

United States Department of the Interior



FISH AND WILDLIFE SERVICE North Dakota Ecological Services

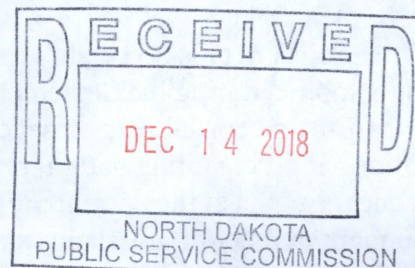
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926



IN REPLY REFER TO:
2018-CPA-0037

November 25, 2018

~~Mr. Bourke Thomas
Director, Environmental Services
Atwell, LLC
143 Union Boulevard, Suite 700
Lakewood, CO 80228~~



Dear Mr. Thomas:

The purpose of this letter is to provide environmental comments and recommendations regarding the proposed Burke County Wind Energy Center (BCWEC) and transmission line in Burke and Mountrail Counties, North Dakota. Per your May 1, 2018, letter, the proposed wind facility was to have a nameplate capacity of up to 300 megawatts (MW) and would consist of a maximum of 123 turbines (111 GE 2.5 wind turbine generators and 12 GE 1.715 wind turbine generators) with associated access roads and collection lines. The BCWEC would interconnect to the electrical grid via approximately 39 miles of new overhead transmission line from the BCWEC substation. In the time since receipt of your letter, limited staff and high workload precluded a timely U.S. Fish and Wildlife Service (Service) response. We appreciate your patience and the informal coordination thus far via meetings, emails and phone calls that have occurred between our agency, yourself and WEST, Inc. as consultants on this project, and the BCWEC developer, NextEra.

Herein we provide our written response to the BCWEC project proposal, with information and recommendations regarding important wildlife habitats and Service trust resources including federally listed species, eagles, birds of conservation concern, and other migratory birds that may occur in the project area and vicinity. We have included guidelines and methods to be applied to various components of a wind farm including turbines, meteorological towers, and power lines in order to avoid, minimize and/or compensate for impacts to trust resources and assist NextEra, in achieving compliance with Federal laws. While some of the information below has been provided via informal coordination, additional pertinent details are mentioned below that serve to reiterate and supplement the information we have conveyed on the BCWEC to date.

The Service's most recent involvement regarding the BCWEC since your May 1, 2018, project proposal letter includes two events: a September 19, 2018, meeting and an October 10, 2018, conference call. At both of these events, the Service was represented by staff from the South Dakota Ecological Services Field Office (SDES), who are assisting this office in reviewing wind energy projects in North Dakota.

52 PU-18-302 Filed 03/08/2019 Pages: 19
Exhibit 23 - US Fish and Wildlife Service Correspondence Comments
Burke Wind, LLC

84 PU-18-344 Filed 03/08/2019 Pages: 19
Exhibit 23 - US Fish and Wildlife Service Correspondence Comments
Burke Wind, LLC

Per that coordination and review of the project area, our foremost recommendation regarding the BCWEC is to relocate the project to an area that would have less impact to natural resources.

If the project will not be relocated, our secondary recommendation is to submit a robust mitigation plan to offset the relatively high environmental impacts anticipated as a result of this project.

The project details noted above that were provided in your May 1, 2018, letter, to our knowledge still applied during the September 19, 2018, meeting at the SDES office in Pierre, South Dakota. NextEra and consultants provided SDES with background on the project and pertinent information regarding natural resources collected to date at the project site. Significant resource concerns exist at the current project location and were discussed at this meeting, e.g. the amount/number of grasslands and wetlands (approximately 7,000 prairie potholes); the proximity to Lostwood National Wildlife Refuge (NWR); the potential/known existence of federally listed species; and the likely impacts to other sensitive species at this site such as grassland nesting birds, raptors (about 40 known nests), waterfowl, and grouse (nearly 30 known/possible grouse leks). The project is also immediately adjacent to a state wildlife management area. These are indicators of the high resource value of the proposed project area. The information collected via the tiered approach outlined in our wind energy guidelines (see below), is intended to help developers make a decision on whether development plans should continue or not at a given site. As noted above, our primary recommendation at the closing of that September 19, 2018, meeting was that the BCWEC be constructed elsewhere. From an environmental perspective, it is a highly sensitive location to the detrimental impacts of wind energy development.

Also as noted above, our secondary recommendation by the SDES at that meeting - if NextEra chose to move forward with the project at this location - was that an appropriate mitigation plan be developed to compensate for the relatively high level of anticipated environmental impacts of BCWEC. We stressed that offsets in that plan, for indirect impacts in particular, should be based on the best available science regarding avian avoidance of wind turbines (Loesch et al. 2013 and Shaffer and Buhl 2016 - more information on these studies is provided below). NextEra indicated a desire to move forward with development, and committed to formulating a voluntary mitigation plan for review by the SDES (as well as to the North Dakota Game and Fish Department (NDGFD) with whom coordination has also occurred) by October 31, 2018. As of this writing, we have not received such a plan.

The primary topic of the October 10, 2018, conference call was a project update from NextEra. The project was proposed to be reduced in size from 300 MW to 200 MW, and a shift of a portion of the project boundary was proposed to put increased distance between the BCWEC and Lostwood NWR. We acknowledge that these actions would likely serve to lower the environmental impact of the project, but without the details of the turbine locations we are unable to quantify what the reductions would be. Furthermore, the project is still located in an area of high resource value, and significant impacts to those resources are still anticipated. With no mitigation plan in place to offset those resource impacts, the Service continues to recommend relocation of this project to an area with fewer natural resources at stake, preferably an area dominated by crop ground.

We reiterate the importance of the following comments provided by the NDGFD in their response letter to this project dated May 22, 2018, specifically: *“the proposed project area is some of the “best of the best” prairie-wetland habitat in North America”, and “Native prairie is the most endangered habitat type in North Dakota and, as a grassland state, the majority of our native wildlife species are linked to prairie. Disturbance, fragmentation, and loss of native prairie have adversely impacted a wide variety of species and these negative impacts will only continue to compound as more development takes place on the landscape.”*

Note that native prairie, once disturbed, can be difficult if not impossible to fully restore. Impacted wetlands may be restored depending on the type or degree of disturbance, but created wetlands are typically not equivalent to undisturbed wetlands in terms of function and quality for wildlife. Thus any removal of native prairie (regardless of patch size) and wetlands, including such actions often identified as “temporary impacts” actually become permanent impacts as the original value of these areas cannot be fully replaced. Wildlife, particularly some species of grassland nesting birds will be displaced both via direct habitat loss by establishment of infrastructure and the associated avoidance of this infrastructure on the landscape. Tools to quantify these impacts are described later in this letter.

Below we provide additional information typically included in response letters to developers. NextEra and consultants are likely aware of much of the information below; however, our intent is to ensure we have conveyed the pertinent information regarding the BCWEC project.

2012 Land-Based Wind Energy Guidelines

Per ongoing coordination regarding this project you are aware of our voluntary 2012 *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines* (WEG) (available online at: <http://www.fws.gov/windenergy/>) which were developed in consultation with wind industry companies. We recommend close adherence to these guidelines, using the information gathered to first determine whether the project should be placed in the area of interest at all. The WEG invokes a tiered approach in which information is collected with increasing levels of detail in order to evaluate risk posed to habitats and wildlife at potential wind energy sites. Tiers 1-3 each represent a preconstruction decision point to either move forward to development, gather more information (i.e. move to the next tier), or to abandon project plans at a given site, thereby avoiding areas where development is precluded or where wildlife impacts are likely to be high and difficult or costly to remedy or mitigate at a later stage. If the project is to proceed at the chosen location, then the information gathered per the WEG is to be used to guide project specifics, such as turbine locations, and any needed mitigation measures. Wind energy facility effects to wildlife may be direct and indirect, including collision mortality, loss of habitat due to the footprint of the turbines/roads/other facilities, habitat fragmentation impacts, wildlife avoidance of turbines on the landscape, encroachment of invasive weeds, and more. Currently, the best strategy to avoid impacts to wildlife is to place wind energy facilities within existing cropland wherever possible, precluding impacts to valuable wildlife habitats. We request the results of any pre-/post-construction wildlife monitoring for this project.

U.S. Fish and Wildlife Service Land Interests

The location of the proposed BCWEC falls within an area under the jurisdiction of the Service's Crosby WMD (Burke County), as well as the Lostwood Wetland Management District (WMD) (Montrail County). Existence of numerous Service easements and fee title properties in or near the project vicinity is typically a testament to the high wildlife value of a given area and the relatively greater environmental impacts that may be anticipated if a project is constructed there. We recommend avoidance, minimization of direct and indirect impacts to these areas, or compensatory measures for any direct or indirect unavoidable impacts. This must be coordinated with the appropriate Service office. If you have not already done so, please contact the Service's Crosby Wetland Management District (for Burke County), and the Lostwood WMD (for Mountrail County) to determine the exact locations of these properties and any additional restrictions that may apply regarding those sites. Contact information for each office may be found online at: <https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=38>.

Eagle Guidance

Golden eagles (*Aquila chrysaetos*) and bald eagles (*Haliaeetus leucocephalus*) may occur in the proposed BCWEC project area. These birds are protected from a variety of harmful actions via take prohibitions in both the Migratory Bird Treaty Act¹ (MBTA; 16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d). The BGEPA, enacted in 1940 and amended several times, prohibits take of bald eagles and golden eagles, including their parts, nests, young or eggs, except where otherwise permitted pursuant to federal regulations. Incidental take of eagles from actions such as electrocutions from power lines or wind turbine strikes are prohibited unless specifically authorized via an eagle incidental take permit from US Fish and Wildlife Service (Service). BGEPA provides penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." BGEPA defines take to include the following actions: "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" also encompasses destruction of eagle nests. Also the Service defined the term disturb which means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

¹ On December 22, 2017, the Department of the Interior's (DOI) Office of the Solicitor Memorandum M-37050 titled The Migratory Bird Treaty Act Does Not Prohibit Incidental Take <https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf> concludes that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs. The MBTA list of protected species includes bald and golden eagles, and the law has been an effective tool to pursue incidental take cases involving eagles. However, the primary law protecting eagles is the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S. Code § 668), since the bald eagle was delisted under the Endangered Species Act in 2007. Memorandum-37050 does not affect the ability of the Service to refer entities for prosecution that have violated the take prohibitions for eagles established by the BGEPA.

The Service has developed guidance for the public regarding means to avoid take of bald and golden eagles:

- The 2007 *National Bald Eagle Management Guidelines* serve to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of BGEPA may apply. They provide conservation recommendations to help people avoid and/or minimize such impacts to bald eagles, particularly where they may constitute “disturbance,” which is prohibited by the BGEPA.
<https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>
- The 2013 *Eagle Conservation Plan Guidance, Module 1- Land-based Wind Energy, Version 2* is specific to wind energy development and provides in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. Development of an Eagle Conservation Plan per these guidelines may serve as the basis for applying for an eagle incidental take permit for wind energy facilities. Applications for such eagle incidental take permits must include an Eagle Conservation Plan.
<https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>

The Service also has promulgated new permit regulations under BGEPA:

- New eagle permit regulations, as allowed under BGEPA, were promulgated by the Service in 2009 (74 FR 46836; Sept. 11, 2009) and revised in 2016 (81 FR 91494; Dec. 16, 2016). The regulations authorize the limited take of bald and golden eagles where the take to be authorized is associated with otherwise lawful activities. These regulations also establish permit provisions for intentional take of eagle nests where necessary to ensure public health and safety, in addition to other limited circumstances. The revisions in 2016 included changes to permit issuance criteria and duration, definitions, compensatory mitigation standards, criteria for eagle nest removal permits, permit application requirements, and fees in order to clarify, improve implementation and increase compliance while still protecting eagles.
<https://www.gpo.gov/fdsys/pkg/FR-2016-12-16/pdf/2016-29908.pdf>

The Service’s Office of Law Enforcement carries out its mission to protect eagles through investigations and enforcement, as well as by fostering relationships with individuals, companies, industries and agencies that have taken effective steps to avoid take, including incidental take of these species, and encouraging others to implement measures to avoid take. The Office of Law Enforcement focuses its resources on investigating individuals and entities that take eagles without identifying and implementing all reasonable, prudent, and effective

measures to avoid that take. Those individuals and entities are encouraged to work closely with Service biologists to identify available protective measures, and to implement those measures during all activities or situations where their action or inaction may result in the take of an eagle(s).

Note that the Service has also developed recommendations for wind developers specific to the Mountain-Prairie Region (Region 6):

- *Region 6 Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities* –The goal of these recommendations is to contribute to maintaining stable or increasing breeding populations of eagles by recommending conservation measures that will maintain breeding territories and minimize impacts to other important eagle use areas (e.g., eagle nests, foraging areas, and communal roosts). https://www.fws.gov/coloradoes/documents/Final_GOEA_Buffer_Recommendations_AvoidanceMinimization_WindFacilities_April_10_2013.pdf.
- *Final Outline and Components of an Eagle Conservation Plan (ECP) for Wind Development: Recommendations from USFWS Region 6* – In the event a project proponent intends to develop an ECP, this Region 6 document provides recommendations, in an outline format, for developing and organizing the content of an ECP, and includes additional details on topics that should be addressed in the plan. https://www.fws.gov/coloradoes/documents/Final_USFWS_R6_ECP_guidance.pdf.

We recommend close adherence to the guidelines above, including modeling of eagle data to determine the level of risk posed by the project and possible need for an eagle take permit. We request results of any eagle data collected at the BCWEC.

Threatened/Endangered Species

In accordance with section 7(c) of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Northern Long-eared bat (<i>Myotis septentrionalis</i>)	Threatened	Summer resident, seasonal migrant
Least Tern (<i>Sterna antillarum</i>)	Endangered	Summer resident, seasonal migrant
Piping Plover (<i>Charadrius melodus</i>)	Threatened	Summer resident, seasonal migrant
Whooping Crane	Endangered	Spring and fall migration

*(Grus americana)*Dakota Skipper
(Hesperia dacotae)

Threatened

Possible seasonal resident

Rufa Red Knot
(Calidris canutus rufa)

Threatened

Rare seasonal migrant

Northern Long-eared Bat

The northern long-eared bat is a medium-sized brown bat listed as threatened under the Endangered Species Act. Northern long-eared bats are known to be present in North Dakota, primarily roosting singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. The species has been documented in forested areas in the state during the summer months. Summer survey guidelines for this species are identical for those established for the Indiana Bat (available online at:

<https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>).

White nose syndrome - a fungus affecting hibernating bats - is considered a significant threat to this species, but individuals may be harmed by other activities such as modifications to hibernacula, timber harvest, human disturbance, and collisions with wind turbines. Currently, feathering turbine blades and increasing cut-in speeds beyond manufacturers' levels are recommended measures to reduce the risk of bat mortality at wind generation facilities. A 4(d) rule has been published that exempts take of Northern long-eared bats in certain circumstances.

For more information, see:

<https://www.fws.gov/Midwest/Endangered/mammals/nleb/index.html>.

Least Tern and Piping Plover

Least terns and piping plovers occur along the Missouri River and piping plovers also use alkaline wetlands/lakes in in North Dakota. Their habitats include sparsely vegetated interchannel sandbars, islands, and shorelines used for nesting, foraging and brood-rearing. They are sensitive to human disturbances which can limit reproduction. No construction should take place within 1/4 mile of any known piping plover or least tern nest. The specific migration habits of the least tern and piping plover in North Dakota are not known, but in addition to the potential nesting of these species in the area, they may also occur onsite as they move to/from adjacent nesting areas when foraging, dispersing from natal areas, and/or migrating. Both species typically occur in North Dakota May through August.

Whooping Crane

The BCWEC is located within an important area for migrating whooping cranes. The proposed project location is within the documented migration corridor of the Aransas/Wood Buffalo population - the only self-sustaining migratory population of whooping cranes in existence. Potential whooping crane habitat in North and South Dakota has been identified by the Service's Habitat and Population Evaluation Team (HAPET) in Bismarck and is described in Niemuth et al. (2018). Per the model developed via that work, the proposed project footprint encompasses an area of high relative probability of landscape-level habitat use by migrating whooping cranes. For more information you may contact the Service's HAPET office to request the Whooping Crane model of predicted use of landscapes to better assess the risks to whooping cranes from

development within the project area. Numerous whooping crane sightings during migration have been reported in and around the BCWEC project area, including, as you know, an observation that occurred during wildlife surveys for this project. Whooping cranes migrate through North Dakota twice annually on their way to northern breeding grounds and southern wintering areas, occupying numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which to stand and rest. Whooping cranes are large birds with low maneuverability. Line strike mortality is the greatest known threat to fledged whooping cranes. Mortality via turbine strikes may also pose a risk if the birds utilize habitat near wind farm sites. Loss of stopover habitat in the migration corridor is a concern that may be realized if whooping cranes tend to avoid wind farms. Additionally, should construction occur during spring or fall migration, the potential for disturbance (flushing the birds) of whooping cranes exists. Disturbance stresses them at critical times of the year and should be avoided. These issues should be addressed prior to wind farm development. Sightings of whooping cranes at any time should be reported to this office. Please note that use of the proposed project area by sandhill cranes may be indicative of the potential presence of whooping cranes since the two species are often observed utilizing the same habitats and migrating together.

Dakota Skipper

The Dakota skipper is a small prairie butterfly listed as a threatened species under the Endangered Species Act (see: <http://www.gpo.gov/fdsys/pkg/FR-2014-10-24/pdf/2014-25190.pdf>). Dakota skippers are obligate residents of high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie that may harbor such species as purple coneflower (*Echinacea angustifolia*), wood lily (*Lilium philadelphicum*) and mountain deathcamas (smooth camas; *Zigadenus elegans*) (see listing above listing rule for detailed habitat descriptions). Their dispersal ability is very limited due in part to their short adult life span and single annual flight. Extirpation from a site may be permanent unless it occurs within about 0.6 miles of an inhabited site that generates a sufficient number of emigrants. Avoidance of impacts to native prairie habitat is recommended to reduce the risk of adverse effects to this species. Survey protocols have recently been developed for North Dakota; the *2018 Dakota Skipper (Hesperia dacotae) North Dakota Survey Protocol* is available online at: https://www.fws.gov/mountain-prairie/es/protocols/2018_FINAL%20Dakota%20Skipper%20Survey%20Protocol_4202018.pdf. The species is difficult to detect and identify; only experienced, qualified personnel can accurately conduct surveys for this species.

Rufa Red Knot:

The rufa red knot is a robin-sized shorebird listed as threatened under the Endangered Species Act. The red knot migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States, the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America. Although it is primarily a coastal species, small numbers of rufa red knots are reported annually across the interior United States (i.e., greater than 25 miles from the Gulf or Atlantic Coasts) during spring and fall migration. These reported sightings are concentrated along the Great Lakes, but multiple reports have been made from nearly every interior State, including North Dakota. The species does not breed in this state.

Wetlands

According to the National Wetlands Inventory numerous (and as indicated earlier, approximately 7,000 per our September 19, 2018 meeting) wetlands exist within the proposed project area. If a project may impact wetlands or other important fish and wildlife habitats, the Service, in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible; then minimization of any adverse impacts; and finally, replacement of any lost acres; in that order. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted and the methods of replacement should be prepared and submitted to the resource agencies for review. We recognize an effort has been made to identify wetlands in the project area that may be deemed jurisdictional to the U.S. Army Corps of Engineers (USACOE) in order to determine the need for a permit at the BCWEC location; however, our recommendation to avoid, minimize, and compensate for impacts applies to all wetlands regardless of USACOE determinations.

Birds of Conservation Concern

The Migratory Birds Division of the Service has published *Birds of Conservation Concern 2008*, which may be found online at:

<https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf>. This document is intended to identify species in need of coordinated and proactive conservation efforts among State, Federal, and private entities, with the goals of precluding future evaluation of these species for ESA protections and promoting/conserving long-term avian diversity. There are 27 species listed in the BCC document that occur within Bird Conservation Region 11 (Prairie Potholes), many of which undoubtedly inhabit the BCWEC project area. Some of these species are also identified as species of habitat fragmentation concern (as described in the WEG; list provided to you previously by this office) and the NDGFD has indicated that Species of Conservation Priority per their *North Dakota State Wildlife Action Plan* exist in the project area as well. Many of the same species appear on each of these different lists, highlighting the need for proactive measures to address their decline. Direct and indirect effects to these species will occur with establishment of the BCWEC. In accordance with Executive Order 13186 regarding migratory bird protection, we recommend avoidance, minimization, and finally compensation to reduce the impacts to these species which are also protected by the MBTA. Compliance with this law may be partially addressed in a Bird and Bat Conservation Strategy (BBCS) (identified within the WEG and explained further below).

Avian Avoidance of Wind Turbines

As indicated in the WEG, wind turbines are known to impact migratory birds directly, with post-construction mortality surveys typically recommended for 1-2 years (or more) in order to identify mortality levels. Importantly, the WEG also identifies the indirect effects of wind energy facilities such as fragmentation effects and avian avoidance of turbines resulting in displacement to other habitats. While direct impacts can readily be observed and quantified,

these indirect impacts are more difficult to quantify and require more time and effort. The Before-After-Control-Impact (BACI) method for avian studies is recommended in the WEG. This study design is particularly useful in determining indirect effects of wind projects on wildlife, but such studies are rarely conducted typically due to those time/effort constraints. In the absence of robust project-specific research at every wind farm, two relatively recent studies are of particular importance to this issue of quantifying avoidance/displacement: Loesch et al. (2013) and Shaffer and Buhl (2016).

Loesch et al. (2013) evaluated breeding waterfowl pairs on wetlands at existing wind farms and reference sites in the Prairie Pothole Region. Displacement within 805 meters (0.5 mile) of wind turbines was detected at an average rate of 21% by five waterfowl species.

Similarly, Shaffer and Buhl (2016) evaluated wind farms and reference sites in the Prairie Pothole Region, but their research was on grassland nesting birds and also included pre-construction data thus this study applied the BACI method. Their results also detected avoidance of turbines by seven species. The average rate of displacement out to 300 meters (0.19 mile) from wind turbines was 55% by the 5th year post-construction. This research also detected a trend: displacement rates of grassland nesting birds continued to increase annually during those 5 years post-construction.

Both of these peer reviewed, published studies were conducted over multiple years, on multiple wind farms, involved large sample sizes, used reference sites for comparison, and were conducted on wind farms in North and South Dakota where many of the same species likely to occur at BCWEC were observed to avoid wind turbines. If the BCWEC proceeds, we recommend quantification of wetlands within ½ mile of turbines, of grasslands within 300 m of turbines, and then application of the displacement rates from the Loesch et al. (2013) and Shaffer and Buhl (2016) studies to determine and disclose anticipated indirect impacts. This information is needed to adequately develop an appropriate mitigation plan to offset this form of habitat loss, and we encourage NextEra to provide that plan as part of the project.

Mitigation

The Service's mitigation policy was established in 1981 to help assure consistent and effective mitigation recommendations that help Federal action agencies and developers plan for mitigation measures early, avoid delays, and assure equal consideration of fish and wildlife resources with other project features and purposes. Our policy adopts the definition of the term "mitigation" as stated in the NEPA regulations which includes: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments." As noted above, direct and indirect effects to wildlife are known to occur at wind energy facilities. We encourage analysis of both types of impact and quantification of those impacts whenever possible. The mitigation methods above can be applied to reduce direct and indirect effects at any point in the process of project

development; however, we recommend early planning to help ensure full implementation of any necessary mitigation measures.

Bird and Bat Conservation Strategy

Bird and bat conservation strategies are recommended in the WEG. We have developed a regional document to further assist companies in following our established national guidance on BBCSs, *U.S. Fish and Wildlife Service, Region 6, Mountain-Prairie Region Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects* available online at: <https://www.fws.gov/coloradoes/documents/Final%20R6%20BBCS%20Outline%20with%20anotation.pdf>. As stated in the introduction of that document: a BBCS "...is a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during wind energy project planning, construction, operation, maintenance, and decommissioning. It is the responsibility of wind energy project developers and operators to effectively assess project-related impacts to birds, bats and their habitats, and to work to avoid and minimize those impacts." A BBCS explains the actions taken by developers as they progress through the tiers of the WEG, describing the analyses, studies, and reasoning implemented with the purpose of mitigating for potential avian and bat impacts. It also addresses post-construction monitoring and habitat impacts. We recommend completion of a BBCS for this proposed energy wind facility.

Meteorological Towers

Communication towers are a known mortality hazard to wildlife, particularly birds. To assist developers in establishing communications towers that are more compatible with wildlife, we have developed our 2018 *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning*, available online at: <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php>. These recommendations incorporate the state of the science and the 2015 Federal Aviation Administration's *Obstruction Marking and Lighting Advisory Circular AC 70/7460-1L*, online at: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_with_chg_1.pdf. Among the primary concerns addressed within our guidelines are the establishment of new towers on the landscape, the heights of these towers, their lighting scheme, and means of structural support. Collocation of communications tower facilities on an existing structure is strongly recommended to avoid any additional impacts to migratory birds. If a new tower is necessary, placement of the new tower near other existing structures is recommended to concentrate the risk posed by the towers to relatively small areas. Minimization of tower height (below 200 feet to preclude the need for Federal Aviation Administration lighting requirements), use of only strobe or flashing lights (avoid steady-burning lights), and avoidance of guy wires (a great deal of avian mortality is a result of collisions with supporting guy wires) are important components intended to minimize potential impacts to migratory birds. The habitat at a tower location and surrounding area can also affect its level of risk to wildlife. Tower placement should occur in degraded sites avoiding ridgelines, coastal areas, wetlands or other bird concentration areas such as staging areas, rookeries, leks, and state or federal refuges. Please see the website provided above for additional information.

Overhead Power Lines

The construction of additional overhead power lines associated with wind farms creates the threat of avian electrocution, particularly for raptors. Thousands of these birds, including endangered species, are killed annually as they attempt to utilize overhead power lines as nesting, hunting, resting, feeding, and sunning sites. The Service recommends the installation of underground, rather than overhead, power lines whenever possible/appropriate to minimize environmental disturbances. For all new overhead lines or modernization of old overhead lines, we recommend incorporating measures to prevent avian electrocutions. The publication entitled *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* includes many measures to reduce risk to birds including pole extensions, modified positioning of live phase conductors and ground wires, placement of perch guards and elevated perches, elimination of cross arms, use of wood (not metal) braces, and installation of various insulating covers. You may obtain this publication by contacting the Edison Electric Institute via their website at: <http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>, or by calling 202-508-5000.

Please note that utilizing just one of the "*Suggested Practices . . .*" methods may not entirely remove the threat of electrocution to raptors. In fact, improper use of some methods may increase electrocution mortality. Perch guards, for example, may be only partially effective as some birds may still attempt to perch on structures with misplaced or small-sized guards and suffer electrocution as they approach too close to conducting materials. Among the most dangerous structures to raptors are poles that are located at a crossing of two or more lines, exposed above-ground transformers, or dead end poles. Numerous hot and neutral lines at these sites, combined with inadequate spacing between conductors, increase the threat of raptor electrocutions. Perch guards placed on other poles has, in some cases, served to actually shift birds to these more dangerous sites, increasing the number of mortalities. Thus, it may be necessary to utilize other methods or combine methods to achieve the best results. The same principles may be applied to substation structures.

Please also note that the spacing recommendation within the "*Suggested Practices . . .*" publication of at least 60 inches between conductors or features that cause grounding may not be protective of larger raptors such as eagles. This measure was based on the fact that the skin-to-skin contact distance on these birds (i.e., talon to beak, wrist to wrist, etc.) is less than 60 inches. However, an adult eagle's wingspan (distance between feather tips) may vary from 66 to 96 inches depending on the species (golden or bald) and gender of the bird, and unfortunately, wet feathers in contact with conductors and/or grounding connections can result in a lethal electrical surge. Thus, the focus of the above precautionary measures should be to a) provide more than 96 inches of spacing between conductors or grounding features, b) insulate exposed conducting features so that contact will not cause raptor electrocution, and/or c) prevent raptors from perching on the poles in the first place.

Additional information regarding simple, effective ways to prevent raptor electrocutions on power lines is available in video form. *Raptors at Risk* may be obtained by contacting EDM International, Inc. at 4001 Automation Way, Fort Collins, Colorado 80525-3479, Telephone No. (970) 204-4001, or by visiting their website at:

<https://www.edmlink.com/component/zoo/item/video-raptors-at-risk>.

In addition to electrocution, overhead power lines also present the threat of avian line strike mortality. Particularly in situations where these lines are adjacent to wetlands or where waters exist on opposite sides of the lines, we recommend marking them in order to make them more visible to birds. For more information on bird strikes, please see *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* which, again, may be obtained by contacting the Edison Electric Institute via their website at:

<http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>, or by calling 202-508-5000.

While marking of power lines reduces line strike mortality, it does not preclude it entirely. Thus, marking of additional, existing, overhead lines is recommended to reduce the impacts from avian line strike mortality. As noted above, the whooping crane is particularly susceptible to this type of mortality, and the proposed BCWEC occurs within the whooping crane migratory corridor. Marking of additional existing lines elsewhere in the species' corridor is recommended per the Service's whooping crane line marking policy (enclosed).

Summary

Below we reiterate items above that are pertinent to the proposed project and links to further resources:

- First consider alternate project sites to avoid impacts to high value habitat and wildlife
- Second, if development proceeds, submit plans to offset impacts
- Wind energy guidelines
 - *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines*
<http://www.fws.gov/windenergy/>
- Service land interests
 - Contact Crosby and Lostwood WMDs
- Eagle guidance
 - Bald and Golden Eagle Protection Act (BGEPA)
 - *National Bald Eagle Management Guidelines*
<https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>
 - *Eagle Conservation Plan Guidance, Module 1 – Land-based Wind Energy Version 2*
<https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>
 - Eagle take permit
<https://www.gpo.gov/fdsys/pkg/FR-2016-12-16/pdf/2016-29908.pdf>
 - *Region 6 Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities*

- https://www.fws.gov/coloradoes/documents/Final_GOEA_Buffer_Recommendations_AvoidanceMinimization_WindFacilities_April_10_2013.pdf
- *Final Outline and Components of an Eagle Conservation Plan (ECP) for Wind Development: Recommendations from USFWS Region 6*
https://www.fws.gov/coloradoes/documents/Final_USFWS_R6_ECP_guidance.pdf
 - Threatened/endangered species - Endangered Species Act (ESA)
 - Northern long-eared bat
 - Least tern
 - Piping plover
 - Whooping crane
 - Dakota skipper
 - Rufa red knot
 - Wetlands - avoid, minimize, compensate for unavoidable impacts
<https://www.fws.gov/wetlands/>
 - Birds of Conservation Concern - *Birds of Conservation Concern 2008*
<https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf>
 - Avian Avoidance of Wind Turbines - indirect effects
 - Loesch et al. (2013) - waterfowl avoidance
 - Shaffer and Buhl (2016) - grassland nesting bird avoidance
 - Mitigation - 1981 Service Mitigation Policy
https://www.fws.gov/policy/a1npi89_02.pdf
 - Bird and Bat Conservation Strategy - WEG and U.S. Fish and Wildlife Service, Region 6, *Mountain-Prairie Region Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects*
<https://www.fws.gov/coloradoes/documents/Final%20R6%20BBCS%20Outline%20with%20annotation.pdf>
 - Meteorological Towers
 - *2018 Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning*
<https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php>
 - 2015 Federal Aviation Administration Obstruction Marking and Lighting Advisory Circular AC70/7460-1L
https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_with_chg_1.pdf
 - Overhead Power Lines
 - *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*

- <http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>
- *Raptors at Risk* video
<https://www.edmlink.com/component/zoo/item/video-raptors-at-risk>
- *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*
<http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

We appreciate the opportunity to provide comments. If you have any questions on these comments, please contact Natalie Gates at (605) 224-8693, Extension 227.

Sincerely,



For Scott Larson
Field Supervisor
North and South Dakota Field Offices

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Shaffer, J. A. and D. A. Buhl. 2016. Effects of wind-energy facilities on breeding grassland bird distributions. *Conservation Biology* 30(1):59-71.

Enclosure

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region



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Denver, Colorado 80225-0486

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134 Union Boulevard
Lakewood, Colorado 80228-1807

FEB 04 2010

Memorandum

To: Field Office Project Leaders, Ecological Services, Region 6
Montana, North Dakota, South Dakota, Nebraska, Kansas

From: Assistant Regional Director, Ecological Services, Region 6

Subject: Region 6 Guidance for Minimizing Effects from Power Line Projects Within the Whooping Crane Migration Corridor

This document is intended to assist Region 6 Ecological Services (ES) biologists in power line (including generation lines, transmission lines, distribution lines, etc.) project evaluation within the whooping crane migration corridor. The guidance contained herein also may be useful in planning by Federal action agencies, consultants, companies, and organizations concerned with impacts to avian resources, such as the Avian Power Line Interaction Committee (APLIC). We encourage action agencies and project proponents to coordinate with their local ES field office early in project development to implement this guidance.

The guidance includes general considerations that may apply to most, but not every, situation within the whooping crane migratory corridor. Additional conservation measures may be considered and/or discretion may be applied by the appropriate ES field office, as applicable. We believe that in most cases the following measures, if implemented and maintained, could reduce the potential effects to the whooping crane to an insignificant and/or discountable level. Where a Federal nexus is lacking, we believe that following these recommendations would reduce the likelihood of a whooping crane being taken and resulting in a violation of Endangered Species Act (ESA) section 9. If non-Federal actions cannot avoid the potential for incidental take, the local ES field office should encourage project proponents to develop a Habitat Conservation Plan and apply for a permit pursuant to ESA section 10(a)(1)(B).

Finally, although this guidance is specific to impacts of power line projects to the whooping crane within the migration corridor, we acknowledge that these guidelines also may benefit other listed and migratory birds.

If you have any questions, please contact Sarena Selbo, Section 7 Coordinator, at (303) 236-4046.

**Region 6 Guidance for Minimizing Effects from Power Line Projects
Within the Whooping Crane Migration Corridor**

- 1) Project proponents should avoid construction of overhead power lines within 5.0 miles of designated critical habitat and documented high use areas (these locations can be obtained from the local ES field office).
- 2) To the greatest extent possible, project proponents should bury all new power lines, especially those within 1.0 mile of potentially suitable habitat¹.
- 3) If it is not economically or technically feasible to bury lines, then we recommend the following conservation measures be implemented:

a) Within the 95-percent sighting corridor (see attached map)

- i) Project proponents should mark² new lines within 1.0 mile of potentially suitable habitat and an equal amount of existing line within 1.0 mile of potentially suitable habitat (preferably within the 75-percent corridor, but at a minimum within the 95-percent corridor) according to the U.S. Fish and Wildlife Service (USFWS) recommendations described in APLIC 1994 (or newer version as updated).
- ii) Project proponents should mark replacement or upgraded lines within 1.0 mile of potentially suitable habitat according to the USFWS recommendations described in APLIC 1994 (or newer version as updated).

b) Outside the 95-percent sighting corridor within a State's borders

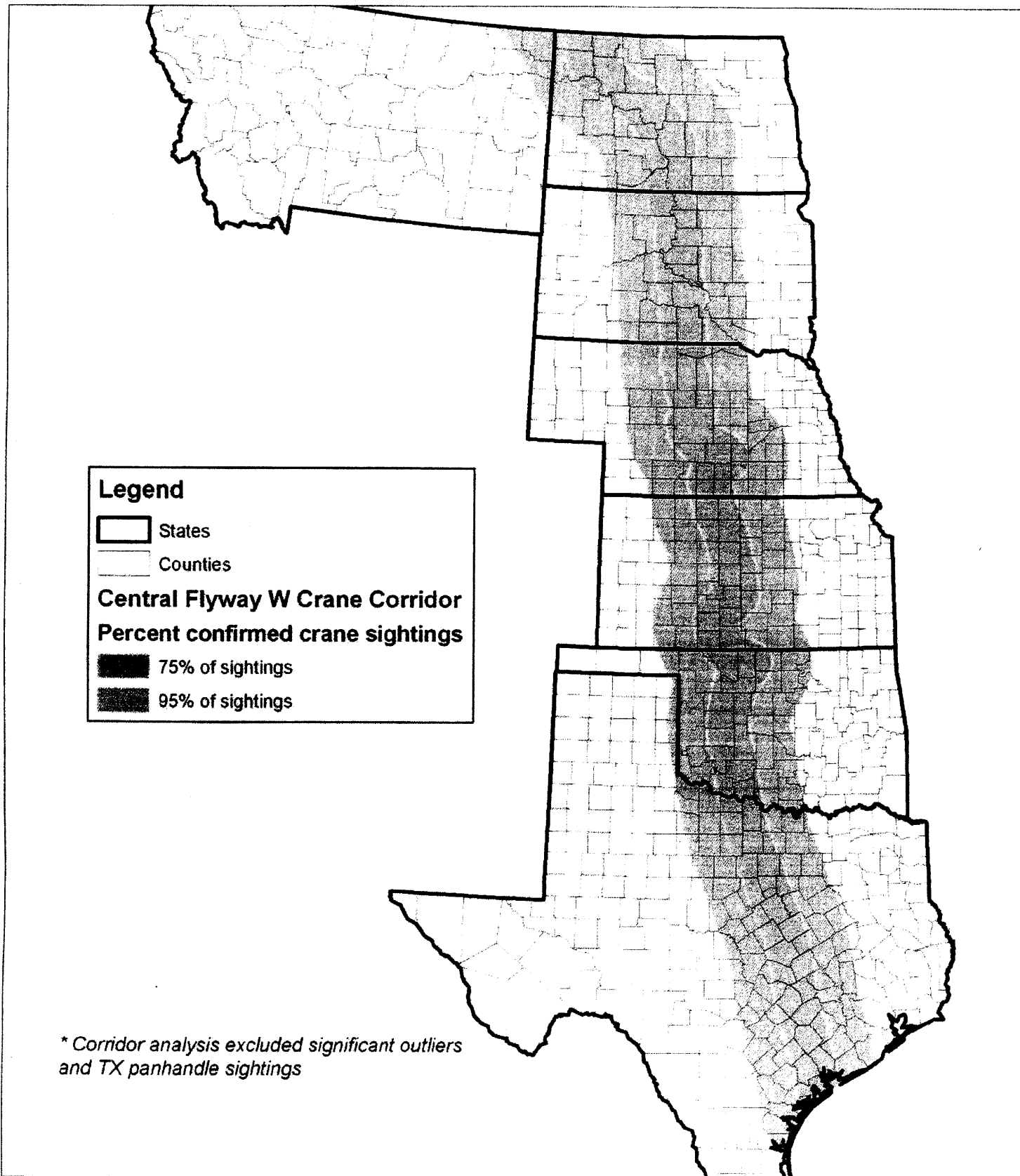
Project proponents should mark new lines within 1.0 mile of potentially suitable habitat at the discretion of the local ES field office, based on the biological needs of the whooping crane.

c) Develop compliance monitoring plans

Field offices should request written confirmation from the project proponent that power lines have been or will be marked and maintained (i.e., did the lines recommended for marking actually get marked? Are the markers being maintained in working condition?)

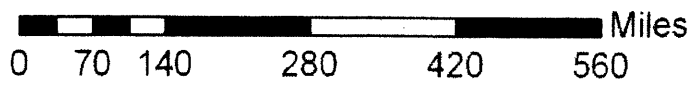
¹ Potentially suitable migratory stop over habitat for whooping cranes includes wetlands with areas of shallow water without visual obstructions (i.e., high or dense vegetation) (Austin & Richert 2001; Johns et al. 1997; Lingle et al. 1991; Howe 1987) and submerged sandbars in wide, unobstructed river channels that are isolated from human disturbance (Armbruster 1990). Roosting wetlands are often located within 1 mile of grain fields. As this is a broad definition, ES field office biologists should assist action agencies/applicants/companies in determining what constitutes potentially suitable habitat at the local level.

² Power lines are cited as the single greatest threat of mortality to fledged whooping cranes. Studies have shown that marking power lines reduces the risk of a line strike by 50 to 80 percent (Yee 2008; Brown & Drewien 1995; Morkill & Anderson 1991). Marking new lines and an equal length of existing line in the migration corridor maintains the baseline condition from this threat.



* Corridor analysis excluded significant outliers and TX panhandle sightings

Produced for Ecological Services
Grand Island, NE
Current to: 2008
Basemap (Date): U.S. Counties
Meridian:
File



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