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SWCA Response to Questions Posed by Class 4 Winds Regarding Lesser Prairie-Chickens and Wind Power

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At the request of Class 4 Winds, SWCA Environmental Consultants (SWCA) is providing answers to a list of questions the organization also posed to the Texas Parks and Wildlife Department regarding Lesser Prairie-Chickens and wind power. The original questions posed by Class 4 winds are presented below in black. Our answers are presented in dark-blue italics.

1. For decades and decades many landowners have lived in the portion of the Panhandle that is supposed to have a Lesser Prairie Chicken population, but have yet to see one. Where are they?

Lesser Prairie-Chickens are largely restricted in occurrence to native grassland/shrub habitats. As such, they are absent from areas that have been entirely converted to agriculture, including most CRP grasslands in Texas as these largely support mono-cultures of non-native grasses and lack the requisite mix of taller grasses, forbs, shrubs, and sub-shrubs (Sullivan et al. 2000). Most areas inhabited by Lesser Prairie-Chickens are on private lands with very limited, or no, public access. Consequently, while many people reside in the region that is “supposed to have” Lesser Prairie-Chickens, most of those people never visit or travel in the specific areas where the birds occur. Those members of the general public that drive only on well-traveled roads in the Texas Panhandle can see Ring-necked Pheasants and quail, but they are not going to see Lesser Prairie-Chickens. If one were to regularly drive lightly traveled unpaved county roads through appropriate habitat (of which there are not too many), or had access to private roads in appropriate habitat, it is likely they would eventually encounter a Lesser Prairie-Chicken.

2. Right now, much of this land is involved in the CRP program. When that changes in the next couple of years, wind farm or no wind farm, will this pose a risk to the Lesser Prairie Chicken?

That depends on how that land is used in absence of the Conservation Reserve Program (CRP) and where that land is in relation to occupied Lesser Prairie-Chicken habitat. As noted, most CRP lands do not provide habitat for Lesser Prairie-Chicken. These lands do, however, provide expanses of undeveloped land that may in some ways benefit Lesser Prairie-Chickens by buffering their occupied habitat against development. If CRP lands are simply no longer managed but are left undeveloped, end of the CRP is likely to have a negligible effect on Lesser Prairie-Chickens. Development of CRP lands occurring proximate to occupied Lesser Prairie-Chicken habitat would likely prove detrimental to the species as the birds seem averse to most

human disturbances. To truly benefit Lesser Prairie-Chicken, CRP lands should be converted back to supporting a mix of native grasses, forbs, and shrubs and sub-shrubs.

3. Is it possible to set up a refuge for the Prairie Chickens, away from land that can be developed for wind farms? If so, how much might it cost and how long would it take?

Yes, that is possible. To do that, it would require having land that supports (or with management could support) suitable Lesser Prairie-Chicken habitat and that either occurs in an area where wind resources are unsuitable for power generation or is made unavailable to wind power development. In general, Lesser Prairie-Chicken habitat occurs in windy areas that are attractive to developers of wind power projects. Consequently, establishing a preserve in an area “away from land that can be developed for wind farms” likely would require removing the ability of that land to be developed into wind farms instead of simply establishing a preserve in an area where the wind does not blow.

Removing the ability of land to be developed into wind farms would require the purchase of that land or purchase of the land’s development rights (i.e., placing the land under conservation easement), barring voluntary enrollment in some type of preserve program or acquisition of land through donation. Acquired land would then need to be put it in control of an entity that would preserve it in its natural state, or manage it as appropriate to enhance or rehabilitate the vegetation to make it again suitable for Lesser Prairie-Chickens. However, given the population dynamics of Lesser Prairie-Chickens, establishing a preserve with a reasonable chance of supporting the species in perpetuity would necessitate protecting land in excess of 10,000 contiguous acres. Mote et al. (1998) suggest that 12,800 acres (20 mi.²) are needed to support a local population of Lesser Prairie-Chickens. We are unsure of land costs in areas where Lesser Prairie-Chickens occur, but an order of magnitude land acquisition cost for establishing one preserve might be in the range of \$6.5 to \$30 million (13,000 to 20,000 acres at \$500 to \$1,500 per acre) depending on whether land was purchased out-right or put under conservation easement. Some amount of money would also be required for management of the land as a Lesser Prairie-Chicken preserve, with that amount dependent on whether it was possible to preserve existing occupied habitat or if it would be necessary to employ vegetation management techniques to “grow” habitat. Note too that it would be highly desirable to establish more than one preserve to ensure an adequate number of birds was protected.

The amount of time required to establish a preserve could be very short if money were available to acquire occupied habitat or place it under conservation easement, a source of habitat was available, and agreement between the seller of land or conservation easement and purchaser of same could be reached quickly. If money and/or habitat were not available, establishing a preserve could be a lengthy process – on the order of several years or more.

4. What methods are you using in locating leks?

To date, SWCA has limited its searches for leks to driving surveys, both on public roads and private roads where permission was granted by the landowner. We have also used off-road vehicles (ATVs) to search for leks of other grouse species (e.g., Greater Sage-Grouse) where roads do not exist. We are aware of others that have employed helicopters and fixed-wing aircraft to conduct Lesser Prairie-Chicken lek searches. In general, searching for leks through pedestrian survey is infeasible because of the distances that need to be covered.

5. Do you have studies/evidence that wind turbines located near leks affect PC breeding?

We are not aware of any studies conducted specific to the effect of wind turbines on breeding success or lekking behavior by Lesser Prairie-Chickens. Studies of the effect of wind turbines on breeding by other species of prairie grouse have been conducted. Two studies cited regularly in literature regarding effects of wind development on Lesser Prairie-Chickens are Robel et al. 2004 and Pitman et al. 2005. Both of these studies were conducted in southwest Kansas and involved investigation of how Lesser Prairie-Chickens responded to presence of various human disturbances, none of which were wind turbines. These studies showed that Lesser Prairie-Chickens generally avoided vertical structures, with non-breeding birds generally keeping at least 0.37 mile from buildings and transmission lines. Most nests were found to be placed at least 0.78 mile from buildings, 0.49 mile from improved roads, and 0.22 mile from transmission lines. Pitman et al. 2005 found that distance to various disturbance types was a poor predictor of nest success, with nest success apparently more dependent on various vegetative characteristics. Based on the results of Robel et al. 2004, Pitman et al. 2005, other studies conducted on Lesser Prairie-Chicken and studies conducted on other prairie grouse species, most state agencies have recommended that wind turbines be sited at least 1 mile from Lesser Prairie-Chicken leks, with the U.S. Fish and Wildlife Service recommending that wind turbines be placed at least 5 miles from lek sites (Manville 2004).

6. If there is a possibility of the LPC soon becoming an endangered species, why are they allowed to be hunted?

This question is best answered by the Texas Parks and Wildlife Department. We can speculate that the agency likely believes very few Lesser Prairie-Chickens are actually shot each year, that losses from hunting are minimal compared to losses incurred for other reasons, and that monies raised by license sales can be used to benefit the birds. The State of Oklahoma closed its hunting season on this species in 1997.

7. The LPC's native grass is a taller grass. This means that if they have developed leks in the southwestern Texas Panhandle and eastern New Mexico, they must have adapted to shorter grass. Can they be moved?

Habitats used by Lesser Prairie-Chickens in the southwestern Texas Panhandle and eastern New Mexico are not dominated by shorter grass. As elsewhere, habitat in this portion of the species' range includes taller grasses (e.g., various bluestems) and woody species such as shinnery oak and sand-sage (Robb and Schroeder 2005). The birds require taller grasses and shrubs and sub-shrubs for feeding and cover. Throughout their range the birds have historically been able to find appropriate lek sites regardless of the dominant vegetation type, be it a naturally occurring barren or burned area, prairie dog town, windswept ridge top supporting shorter grass, or, more recently, an abandoned oil pad, pipeline right-of-way, or cropfield.

Moving Lesser Prairie-Chickens could be effective if they were moved to a formerly occupied area that continues to support suitable habitat. However, moving Lesser Prairie-Chickens would be ineffective if attempts were made to place the birds in areas supporting shorter grass as they would simply fly away because the habitat was unsuitable or would quickly be killed by predators because the birds would lack suitable cover to avoid predation.

8. Is there a possibility that this could affect future infrastructure improvements? (roads, water, electrical transmission, etc?)

If "this" refers to the decline of Lesser Prairie-Chicken and the possibility of the species being placed on the federal list of threatened and endangered species, then yes, it could affect future infrastructure improvements. Road projects in Texas are not likely to be affected too greatly by this issue because we do not foresee many (or any) new major roads being constructed in areas where Lesser Prairie-Chickens occur. Local road improvement projects could be somewhat affected. Say, for example, a particular county road passing through Lesser Prairie-Chicken habitat was in need of re-grading. It might prove necessary to perform the re-grading outside the lekking season in order to avoid disturbing the birds at this important time in their breeding cycle.

Linear projects such as water pipelines and transmission lines that have potential to cross currently undisturbed lands occupied by Lesser Prairie-Chickens could be constrained more greatly than road projects as these types of projects would have potential to cause loss or fragmentation of habitat via clearing for their rights-of-way. In general, pipeline projects would likely encounter fewer constraints than transmission line projects because pipeline projects do not result in the introduction of much above-ground equipment. Lesser Prairie-Chickens appear to avoid tall structures such as transmission towers, so placement of a transmission line through occupied habitat could lead to abandonment of the area by the birds. Consequently, it likely would become desirable to route transmission lines around occupied habitat. Clearing for

pipelines could result in some minor loss of habitat, but would not be expected to cause abandonment of habitat by Lesser Prairie-Chickens and, in some cases, cleared pipeline rights-of-way could even create new lek sites for the birds.

9. Might the Texas CREZ lines be affected by the LPC issue?

Most CREZ transmission lines are anticipated to be constructed outside of areas known to be occupied by Lesser Prairie-Chickens. The builders of lines planned for the Panhandle region should consider the distribution of occupied and potential Lesser Prairie-Chicken habitat in their routing analyses; however, whether presence of such habitat will be considered an important factor by the Public Utility Commission in the selection of final alignments is not known to us. If a CREZ transmission line is routed to pass through Lesser Prairie-Chicken habitat and the species is not on the federal list of threatened and endangered species at the time that line is set to be constructed, then presence of that habitat is likely to have a negligible effect on construction of that line. However, if the species is listed prior to construction, and the project proponent fails to enter into prior conservation agreements, then the builder of that line may have to delay construction in order to obtain appropriate authorizations from the U.S. Fish and Wildlife Service.

10. What constitutes a species being endangered?

Section 4 of the Endangered Species Act of 1973 requires that determination of whether a species qualifies as threatened or endangered be based on any of the following five factors:

- 1) the present or threatened destruction, modification, or curtailment of its habitat or range;*
- 2) over-utilization for commercial, recreational, scientific, or educational purposes;*
- 3) disease or predation;*
- 4) the inadequacy of existing regulatory mechanisms; or*
- 5) other natural or manmade factors affecting its continued existence.*

Note that because of this, simply being “rare” is not cause for listing as threatened or endangered, if that rare species is not being subjected to any of the five threats listed above. In the case of the Lesser Prairie-Chicken, it appears to us that a case could be made to list it as threatened or endangered based on factors 1 and 4, if not also factor 5.

11. What has happened to the LPC in years past that has caused such a decline in population?

Many factors are involved in the decline in population of this species, some of which are more important in one portion of the species’ range than another. First and foremost was the wide-scale elimination of habitat through conversion of land to various agricultural uses, including tilling and grazing. Other factors include: prevention of wildfire, which has allowed woody

species such as mesquite to invade habitat areas; oil and gas development, which has resulted in the extensive loss or disturbance of habitat in some areas; introduction of roads, transmission lines, and other disturbances; periodic droughts (1930s, 1950s, 1990s) that caused population reductions in Texas; and even introduction of Ring-necked Pheasants, which compete with Lesser Prairie-Chickens for resources (Sullivan et al. 2000). Various habitat disturbances have resulted in a very patchy distribution of occupied habitat. While the birds can be highly mobile (and, thus, would fly away if moved to an unsuitable location) they also have a high site fidelity, meaning that they are not prone to wander away from their home range. This tendency has also contributed to their decline, as isolated populations that suffer losses from disease, predation, drought, or whatever, cannot be replenished by birds arriving from outside sources.

12. Is there a mountain being made out of a mole hill here? Some feel as though there hasn't been much research done on this issue.

The population of Lesser Prairie-Chicken certainly has declined sharply since humans converted much of the bird's habitat to agricultural use beginning in the late 1800s. The decline has continued as additional habitat has been lost to or disturbed by oil and gas production activities and other types of development activities. The concern among wildlife agencies and conservation organizations is that if steps to protect these birds are not taken now, remaining populations could collapse very abruptly, as did the populations of Attwater's Prairie-Chicken. Because of their social structure, Lesser Prairie-Chickens appear to require a relatively large population to maintain their numbers – they do not survive as isolated pairs here and there. Consequently, it is possible that once the number of birds in each isolated population drops below a certain threshold, those birds will cease to be capable of reproducing sufficiently to offset losses to natural (e.g., predation) and unnatural (e.g., collision with barbed wire fences) causes and all the birds will then disappear rather quickly. If such a scenario were to be realized, it then could become extremely difficult and expensive to attempt to recover populations, and those attempts might be met with failure. So, while remaining populations of Lesser Prairie-Chicken might be great enough that the species would be perfectly fine if all development activities and other disturbances in their habitat were to cease immediately, because such disturbances are on-going, the expectation is that populations will continue to decline and could drop below those minimum threshold levels.

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