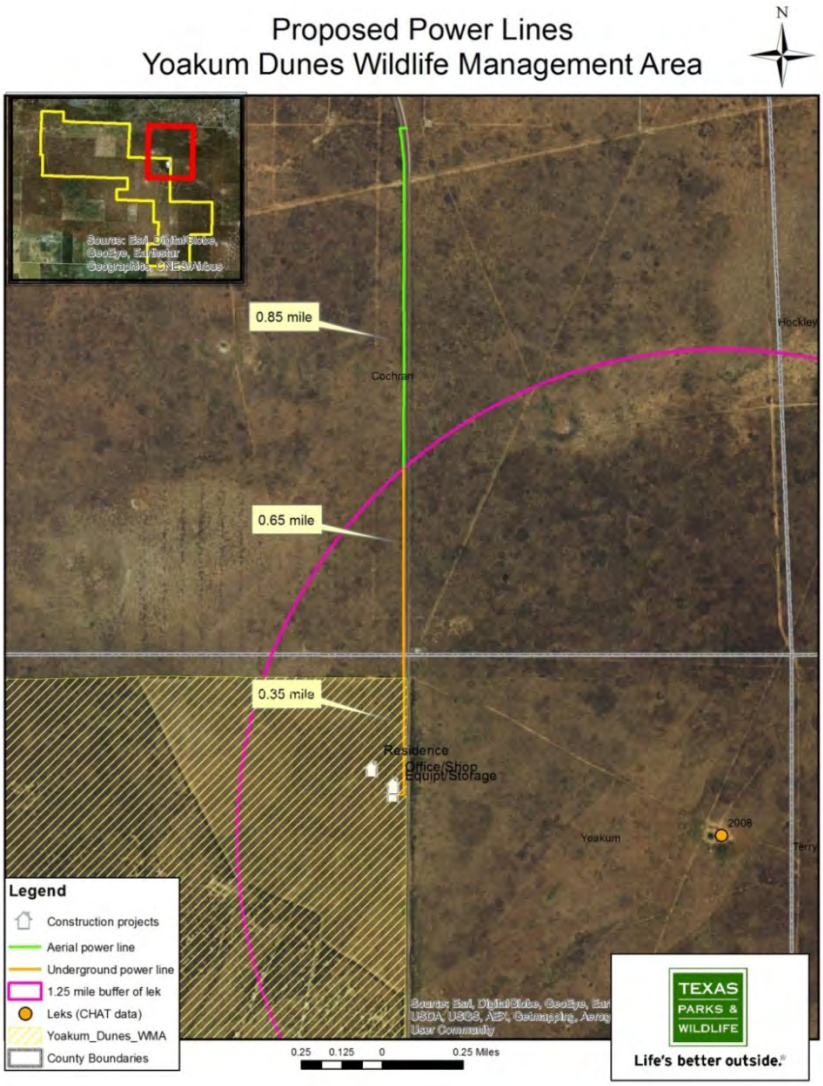

Figure 5: Location of proposed underground electric distribution line to provide power to Yoakum Dunes Wildlife Management Area.

Infrastructure on Yoakum Dunes WMA

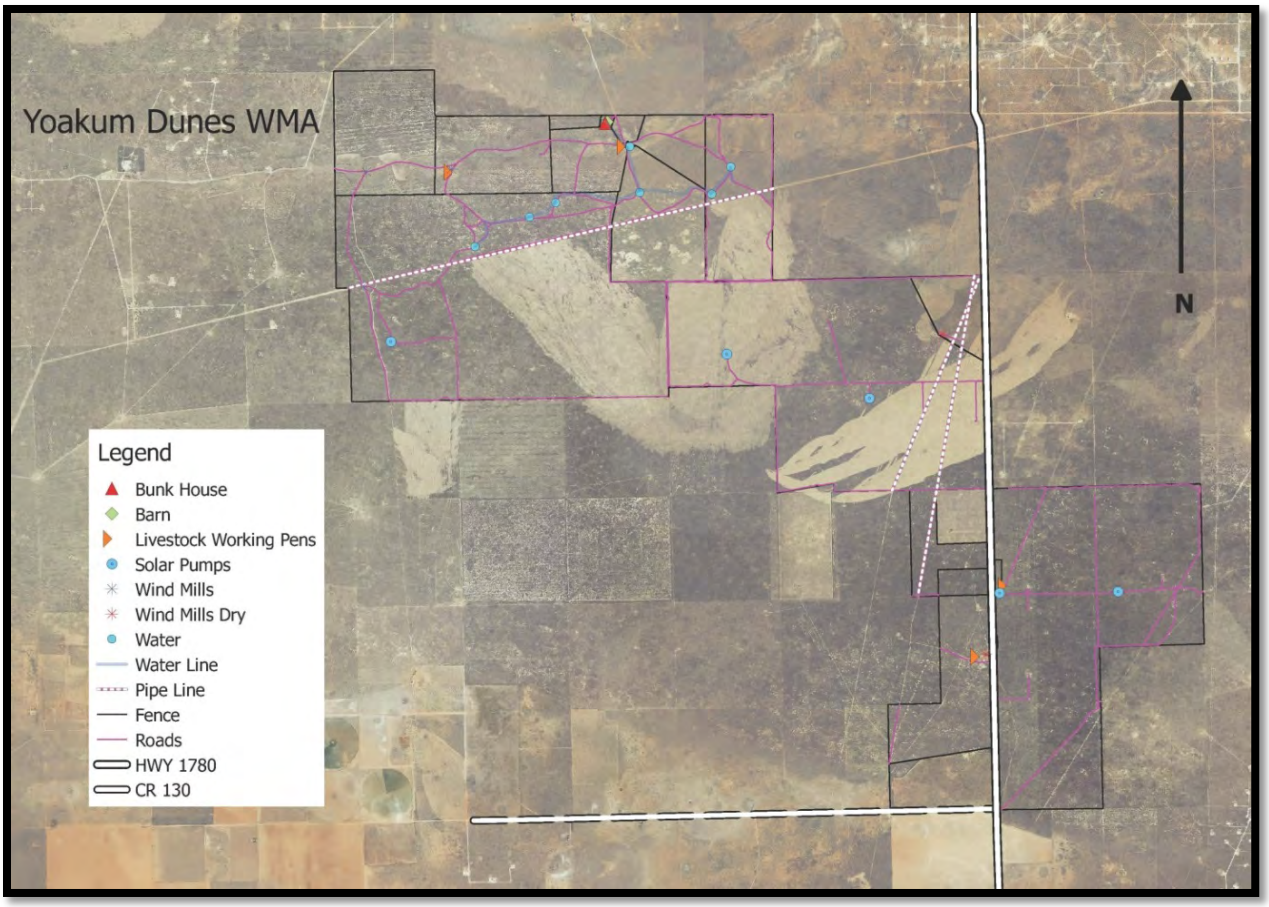

Figure 6: Infrastructure as it currently exists on Yoakum Dunes Wildlife Management Area.

C. Beneficial Effects

Upland Wildlife Habitat Management- This core management practice will be used to restore, enhance or create, and manage suitable habitat for the LEPC. Upland management will improve habitat conditions for all life cycles, including breeding, nesting, brood-rearing, and over-wintering and provide adequate food, cover and shelter. Implementation of this practice will address the effects of habitat fragmentation by creating, maintaining, or restoring landscape connectivity for movement.

Grazing- Planned grazing systems are expected to increase residual cover of perennial grasses and forbs to improve the LEPC nesting cover and success. Increased residual cover will also improve plant litter cover over the soil surface. Plant litter facilitates better moisture infiltration and produces more vegetative cover for nesting birds as well as increased forbs for brood habitat. A grazing system can also decrease the time any one pasture is exposed to grazing animals and people reducing the overall disturbance to individual birds.

Access Control- This practice can be an effective tool for reducing disturbance to LEPCs and their habitats, such as leks.

Prescribed Fire- With the use of prescribed fire, plant communities can be altered to create brood-rearing habitat, increasing forbs and legumes while improving insect populations and succulent forbs needed by LEPC in early life stages. Prescribed fire is also important in maintaining or restoring plant communities as described in ecological site descriptions. Target areas and defined objective(s) will be clearly stated with intended goals to be addressed for each client defined management unit. Prescribed fire will be used to control the establishment of woody species such as Juniper (*Juniperus* spp.) and mesquite (*Prosopis glandulosa*) that decrease the habitat quality for the LEPC.

Brush Management- Used to restore or enhance the native plant community by removing undesirable post-settlement conifers such as Juniper or deciduous species such as mesquite and black locust (*Robinia pseudoacacia*). This practice will improve the diversity of habitat to create a mosaic of irregular shaped grassland openings by providing a release that allows native grass and forb communities to be expressed.

Firebreak- This practice can help reduce the spread of wildfires, thus reducing the risk of large-scale, habitat loss. Firebreaks can provide a food source for the LEPC by stimulating annual forb growth.

Critical Area Planting- Establishment of permanent vegetation can provide stability in the ecosystem by improving soil quality, preventing erosion and providing limited cover for birds.

Watering Facility- Use of this practice can facilitate prescribed grazing by livestock and can provide water for some wildlife species, including LEPC. This benefit may be especially pronounced during drought conditions.

Water Well- If properly designed and installed, this practice can be implemented in a manner that will facilitate improved distribution of livestock grazing and result in improved vegetative diversity and structure of LEPC habitat. The practice can also provide a supplemental water source for LEPC and other wildlife. The disturbed area around the water well installation may re-vegetate with early succession forbs and legumes that can provide food and brood-rearing habitat for LEPCs.

Fence- This practice can be an effective tool for managing wild and domestic animal disturbance to LEPC habitat, including reseeded or reclaimed sites. Fencing is typically used to facilitate prescribed grazing or to areas targeted for creation or protection of specific habitat needs.

Herbaceous Weed Control- Practice implementation removes or reduces invasive or other weed species that directly or indirectly limit LEPC habitat quality and productivity. Practice can

beneficially influence the vigor and establishment of native or desirable vegetation required to provide LEPC habitat.

Woody Residue Treatment- Use of this practice in conjunction with and as a supporting practice for Brush Management will allow for the opportunity for LEPC to recolonize acres where tall woody vegetation has presented a habitat concern for LEPC. Proper removal will allow herbaceous vegetation to quickly recover providing habitat for LEPC and grazing for livestock.

Summary of Beneficial Effects

The benefits of each proposed activity can be categorized as aiming to enhance plant communities for the LEPC and/or managing the physical disturbance of LEPCs from anthropogenic sources. The enhancement of plant communities will be seen from activities such as prescribed grazing, upland wildlife habitat management, prescribed fire, brush management, critical area planting, herbaceous weed control, and installation of water wells. The management of physical disturbance will be achieved using access control, fences, and installation of water facilities.

D. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this conference opinion. The majority of the action area occurs with the managed lands of the WMA. The WMA's purpose includes management for the LEPC. It is expected that any future actions on the WMA would be related to the maintenance and use of the WMA. The area is open to the public for limited hunting. Hunting of LEPC is prohibited in Texas. The possibility of disturbance to LEPC from hunting activity is expected to be negligible due to the low density of hunters within the actions area (~25 hunters/13 days/season). Subsequent Federal funding used for management of the WMA would undergo future section 7 conference or consultation; and therefore, is not addressed here. The surrounding buffer (up to 3 miles) is comprised mostly of private lands. A large property adjacent to the southern boundary is proposed as a conservation bank for the LEPC, if approved, it would be dedicated to LEPC conservation. The other surrounding lands are largely rangeland. Within the general region, oil and gas development and wind energy development are on the rise. The potential for energy development to occur in the 3-mile buffer may increase with the installation of electric transmission to the WMA, but the magnitude and timing of these events cannot be determined at this time. The Service recommends conservation lands be at least 9,000 acres in size and supported by other elements important to LEPC conservation. The WMA is located within a Category 1 of the Southern Great Plains Crucial Habitat Assessment Tool, which represents a focal area for LEPC conservation. Although long-term drought and other climate conditions may impact the area, the size, purpose, and location of the WMA, represents a substantial contribution to habitat for the LEPC, and is likely to maintain viability into the foreseeable future.

V. CONCLUSION

After reviewing the current status of the LEPC, the environmental baseline for the action area, the effects of the proposed actions and the cumulative effects, it is the Service's conference opinion determination that the project, as proposed, is not likely to jeopardize the continued existence of the LEPC. The described management activities, while causing short-term disturbance to LEPCs will produce long-term restoration, maintenance and enhancement gains that far offset any initial adverse impacts.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7 (b)(4) and section 7 (o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by TPWD (applicant) on behalf of the WSFR (Federal agency) so that they become binding conditions for any action, grant, or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. TPWD has a continuing duty to regulate the activity covered by this incidental take statement. If TPWD (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, TPWD must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

Approach to Assessing Incidental Take

Precise estimates of the number of birds exposed to impacts are not possible for long-term management actions intended to promote conservation of birds that can move easily around their varied habitat. In addition, once a bird is exposed, it is difficult to determine the individual bird's response to the impact. Below we describe the method used to approach these issues. We recognize that the resulting simple estimate is based on many assumptions, including an assumption that the birds are evenly distributed across the habitat in an ecoregion and that all birds have an equal probability of being exposed to the various practices. When evaluating a range of values we chose to use the numerical values that are the more conservative. We recognize that these assumptions may lead to an overestimate of potential effects to the species rather than an underestimate of effects. However, at this time, this is the most reasonable method we have for arriving at a take estimate.

Amount or Extent of Take Anticipated

The proposed management actions are designed to have an overall benefit to the LEPC. However, as noted in the "effects of the action section," adverse effects are reasonably certain to occur. Also, as described in the analysis above, the construction and operation of the headquarters complex would occur within impact buffers of existing infrastructure. Therefore, incidental take is not expected to occur from that action. Actions that would be expected to result in incidental take are prescribed fire and prescribed grazing. While effects on LEPCs from fencing, woody residue treatment, herbaceous weed control and brush management practices are reasonably certain, these effects would only rise to the level of take with increased exposure such as that seen on more extensive projects set within larger landscapes. As described in the proposed action, no incidental take from these actions are expected over the ten year life of the project (see Table 3)

Estimating Exposure

To approximate the number of birds that may be exposed to the impacts, we started with the highest bird density of the ecoregion where the action area is located (shinnery oak) as estimated from the upper 90% confidence interval of each eco-region identified in the rangewide plan via range-wide aerial surveys in 2012 (McDonald *et al*. 2015). That produced a density of 0.0016 birds per acre. Next we estimated the maximum of number of acres for management practices and miles of fencing expected to occur annually for the WMA. These estimates produced the number of birds exposed to each practice (Table 3, column D).

Estimating Birds Subject to Incidental Take

Not all birds exposed to the practices, will experience adverse effects that reach the level of take. Many adverse effects will result in short-term behavioral responses ranging from flushing, temporary changes in behavior, interruptions in feeding, stress, etc., resulting in insignificant effects that do not rise to the level of take. Although scientific studies are scant on the effects of the proposed practices to LEPCs, we have used the available information on rates of injury or mortality to inform our approximation of the number of birds that may be taken incidentally by the proposed action. By multiplying those rates (if possible specific to the practice or similar impact) by the number of birds exposed to that practice, we can approximate the number of birds (rounded to whole numbers) injured or killed (Table 3, column G). Based on this analysis, it is anticipated that 4 individual LEPC would be taken by the proposed action over the 10-year period covered by this opinion.

Table 3. Estimate of Annual LEPC Injury and Mortality per Practice under proposed project at Yoakum Dunes WMA.

A Implementing Activity or Practice	**B Density (Birds per Acre) per McDonald *et al.* 2015**	**C Practice (Acres)****	**D Number of Birds Exposed to Practice**	**E Rate of Injury or Mortality for Practice**	**F Estimated Total Number of Birds Injured or Killed/yr.**	**G Estimated Total Number of Birds Injured or Killed/10 years (rounded)**
Prescribed Fire	0.0016	1,000	1.6	0.0588	0.094	1
Prescribed Grazing	0.0016	13,877	22.2	0.0191	0.42	3*
Brush Management/Woody residue treatment/herbaceous weed control	0.0016	4,450	7.12	0.0048	0.034	0†
Fencing	0.0016	3 miles	0.005	0.64 strikes/mi	0.003	0†
Total						4

*Grazing will occur through eight years of project.

** Estimated maximum acres treated as provided by TPWD.

† No take anticipated due to small size of practice acres/miles (column C).

Effect of the Take

The Service determined that this level of anticipated take is not likely to result in jeopardy to the LEPC.

Reasonable and Prudent Measures and Terms and Conditions

The Service believes no additional reasonable and prudent measures or terms and conditions are necessary due to the incorporation of the conservation measures and reporting requirements included as part of the proposed action.

Reporting Requirements

TPWD will be responsible for providing annual reports on activities conducted under this opinion. Reports should include 1) estimates of incidental take of LEPC based on acres of practices implemented, 2) mortality or nest loss resulting from implementation of actions, and 3) results of any abundance, lek locations or individual detections from monitoring. Reports will be due on January 31st of each year.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following recommendations are provided for consideration:

1. The Service recommends that cats and dogs be prohibited on the property to protect the lesser prairie-chicken.
2. The Service recommends TPWD develop a strategy to protect the integrity of the WMA through partnerships with surrounding landowners. Focusing conservation efforts within the focus area to provide additional habitat and connectivity within the larger landscape.

Reinitiation Notice

This concludes formal conference on the actions outlined in your request. You may ask this office to confirm this conference opinion as a biological opinion issued through formal consultation if the LEPC is listed in the future. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the proposed species has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the proposed species may occur between the listing of the species and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation. Although not required, we recommend that the reasonable and prudent measures and terms and conditions be implemented. If the species is subsequently listed, implementation of reasonable prudent measures and terms and conditions will be mandatory.

As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Thank you for your continued efforts in conservation of the LEPC. If further assistance or information is required, please contact Mr. Brian Small at ext. 2105 or Omar Bocanegra at ext. 2126.

Sincerely,

Debra T. Bills

Debra Bills
Field Supervisor

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