Biological Assessment

Programmatic Eagle Take Permit
Pioneer Wind Park I Wind Energy Facility

Region 6, Migratory Birds
134 Union Blvd
Lakewood, CO 80228

September 24, 2014

I. Introduction

Wasatch Wind Intermountain, LLC has made application to the United States Fish and Wildlife Service ("Service" or "we") for a Programmatic Eagle Take Permit ("Permit") for the Pioneer Wind Park I Wind Energy Facility ("Project") located in Converse County, Wyoming. Programmatic eagle take permits are voluntary permits which are not required for the completion of any project or activity. Applicants who choose to apply for a Permit are required to develop strategies to avoid, minimize, or mitigate unintended take of eagles. If an applicant employs these strategies and other advanced conservation practices required by the Service, the Service may issue a permit for the limited take of eagles. In support of their application for the permit, the applicants have developed an Eagle Conservation Plan (ECP) in coordination with the Service to identify all measures that have been or will be taken at the Project to conserve eagles. The Service has prepared this Biological Assessment (BA) in accordance with Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531 *et seq.*) to examine the environmental consequences of issuing a permit for the Project.

II. Project description

The Project is a wind-energy facility located in Converse County, Wyoming near the town of Glenrock (Figure 1). The Project is located in the foothills of the Laramie Mountains, with elevations ranging from approximately 5,500 to 7,600 feet. The topography ranges from gently rolling slopes to abrupt canyons and ridges. Combined, the Project consists of approximately 25,268 acres (approx. 40 square miles[mi^2]) and is located entirely on private lands and Wyoming State School Trust Lands with the dominant land use being rangeland for grazing livestock. There are no federally owned or managed lands located within the Project.

The Project was originally permitted through the Wyoming Industrial Siting Council (ISC) in July, 2011. As originally permitted by the ISC, the Project was part of a larger proposal which included the Pioneer Wind Park I consisting of 31 General Electric (GE) 1.6-megawatt (MW) wind turbine generators (WTGs) for a total nameplate capacity of 49.6 MW and Pioneer Wind Park II consisting of 31 GE 1.6 MW WTGs for a total nameplate capacity of 49.6 MW. Combined the original proposal included 62 WTGs with a total nameplate capacity of approximately 99 MW.

On June 24, 2013, the ISC approved a reduction in the number of turbines to 46 1.85 MW WTGs with a total net output of 80 MW (Figure 2). The reduction in the total number of WTGs resulted from a need to address resource concerns elucidated after consultations with the Wyoming State Historical Preservation Office, Wyoming Game and Fish Department, local residents, and the Service.

Environmental impacts resulting from the Project will occur during two phases; construction, followed by operation and maintenance. The construction phase will include construction of the WTGs, 11.54 miles of access roads, underground power collection lines linking the WTG to a Project substation, the Project substation, approximately 5 miles of 230-kilovolt (kV)

transmission line connecting the Project to the regional electrical grid, operation and maintenance facilities, and up to two permanent meteorological towers. Potential effects to listed species during the operation and maintenance phase may include disturbance from routine (daily) maintenance of the Project and impacts resulting from collisions with wind turbine blades and associated infrastructures. Estimates of permanent and temporary disturbance acres for major Project components are provided in Table 1.

Table 1. Estimated Temporary and Permanent Disturbance Acres Associated with Pioneer Wind Park Project Features, Converse County, Wyoming.

Project Feature	Temporary Disturbance Acres	Permanent Disturbance Acres
Wind Turbine Generators	0	46
Access Roads	18.2	19.6
Crane Pads	130.3	0
Laydown Area	8.5	0
Concrete Batch Plant	8.0	0
230kv Transmission Line	38.1	<0.1
Collector System	6.0	<0.1
O&M Building	0	0.1
Parking Lot	0	1.0
Substations	0	5.7
Permanent MET Towers	1.0	<1
TOTAL	**210.1**	**73.6**

Land use and major habitat type acreage present in the Project area are listed in Table 2. Permanent and temporary impacts on major habitat types within the Project area are listed in Table 3.

Table 2. Land Use/Habitat types present within the Pioneer Wind Park Project Area, Converse County, Wyoming. Data were obtained the US Geological Survey National Land Cover Data Set (2006).

Cover Type	Acreage	% Composition
Developed; Open Space	0.85	<0.01%
Barren	3.28	0.01%
Deciduous Forest	234.31	0.93%
Evergreen Forest	2,978.20	11.79%
Shrub/Sage-steppe	18,177.35	71.94%
Grassland	2,915.44	11.54%
Pasture/Hay	38.93	0.15%
Woody Wetlands	419.62	1.66%
Emergent Wetlands	500.41	1.98%
Total	**25,268.39**	**100.00%**

Descriptions of the various land cover types contained within the 2006 NLCD have been modified from the Anderson Land Cover Classification System and are available at: http://www.mrlc.gov/nlcd06_leg.php.

Table 3. Estimated Temporary and Permanent Acres of Impact by Major Land-Use/Habitat Types Associated with Pioneer Wind Park Project Features, Converse, County, Wyoming. Data were obtained from the US Geological Survey National Land Cover Data Set (2006).

Project Feature	Shrub/sage-steppe		Grassland		Evergreen Forest		Emergent Wetlands	
	Temporary Acres Lost	Permanent Acres Lost	Temporary Acres Lost	Permanent Acres Lost	Temporary Acres Lost	Permanent Acres Lost	Temporary Acres Lost	Permanent Acres Lost
Wind Turbines	-	36.1	-	9.9	-	-	-	-
Access Roads	14.0	15.0	3.9	4.4	<0.1	0.1	0.2	0.2
Crane Pads	101.3	-	28.8	-	0.2	-	-	-
Laydown Area	8.3	-	0.2	-	-	-	-	-
Concrete Batch Plant	6.3	-	0.3	-	1.4	-	-	-
230 kV Trans. Line	8.6	<0.1	1.4	<0.1	27.9	<0.1	0.2	-
Collector System	4.6		1.3		<0.1		0.1	
O&M Building	-	0.1	-	-	-	-	-	-
Parking Lot	-	0.8	-	0.3	-	-	-	-
Substations	-	5.5	-	0.1	-	0.1	-	-
Permanent MET towers	0.8	<0.1	0.1	<0.1	-	-	-	-
Total	**143.9**	**57.5**	**36**	**14.7**	**29.5**	**0.2**	**0.5**	**0.2**

III. Action Area

Action area, as defined by the ESA's implementing regulations (50 CFR 402.02), is all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area includes the Project boundary (about 25,268 acres) plus the surrounding lands where noise, runoff, and visual disturbance is likely to occur. In addition, if the proposed action may lead to consumptive use of water or have the potential to affect water quality in the Platte River System, there may be impacts to threatened and endangered species inhabiting the downstream reaches of this river system; therefore, the action area also includes the Platte River System downstream.

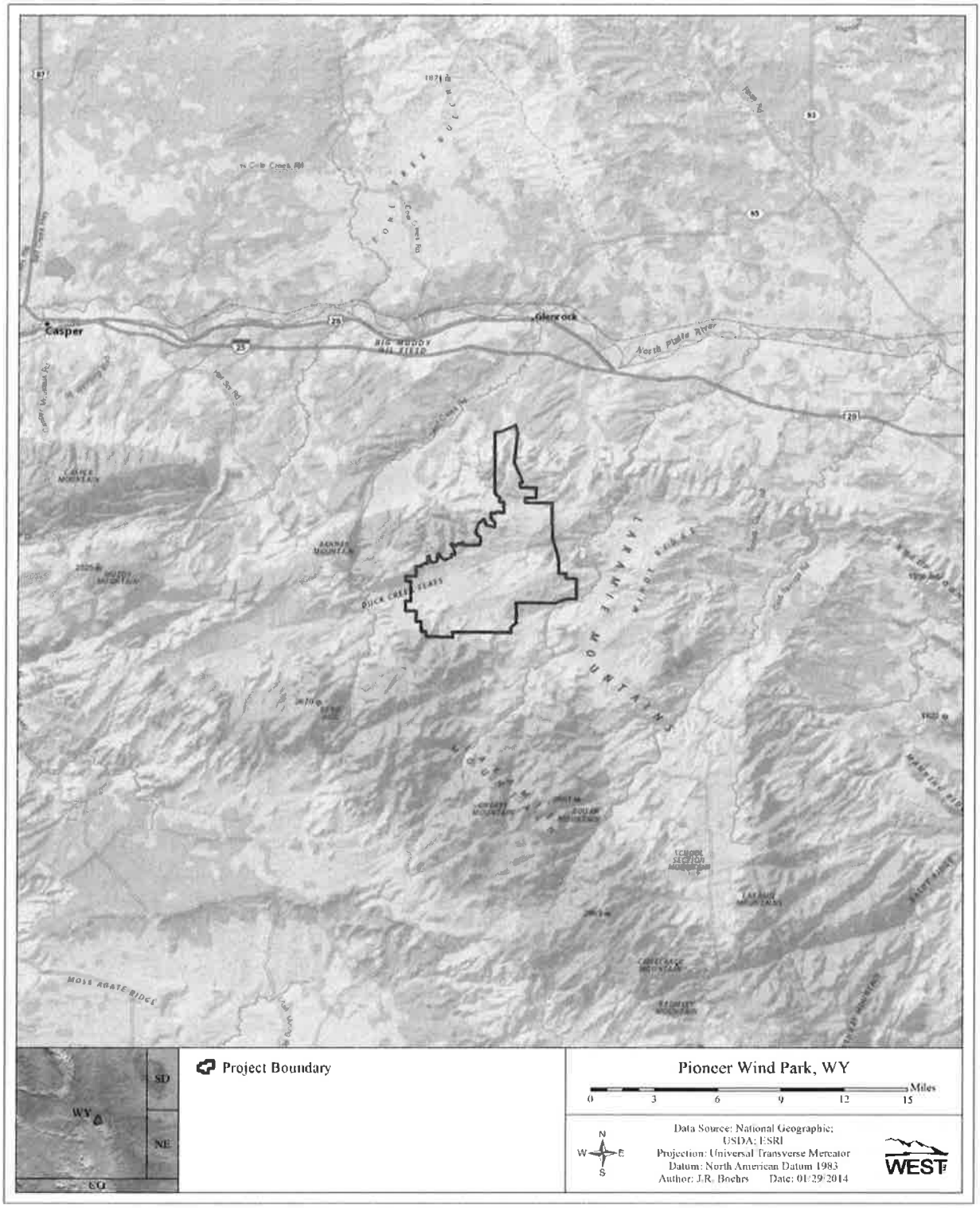

Figure 1. General location of the Pioneer Wind Park Project, Converse County, Wyoming.

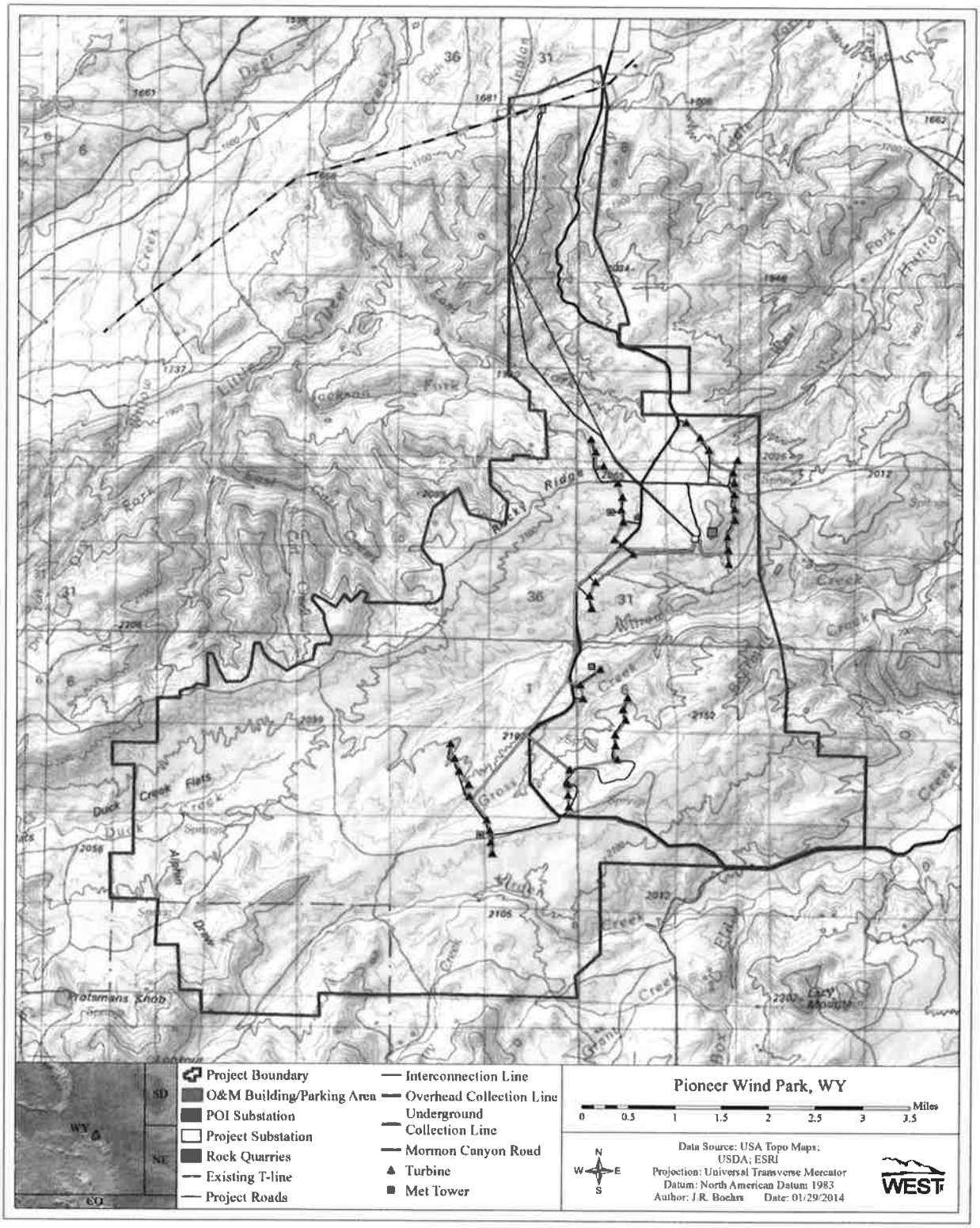

Figure 2. Wind Turbine Locations, Pioneer Wind Park Project, Converse County, Wyoming.

IV. Species/Critical Habitat Considered

Nine species listed, or candidate species for listing, under the ESA are known to occur in Converse County, Wyoming or may be impacted by water withdrawals from the North Platte River during construction of the Project (Table 4, Available at: http://ecos.fws.gov/ipac/). No Federally-designated critical habitat occurs within the Project area, however withdrawals of water from the Platte River may affect critical habitat for the Whooping crane in Nebraska.

Table 4: ESA-listed or candidate species known to occur in Converse County, Wyoming or potentially impacted by water withdrawals from the Platte River System.

Species	Scientific Name	Status	Habitat
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Threatened	Riparian habitat with adjacent, relatively undisturbed, grassland communities
Greater Sage-Grouse	*Centrocercus urophasianus*	Candidate	Sagebrush communities
Sprague's Pipit	*Anthus spragueii*	Candidate	Short- and mixed-grass prairies
Platte River species:			
Interior Least Tern	*Sternula antillarum*	Endangered	Downstream riverine habitat of the Platte River system
Pallid Sturgeon	*Scaphirhychus albus*	Endangered	
Piping Plover	*Charadrius melodus*	Threatened	
Whooping Crane (and critical habitat)	*Grus Americana*	Endangered	
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened	
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 feet elevation

V. Effects Analysis

Preble's Meadow Jumping Mouse – The Project area is outside of the Area of Influence (AOI) for the species in Converse County. The nearest AOI boundary is located approximately 10 miles east of the Project boundary and is in a completely different drainage. The Project is not expected to impact the Preble's Meadow Jumping Mouse.

Interior Least Tern, Pallid Sturgeon, Piping Plover, Western Prairie Fringed Orchid and Whooping Crane and Whooping Crane critical habitat – These species are listed in Converse County due to concerns regarding water depletions from the North Platte River that may affect downstream habitat (i.e., the Platte River in Nebraska). There is no suitable habitat for these species in the Project Area and they are not expected to occur on site. As originally permitted (62 turbines), the Project anticipated using 7.4 acre-feet of water for construction activities. No

estimates are currently available for the reduced project size of 46 turbines. The applicant will purchase water from a commercial water supplier for all construction and operational phases of the Project. At present the applicant does not know the source of commercial water for this Project. The Service's Migratory Bird Program will require, as a condition of the Permit, that all water sources be identified and not contribute to additional withdrawals from the North Platte River.

Sprague's Pipit - There are only two documented records of the species in Wyoming; a single adult Sprague's pipit recorded on 6 October 2010 and six Sprague's pipits at Casper, Natrona County, on 27 September 1994 (SWCA 2012). Wyoming is west of the species' traditional spring and fall migration route through the Great Plains (Jones 2010) and the species is not known to breed in the state (Cerovski et al. 2004; Faulkner 2010). A few individuals may occur within the action area during their annual migration between breeding grounds in Montana and wintering areas south of Wyoming; however, the rarity of the species in Wyoming and the small amount of hazardous airspace within the Project make it unlikely that Sprague's pipits will be impacted by the Project.

Ute Ladies'-tresses - Nine known populations of Ute ladies'-tresses are located in the eastern part of Wyoming in Converse, Goshen, Laramie, and Niobrara Counties (Heidel 2007). In Wyoming, this orchid is found at elevations of 4,750 to 5,400 feet (Heidel 2007). Common associated species are typical of wet meadow communities and include creeping bentgrass, switchgrass (*Panicum virgatum*), scratchgrass (*Muhlenbergia asperifolia*), seaside arrowgrass (*Triglochin maritima*), blue-eyed grass (*Sisyrinchium* spp.), rushes, fewflower spikerush (*Eleocharis quinqueflora*), smooth horsetail (*Equisetum laevigatum*), yellow sweetclover (*Melilotus officinalis*), meadow lousewort (*Pedicularis crenulata*), and common threesquare (*Schoenoplectus pungens*).

Potential habitat models for the Ute ladies'-tresses were created by the applicant using a combination of aerial imagery with GIS layers of vegetation (LANDFIRE) and wetlands (National Wetland Inventory). Critical vegetation types included Rocky Mountain Montane Riparian Systems, Rocky Mountain Subalpine/Upper Montane Riparian Systems, Western Great Plains Floodplain Systems, and Western Great Plains Wooded Draw and Ravine (USGS 2006). Critical wetland types included Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, Freshwater Pond, and Riverine systems (USFWS 2010).

Surveys for Ute ladies'-tresses must occur during the fruiting and blooming period. This species typically blooms from late July to early September in Wyoming; however, it does not necessarily flower every year (Bureau of Land Management 2007). The peak of flowering occurs in Wyoming around mid-August, but this depends on temperature and moisture. Based on habitat characteristics for this plant, surveys were limited to floodplain and riparian systems. Botanists with SWCA conducted a reconnaissance survey of potential habitat within the Project Area on 4–5 August 2010. The botanists searched approximately 1,700 acres (7%) of the Project Area,

looking for plant populations and noting the quality of potential habitat. Photographs were taken of wetland areas and surrounding habitat to document habitat quality.

Ute ladies'-tresses were not observed in the Project Area. Surveys of five of the six sub-watersheds revealed that the wetland and riparian areas are non-suitable habitat for Ute ladies'-tresses. This determination was based on lack of habitat characteristics associated with the species. Dominant riparian vegetation included peachleaf willow, coyote willow, orchard grass, and various rushes and sedges (*Carex* spp.).

The remaining sub-watershed, the upper reaches of Virden Creek in the Box Elder Creek, contained habitat characteristics suitable for Ute ladies'-tresses, which includes sub-irrigated hayfields surrounding the gentle-grade perennial stream. Common species found along upper Virden Creek include creeping bentgrass, redtop, coyote willow, Nebraska sedge, mountain rush, bulrush, foxtail, wild mint, and red clover. A large occurrence of hooded ladies'-tresses (*Spiranthes romanzoffiana*), which is a common look-alike species to Ute ladies'-tresses, was observed here. The entire reach of suitable habitat was surveyed and no Ute ladies'-tresses were identified within this population of hooded ladies'-tresses. Hooded ladies'-tresses are more common and occur at higher elevations. The Project Area is located at elevations of 5,500 to 6,700 feet above mean sea level, which is at elevations greater than the nine previously recorded occurrences of Ute ladies'-tresses in Wyoming (Heidel 2007). Based on survey results and the applicants proposed wind turbine siting (Figure 2) which avoids locations in the upper reaches of Virden Creek no impacts are expected in suitable habitat for this species.

Greater sage-grouse - Three active greater sage-grouse (sage-grouse) leks are located within the Project Area. These include two previously documented leks (Morman Canyon and Virden Creek leks) and one unknown lek documented during surveys in 2010 (Figure 3; SWCA 2012). Morman Canyon lek is located off of Mormon Canyon Road in the northeast of the Project Area. Virden Creek lek is located in the south portion of the Project Area. The previously undocumented lek (now named Boxelder) is located in the southeast portion of the Project Area.

For sage grouse, Wyoming has adopted a "core population area" strategy which seeks "...to weave the many on-going efforts to conserve the Greater Sage-Grouse in Wyoming into a statewide strategy..." (WY Executive Order 2011-5; available at http://www-wsl.state.wy.us/sis/wydocs/execorders/EO2011-05.pdf). Under this strategy "...New development or land uses within Core Population Areas should be authorized or conducted only when it can be demonstrated that the activity will not cause declines in Greater Sage-Grouse populations."

All leks which occur in the Project Area are not located within core sage-grouse habitat as mapped by the Wyoming Fish and Game Department (WGFD). The closest area of core sage-grouse habitat occurs approximately 4.5 miles west of the Project Area (WGFD 2010) and contains three active leks (Altmann, Banner Draw 3, and Hat Six leks).

Potential construction-related impacts to greater sage-grouse will be minimized by constructing outside of the sage-grouse lekking season (March 15 – May 15). Except for improvements to Mormon Canyon Road and two other existing dirt access roads, there will be no construction activities within 0.25 mile of the Morman Canyon Lek. Similarly, there will be no construction activities within a quarter-mile of the Virden Creek and Boxelder leks. The nearest construction activities to these leks will take place approximately 1.3 miles from the Boxelder Lek and 0.4 miles from the Virden Creek Lek.

Although direct impacts to any sage-grouse nests in the area will be avoided by clearing vegetation outside of the sage-grouse nesting season, the temporary loss of 143.9 acres and permanent loss of 57.5 acres of sagebrush steppe habitat will reduce the amount of sage-grouse nesting and brood-rearing habitat within the Project area. Sagebrush steppe habitat accounts for approximately 72% (18,177 acres) of vegetative cover within the Project Area. Temporary and permanent habitat loss will reduce this percentage by 0.8% and 0.3% respectively. Disturbance associated with construction activities taking place during the summer and fall will likely cause sage-grouse to avoid the Project sites while they are under construction, displacing individual birds and broods to other suitable habitats in the area. Given that no construction activities are planned for the winter, there will be no construction-related impacts to sage-grouse wintering on the site.

Additional direct and indirect impacts to sage-grouse within the Project area may include collisions with turbine blades, fences, guy wires, power lines, and vehicles; behavioral avoidance and habitat fragmentation; auditory and visual disturbance; increased predator access; and the spread of invasive weeds. In Wyoming, the WGFD recently reviewed these impacts and their review is incorporated here by reference (Available at: http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/WINDENERGY_WILDLIFEPROTECTION0000703.pdf). In summary, it is currently unknown what the long-term effect(s) of these impacts resulting from the Project will have on the long-term occupancy and persistence of the local sage-grouse leks.

In summary, construction-related effects will be minimized through the described conservation measures, though disturbance (e.g., noise) could result in nest abandonment or lower hatching success for a few hens nesting in close proximity to construction areas during mid-May and June. Operation of the wind facility could result in some displacement of sage-grouse from within and immediately adjacent to the Project footprint. Also, nest success and brood survival could be reduced within up to 5 kilometers (3.1 miles) of turbines (Lebeau et al. 2014). Finally, attendance at nearby leks may decline if operation of the Project causes birds to abandon the area. While these effects are possible, magnitude of effects is difficult to quantify at this time, but the Project is small enough that it should not appreciably reduce the grouse population within the broader geographic area. Therefore, this Project will not jeopardize the continued existence of the greater sage-grouse.

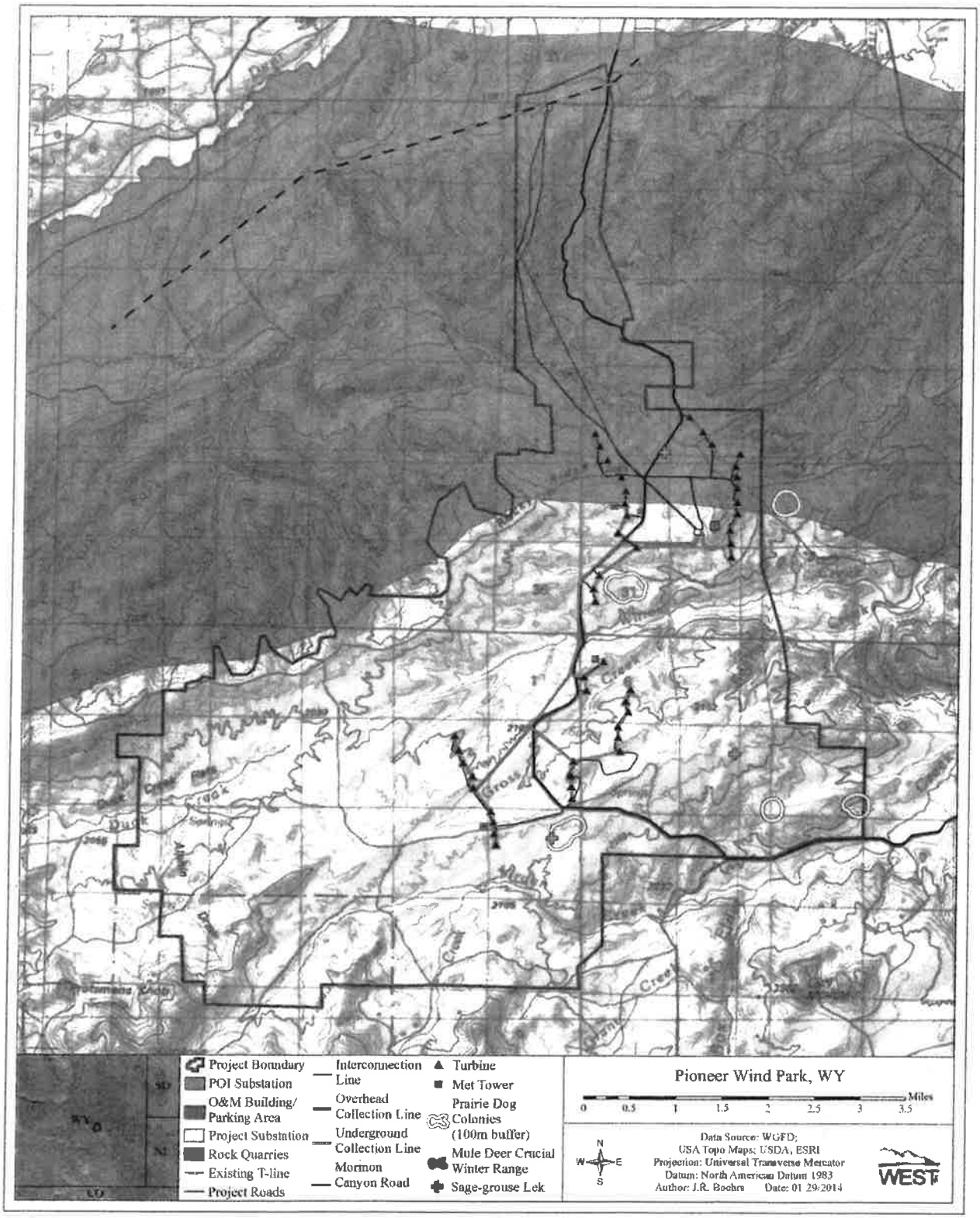

Figure 3. Greater sage-grouse leks in the vicinity of the proposed Pioneer Wind Park Project Area, Converse County, Wyoming (PWP 2014).

VI. Conclusion and Determination of Effects for each protected resource

Effect determination and response requested: [* = optional]

Determination	Response requested
No effect	
Species: Preble's Meadow Jumping Mouse Interior Least Tern Pallid Sturgeon Piping Plover Whooping Crane Whooping Crane critical habitat Western Prairie Fringed Orchid Ute Ladies'-tresses	__*__ Concurrence
May affect, but is not likely to jeopardize candidate or proposed species/critical habitat	
Species: Greater Sage-grouse Sprague's Pipit	__X__ Concurrence

_*Kelly M Hogan*_____ _ 9/30/14_____
Signature Date

VII Reviewing ESO Evaluation:

A. Concurrence __X__ Nonconcurrence _____
B. Formal consultation required _____
C. Conference required _____
D. Informal conference required _____
E. Remarks (attach additional pages as needed):

_____ 10-1-14
for R. Mark Sattelberg Date
Field Supervisor – Wyoming Field Office
U.S. Fish and Wildlife Service

VIII. Literature Cited

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IX. List of Contacts Made and Preparers

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