Appendix J

Site Characterization Study

Site Characterization Study Report
Tatanka Wind Project
Deuel County, South Dakota

Prepared for:

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NOTES ON UNITS

Imperial units are used throughout this document, with the exception of the use of meters when describing survey methodology, where metric is used to be consistent with agency guidelines. Conversions are provided below.

Unit Conversions

Imperial	Metric
1 foot	0.3048 meter
3.28 feet	1 meter
1 mile	1.61 kilometers
0.621 mile	1 kilometer
1 acre	0.40 hectare
2.47 acres	1 hectare

Common Conversions

Imperial	Metric
0.12 mile	200 meters
0.5 mile	800 meters
10 miles	16.1 kilometers

1 INTRODUCTION

Buffalo Ridge III, LLC (Buffalo Ridge III), a subsidiary of Avangrid Renewables, LLC, has proposed development of the Tatanka Wind Project (Project) located in Deuel County, South Dakota (Figure 1). Buffalo Ridge III contracted Western EcoSystems Technology, Inc. (WEST) to conduct baseline ecological studies at the proposed Project. The purpose of this report is to describe biological resources present within and surrounding the proposed Project and to identify potential risks to biological resources that could result from construction and operation of the Project. This report follows the guidelines for a Tier 2 Site Characterization Study set forth in the US Fish and Wildlife Service (USFWS) *Land-based Wind Energy Guidelines* (WEG; USFWS 2012) and the Stage 1 initial site assessment as described in the *Eagle Conservation Plan Guidance* (ECPG; USFWS 2013a) and addresses the Tier 2 and Stage 1 questions, respectively, in these guidelines.

2 PROJECT AREA

The proposed Project is located in Deuel County, South Dakota approximately five miles (mi) west of the South Dakota/Minnesota border, and directly north of the town of Toronto, South Dakota (Figure 1). The area within the boundary of the Project encompasses 22,905 acres (ac; 36 square miles [mi^2]).

The Project is located within the Northern Glaciated Plains Level III Ecoregion, which covers much of the eastern portion of South Dakota (US Environmental Protection Agency 2016). The Northern Glaciated Plains are characterized by a flat to gently rolling landscape composed of glacial drift. This ecoregion serves as a transitional zone between tall and shortgrass prairie with high concentrations of temporary and seasonal wetlands that are favorable for duck nesting and migration. As is typical of this region, elevations range from approximately 1,663 to 2,024 feet (ft) within the Project boundary (US Geological Survey [USGS] 2016b; Figure 2). The highest portion of the Project demarks the transition from the Big Sioux Basin Level IV Ecoregion on the west to the Prairie Coteau Level IV Ecoregion on the east. The Big Sioux Basin is characterized by relatively flat topography and fewer wetlands than the surrounding landscapes; a large portion of this region is currently used for cultivated cropland. The Prairie Coteau Ecoregion is approximately 200 mi in length and 100 mi in width, rising from the prairie flatlands in eastern South Dakota, southwestern Minnesota, and northwestern Iowa; this ecoregion is characterized by rolling rocky terrain that is often utilized for grazing. (Bryce et al. 1998)

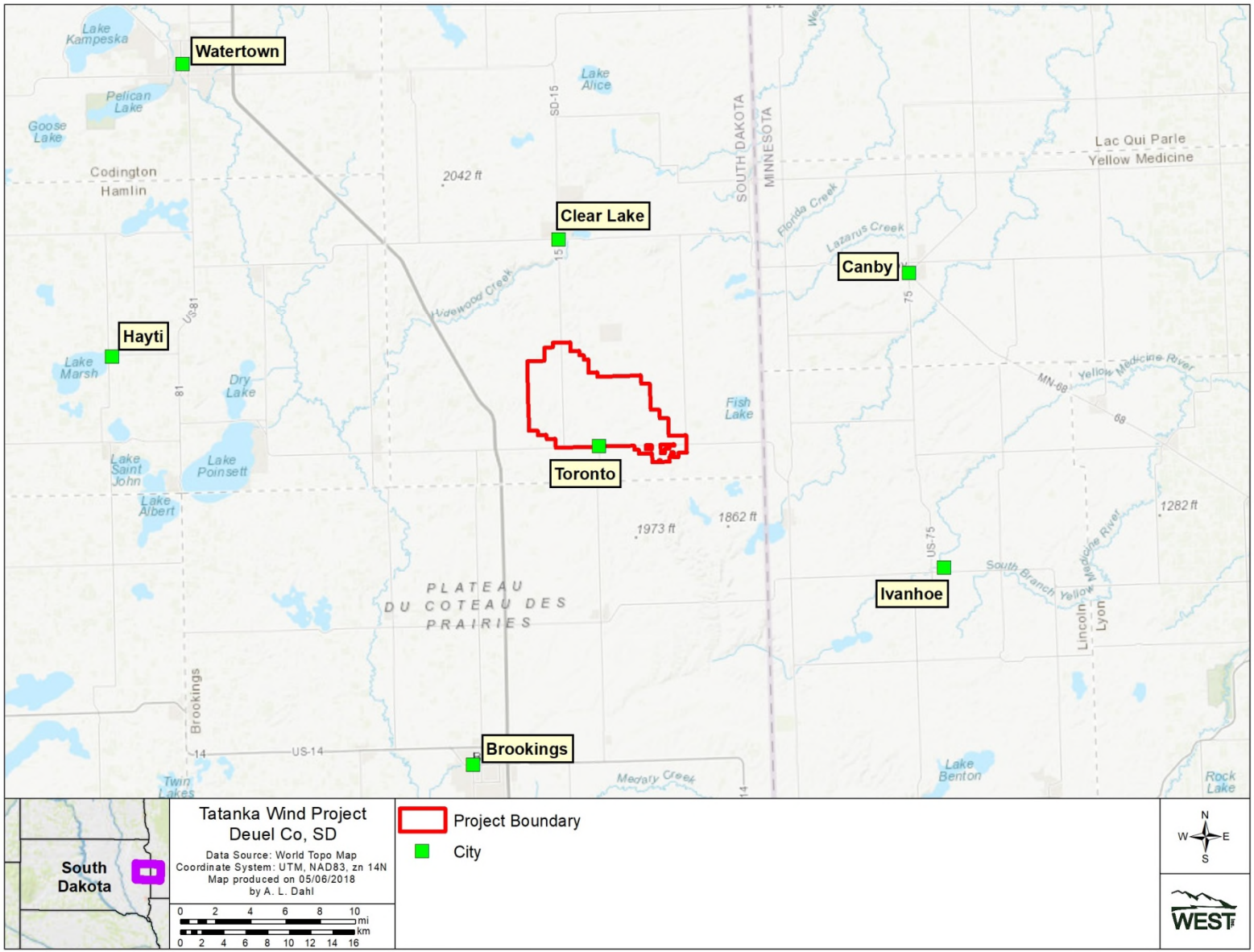

Figure 1. Location of the Tatanka Wind Project, Deuel County, South Dakota.

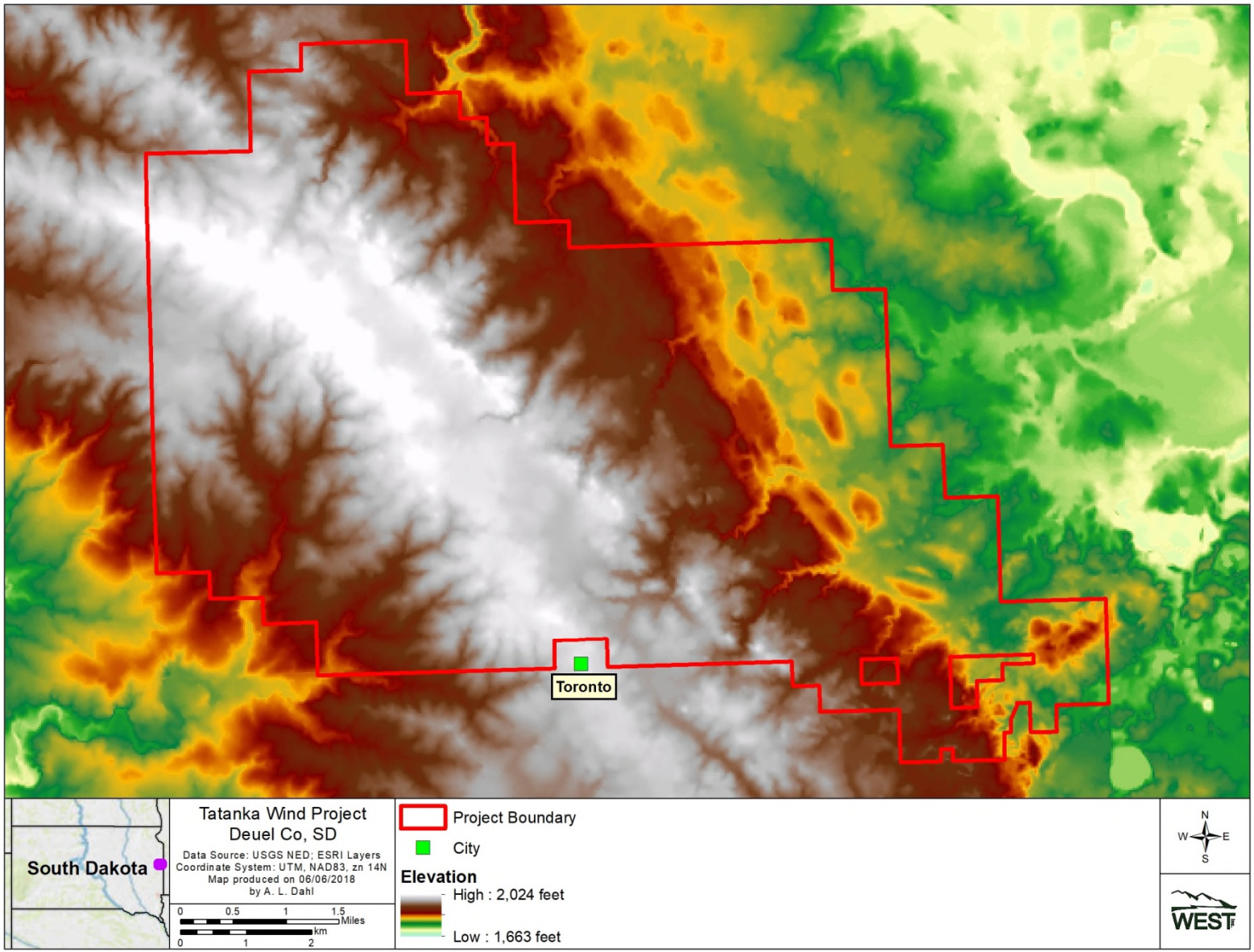

Figure 2. Digital Elevation Model of the Tatanka Wind Project, Deuel County, South Dakota.

3 METHODS

Biological resources within the Project were evaluated through a review of existing publicly available data, including published technical literature, online articles, aerial photographs, maps, and public datasets. An online environmental review was conducted for the Project using the USFWS Information for Planning and Consultation (IPaC) website to identify known federally listed species and environmentally sensitive resources located within the Project boundary. In addition, the South Dakota Game, Fish, and Parks (SDGFP) was contacted to obtain Natural Heritage Program (NHP) records of known federally and state-listed species and other environmentally sensitive resources located in or near the Project boundary. The results of these federal and state agency environmental reviews are provided in Appendix A.

A reconnaissance site visit was completed on May 22, 2018 to evaluate current land cover, characterize environmentally sensitive areas, and identify areas that may provide suitable habitat for eagles or other species of special concern within the Project boundary. Representative photographs were taken during the field review and are provided in Appendix B.

4 HABITATS IN PROJECT AREA

Publicly available data and aerial photographs were reviewed to assess potential wildlife habitat and identify any environmentally sensitive features within the Project boundary. This assessment included land cover, wetlands and waterbodies, public lands, native prairie communities in or near the Project area, which are discussed below.

4.1 Land Cover/Use

Based on USGS National Land Cover Data (NLCD; USGS NLCD 2011, Homer et al. 2015), the majority (89.4%) of land within the Project boundary consists of cultivated cropland (65.1%) and herbaceous land (24.3%; Table 1 and Figure 3). Other land cover types that compose at least 1% of the Project area include developed open space (primarily roads; 4.7%), hay/pasture (3.9%), and emergent herbaceous wetlands (1.1%).

Table 1. Land cover types present within the Tatanka Wind Project, Deuel County, South Dakota.

	Project Area	
Cover Type	**Acres**	**Percent (%)**
Cultivated Crops	14,907	65.1
Herbaceous	5,576	24.3
Developed	1,086	4.7
Hay/Pasture	893	3.9
Emergent Herbaceous Wetlands	256	1.1
Deciduous Forest	127	0.6
Open Water	60	0.3
Total	**22,905**	**100**

Data Source: USGS NLCD 2011, Homer et al. 2015

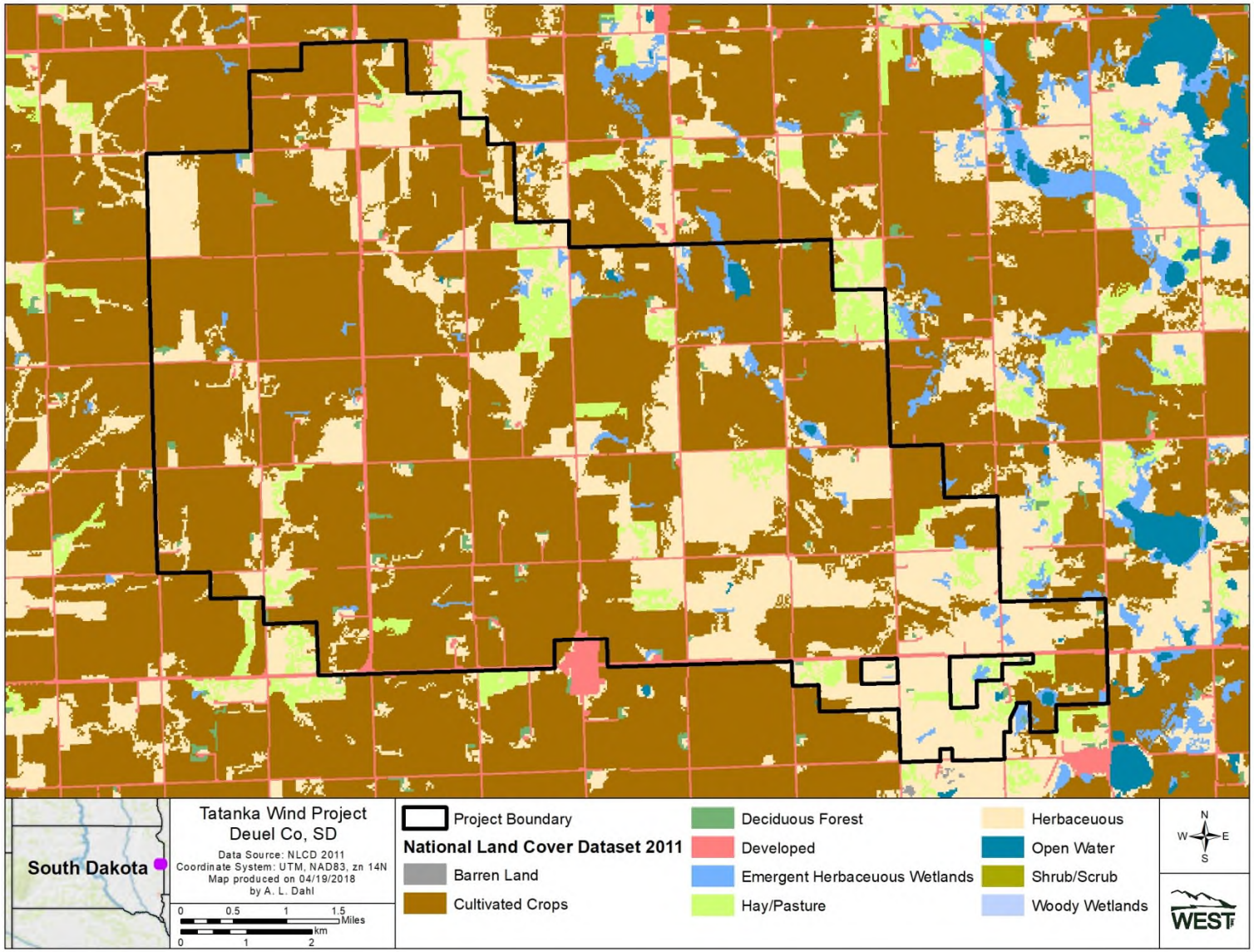

Figure 3. Land cover types within the Tatanka Wind Project, Deuel County, South Dakota. (US Geological Survey National Land Cover Database 2011, Homer et al. 2015).

Based on the site visit and consistent with the publicly available land cover data presented in Table 1, land cover within the Project boundary is predominantly cultivated croplands. Although corn (*Zea mays*) appeared to be the primary cultivated crop, many of the fields had not yet been planted at the time of the site visit, which is most likely attributable to the Spring of 2018 having cooler temperatures and higher amounts of snow than average (National Oceanic and Atmospheric Administration, National Weather Service 2018). Herbaceous land is present throughout the Project area, and it is concentrated within an area extending from the upper northcentral portion of the Project to the southeastern portion of the Project. During the site visit, cattle grazing was observed within herbaceous lands in the southeastern portion of the Project. Wooded areas within the Project boundary are limited to small woodlots and windbreaks, which are associated with most of the farmsteads.

4.2 Wetlands and Waterbodies

National Wetlands Inventory (NWI) data and the USGS, National Hydrography Dataset (NHD; USFWS NWI 2014, USGS NHD 2016c) indicate that wetlands and other waters of the United States (WOUS; e.g., rivers, streams) occupy a small percentage (2.9% or 660 ac) of the Project area (Figure 4; Table 2). Numerous waterbodies are present within the Project boundary, most of which are tributaries to Cobb Creek, Bullhead Run, North Deer Creek, and Peg Munky Run. The predominant wetland type within the Project is freshwater emergent wetland (95.1%).

Table 2. Wetland types present within the Tatanka Wind Project, Deuel County, South Dakota.

	Wetland Area	
Wetland Type	**Acres**	**Percent (%)**
Freshwater Emergent Wetland	628	95.1
Freshwater Pond	25	3.8
Freshwater Forested/Shrub Wetland	7	1.1
Total	**660**	**100**

Data Source: USFWS NWI 2014, USGS NHD 2016c

Temporary and seasonal wetlands account for approximately 92% of the wetlands within eastern South Dakota (Johnson and Higgins 1997), most of which are depressional wetlands known as prairie potholes. The majority of the wetlands present within the Project boundary appear to be isolated wetlands that may be cultivated during dryer portions of the year. In addition, several small, freshwater forested/shrub wetlands and freshwater ponds are scattered throughout the central portion of the Project area. Although data from the USGS NLCD (Figure 3; Table 1), which is based on 2011 Landsat satellite imagery, indicate that substantially fewer acres of emergent wetlands are present within the Project (about 372 ac) than the NWI data, NWI data is presented below because it has been determined to be much more accurate in identifying and delineating wetlands than the USGS NLCD data (Handley and Wells 2009).

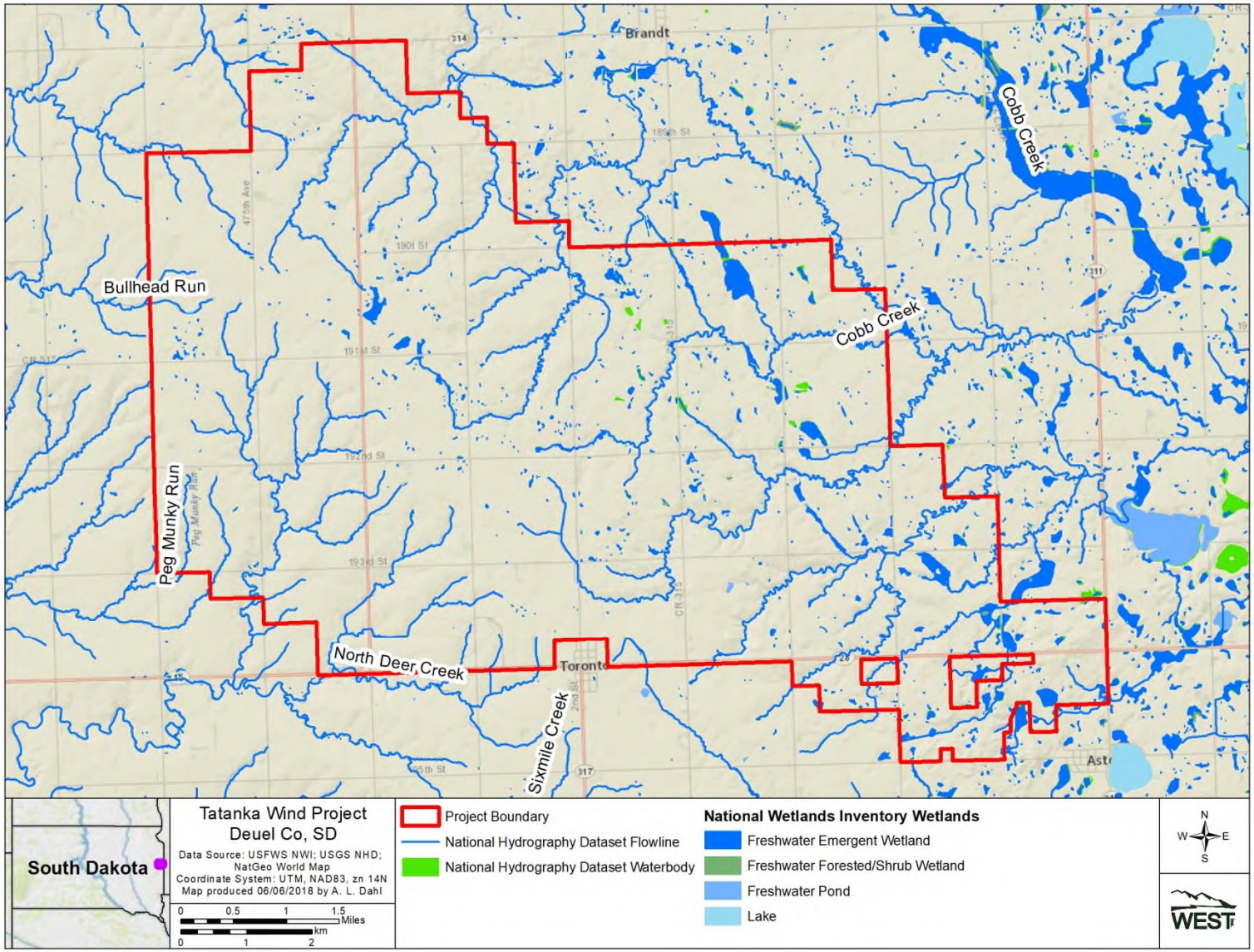

Figure 4. Wetlands and waterbodies in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota (USFWS NWI 2014, USGS NHD 2016c).

Many of the wetlands identified by the NWI are isolated wetlands located within agricultural fields that do not appear to have a significant nexus with traditional navigable waters. These isolated wetlands would likely not be considered jurisdictional WOUS by the US Army Corps of Engineers (USACE). In contrast, waterbodies and wetlands directly adjacent to streams within the Project boundary would likely be considered WOUS, and thus regulated by the USACE under Section 404 of the Clean Water Act (CWA; 1972). If wetland impacts are anticipated, wetland delineations should be conducted in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE 2010), and the USACE should be consulted on permit requirements.

4.3 Public Lands

There are a total of eight federally owned or managed areas within the Project boundary, including one Waterfowl Production Area (WPA), two parcels that contain USFWS grassland easements, and five parcels that contain wetland basins protected by USFWS wetland easements (Figure 5, Table 3). These managed areas occupy a total of 1,003 ac of land within the eastern half of the Project; Deuel County WPA 48 occupies 33 ac, the two adjacent parcels with grassland easements occupy 102 ac, and the five parcels that contain wetland basins protected by USFWS easements occupy 868 ac of land.

WPAs are part of the USFWS' National Wildlife Refuge System, and have either been purchased as public land or protected through perpetual easement. As such, if impacts on Deuel County WPA 48 cannot be avoided, coordination with USFWS should occur in order to develop minimization measures and obtain authorization.

The USFWS administers a wetland and grassland conservation easement management program for participating private lands in the Prairie Pothole Region of the U.S.; these are managed by regional Wetland Management Districts. The easements are perpetual, and private landowners receive payment to participate in the program and follow the associated conservation measures. On parcels with grassland easements, there are restrictions on converting grassland to crops or otherwise removing the protected grassland habitat; some agricultural practices such as cattle grazing or haying may be allowed. On parcels with wetland easements, there are restrictions on the ability to fill, burn, or drain protected wetland basins. Within a parcel that has protected wetland basins, restrictions apply only to the specific protected wetland basins. Therefore, it would be expected that a subset of the 868 ac covered by the parcels with wetland easements would actually be the protected wetland basins, and the remainder of those parcels would not have restrictions and could be cultivated or otherwise developed by the private landowner.

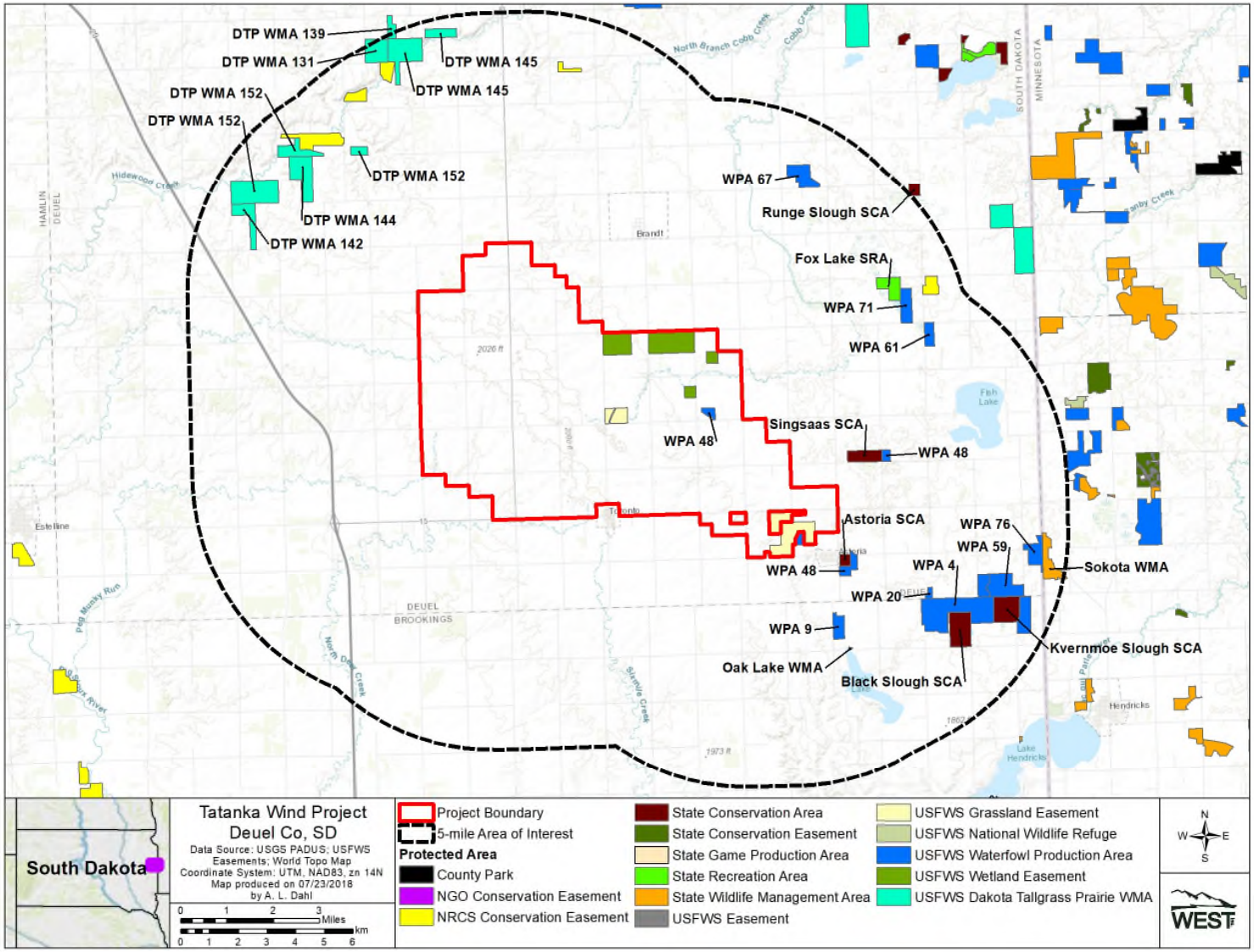

Figure 5. Location of publicly owned or managed land in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota.

Table 3. Publicly owned or managed lands within five miles of the Tatanka Wind Project, Deuel and Brookings counties, South Dakota and Lincoln County, Minnesota.

Land Name	County, State	Land Ownership	Distance and Direction from the Project
Within the Project Boundary			
Deuel County WPA 48 [a]	Deuel, SD	Federal	NA
Grassland Easement (2 parcels)	Deuel, SD	Private [b]	NA
Wetland Easement (5 parcels)	Deuel, SD	Private [b]	NA
Within Five Miles of the Project Boundary			
Deuel County WPA	Deuel, SD	County	Adjacent to the south
Wetland Easement	Deuel, SD	Private [b]	Adjacent to the south
Astoria SCA	Deuel, SD	State	0.5 mi to the south
Singsaas SCA	Deuel, SD	State	0.6 mi to the southwest
Brookings County WPA 9	Brookings, SD	Federal	1.9 mi to the south
Brookings County WPA 4	Brookings, SD	Federal	2.3 mi to the southeast
Oak Lake WMA	Brookings, SD	State	2.4 mi to the south
Deuel County WPA 20	Deuel, SD	Federal	2.4 mi to the southeast
Black Slough SCA	Brookings, SD	State	3.1 mi to the southeast
Dakota Tallgrass Prairie WMA 152 [a]	Deuel, SD	Federal	3.2 mi to the northwest
Fox Lake State Recreation Area	Deuel, SD	State	3.3 mi to the west-northwest
Grassland Easement	Deuel, SD	Private [b]	3.5 mi to the northwest
Deuel County WPA 71	Deuel, SD	Federal	3.6 mi to the east
Deuel County WPA 67	Deuel, SD	Federal	3.8 mi to the northeast
Grassland Easement	Deuel, SD	Private [b]	3.9 mi to the northwest
Deuel County WPA 61	Deuel, SD	Federal	4.0 mi to the east
Floodplain Easement	Deuel, SD	Private [b]	4.3 mi to the northwest
Wetland Reserve Program	Deuel, SD	Private [b]	4.2 mi to the east
Dakota Tallgrass Prairie WMA 145 [a]	Deuel, SD	Federal	4.5 mi to the north
Sokota WMA	Lincoln, MN	State	4.6 mi to the east
Dakota Tallgrass Prairie WMA 131	Deuel, SD	Federal	4.8 mi to the north
Dakota Tallgrass Prairie WMA 139	Deuel, SD	Federal	5.0 mi to the north
Runge Slough SCA	Deuel, SD	State	5.0 mi to the northeast

[a] Deuel County WPA 48, Dakota Tallgrass Prairie WMA 145, and Dakota Tallgrass Prairie WMA 152 each have multiple areas that are managed within five miles of the Project, the closest of which is included in this table.

[b] Although these lands are privately owned, the federal easement restricts activity (within the grassland, floodplain, or wetland basin, as applicable).

In addition to the publicly owned or managed lands within the Project, and typical of this portion of the state, several WPAs, South Dakota State Conservation Areas (SCA), Wildlife Management Areas (WMA), federal conservation easements, and a state recreation area are located within 5.0 mi of the Project (Figure 5; Table 3). These managed lands are primarily associated with wetlands and waterbodies, which support waterfowl production and also have the potential to provide suitable habitat for birds and other wildlife.

4.4 Native Prairie Communities

South Dakota State University (SDSU) has developed a system for identifying potentially undisturbed land (virgin sod), which generally includes native remnant grasslands, pastures, prairies, and other natural herbaceous plant communities including natural forests, woodlands, and shrublands as well as non-developed and non-farmed wetlands (Bauman et al 2016). This

system utilized the South Dakota Farm Service Agency's Common Land Unit data along with USDA/NAIP aerial imagery to evaluate, identify, and remove all tillage and physical land disturbance history in order to identify the location of lands with the highest probability of being truly native (virgin) sod (Bauman et al. 2016). Because the potentially undisturbed lands layer was recently developed, is mapped at a scale of 1:8,000 for the entire Project, and incorporates the results of multiple years and sources of data, it serves as the primary source for identifying potential native prairie habitat for the Project.

WEST biologists compared data from the SDSU system and lands identified by the USGS NLCD (2011, Homer et al. 2015) as herbaceous or hay/pasture with current aerial imagery (ESRI 2018) in order to refine areas identified as potential native prairie (Figure 6).

Based on USGS NLCD data, although the majority (65.1%) of land within the Project boundary consists of cultivated cropland, a substantial amount of herbaceous land (24.3%) and hay/pasture (3.9%) are also present (Table 1, Figure 3). Within these grassland areas, potentially undisturbed grasslands (as mapped by SDSU) compose approximately 3,154 ac of land, which is equivalent to approximately 14% of the Project. The majority of the potentially undisturbed lands are associated with streams and adjacent hillsides in the Project (Figure 6). In addition, several larger areas of potentially undisturbed lands are present within an area that extends from the upper northcentral portion of the Project to the southeastern portion of the Project. These larger areas of potentially undisturbed grasslands include five corridors of mapped undisturbed grasslands within which smaller patches of suitable habitat for federally listed butterflies were identified during the 2015 field surveys (Figure 6; further discussion relating to the potential for these areas to contain potentially suitable habitat for federally listed butterflies is included in Section 5.1.4).

During the site visit, a Pheasants Forever Habitat Cooperator sign was observed along the edge of a grassland area identified by SDSU as potentially undisturbed land near the center of the Project, and cattle were observed grazing in several of the potentially undisturbed grassland areas (see Appendix B for photographs taken during the site visit).

5 SPECIAL STATUS SPECIES

The USFWS county distribution list of federally endangered, threatened, proposed, and candidate species (i.e., listed under the Endangered Species Act [ESA]) was reviewed to determine if any federally listed species or designated critical habitat occur in Deuel County, South Dakota (USFWS 2018d). An IPaC resource list was also generated to identify any species or resources under the jurisdiction of the USFWS with the potential to occur in the vicinity of the Project, including federally listed species and designated critical habitat. This Project-specific report is generated automatically and is included in Appendix A.

A request was submitted to the South Dakota Natural Heritage Database (SDNHD) for information regarding federally and state-listed species as well as other environmentally sensitive species or resources that are known to occur in the vicinity of the Project. The SDNHD's response to this request was provided on May 30, 2018 and is included in Appendix A.

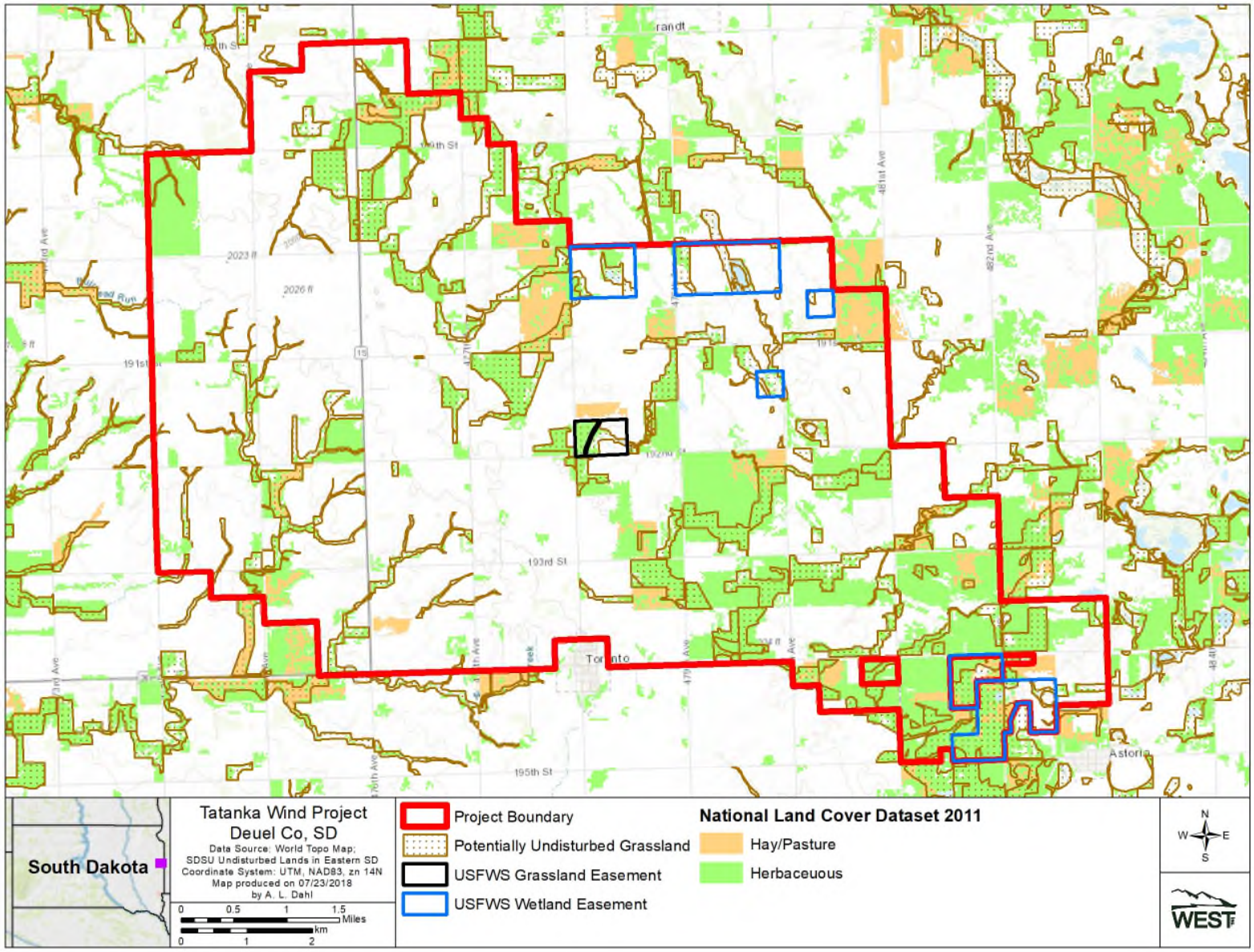

Figure 6. Potentially undisturbed grasslands in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota.

5.1 Federally Listed Species

The USFWS has identified five federally listed species that have the potential to occur within or near the Project area (Table 4). These include two endangered species (Topeka shiner and Poweshiek skipperling) and three threatened species (red knot, northern long-eared bat [NLEB], and Dakota skipper), which are discussed further in the following sections.

5.1.1 Red Knot

The red knot is federally listed as a threatened species that may use stopover areas along the Northern Plains of the Midwest during migration (Baker et al. 2013). Although the IPaC report generated for the Project indicates that there is potential for this species to occur within Deuel County, the red knot has not been reported in the county and has rarely been observed in the surrounding region (eBird 2018). Because suitable stop-over habitat is not present within the Project area and the species is a rare migrant in the spring and fall along the Missouri River corridor, the potential for the red knot to occur within the Project is minimal.

5.1.2 Northern Long-eared Bat

The NLEB historically occurred throughout South Dakota and was commonly encountered in summer mist-net surveys throughout much of the Midwest prior to the documentation of white nose syndrome (USFWS 2013b, 2018e). On January 14, 2016, the USFWS created a final rule under Section 4(d) of the ESA to protect NLEBs while minimizing regulatory requirements for landowners, land managers, government agencies and others within the species' range (81 Federal Register 9: 1900-1922). Recognizing that the primary threat to NLEBs comes from white-nose syndrome, this rule only prohibits the incidental taking of NLEBs in areas impacted by white-nose syndrome if it occurs within a hibernaculum or results from tree removal activities and:

- the activity occurs within 0.25 mi of a known hibernaculum, or
- the activity cuts or destroys a known, occupied maternity roost tree or other trees within a 150-ft radius from the maternity roost tree during the pup season from June 1 through July 31.

White-nose syndrome has not been documented within Deuel County (USFWS 2018f). However, the entire state of South Dakota is considered impacted per the final 4(d) rule because white-nose syndrome has been documented within 150 miles (USFWS 2018f).

<u>Habitat Requirements</u>

The NLEB is a forest-dependent species, generally relying on forest features for both foraging and roosting during the summer months (USFWS 2013c). In particular, the NLEB appears to be a forest interior species that requires adequate canopy closure for both roosting and foraging habitat (Lausen 2009). The wing morphology of the NLEB makes them ideally suited for the high maneuverability required for gleaning-type foraging within a cluttered forest interior (Henderson and Broders 2008).

Table 4. Threatened and endangered species with potential for occurrence near the Tatanka Wind Project, Deuel County, South Dakota.

Species	Status	Habitat	Potential for Occurrence
Birds			
Red knot *Calidris canutus rufa*	FT	Stopover habitat during migration includes shorelines with an abundance of easily digested foods (invertebrates with thin or no shell) (USFWS 2013d).	Minimal potential to occur within the Project because waterbodies supporting an abundance of food sources are not present.
Mammals			
Northern long-eared bat *Myotis septentrionalis*	FT	Found in forest interior and riparian areas (Lausen 2009). Typically avoids open habitats (Owen et al. 2003). Hibernates in caves, mines, and sometimes buildings. In summer, roosts singly or in colonies underneath tree bark or in tree cavities (USFWS 2014a).	Low potential to occur within the Project during the summer due to limited bat foraging habitat. Potential to pass through Project during spring and fall migration.
Northern river otter *Lontra canadensis*	ST	Occurs in large, slow-moving waterbodies with intact riparian vegetation where medium to large fishes are present (Kiesnow and Dieter 2005).	Minimal potential to occur within the Project because large waterbodies are not present.
Fishes			
Topeka shiner *Notropis topeka (=tristis)*	FE	Occurs within slow-moving and naturally winding waterbodies, with sand, gravel, or rubble substrates that are often covered by a deep layer of silt (USFWS 2018h).	Low potential to occur in waterbodies within the western portion of the Project. Species was documented approximately 1.1 mi southwest of the Project within North Deer Creek in 2011 (SDNHD [Appendix A]).
Banded killifish *Fundulus diaphanous*	SE	Occurs in slow-moving waterbodies with abundant rooted aquatic vegetation, clear water, and substrates free of silt (Ohio Division of Wildlife 2018).	Low potential to occur within waterbodies within the Project.
Northern redbelly dace *Chrosomus eos*	ST	Occurs within slow-moving rivers and ponds with dense aquatic vegetation within the Big Sioux River drainage (Pasbrig 2014).	Low potential to occur within waterbodies within the Project.
Insects			
Dakota skipper *Hesperia dacotae*	FT	Occurs within two types of native prairie habitat, including moist bluestem prairie and dry upland prairies along ridges and hillsides (USFWS 2018b).	Low potential to occur within grassland habitats within the Project.
Poweshiek skipperling *Oarisma poweshiek*	FE	Occurs within high quality tallgrass prairie in both upland, dry areas as well as low, moist areas (USFWS 2014c).	Low potential to occur within grassland habitats within the Project.

Source: IPaC resource list and SDNHD response are included in Appendix A
FE = Federally listed as endangered, FT = Federally listed as threatened, SE = State-listed as endangered, ST = State-listed as threatened.

A study of nine female NLEBs using an intensively managed forest in West Virginia found this species forages in areas with forest patch sizes between 114 and 161 ac (Owen et al. 2003). Abundance of NLEB prey items, particularly beetles and moths, are typically higher in more closed forest stands than in forest openings, which supports studies that have found NLEB tend to avoid open habitats (Owen et al. 2003). Based on current knowledge, it is unlikely that NLEBs would cross over large open lands (e.g., land lacking suitable habitat) to search for foraging and roosting habitats.

While NLEBs are typically associated with forest habitats, they also have been documented in agricultural settings where forest habitats are highly fragmented. Studies in landscapes dominated by agricultural activities found NLEBs may use woodlots and riparian zones with as few as 15 to 49 ac of forest cover (Foster and Kurta 1999, Henderson and Broders 2008).

Riparian areas are considered critical resource areas for many species of bats because they support higher concentrations of prey, provide drinking areas, and act as unobstructed commuting corridors (Grindal et al. 1999).

During the summer, NLEBs roost singly, or in colonies, underneath bark, in cavities, or in crevices of both live and dead trees (USFWS 2014b). Cooler roost locations such as caves and mines may be used by non-reproductive females and males. In general, NLEBs are opportunistic in selecting roosts and using tree species that retain bark, provide cavities, or crevices. Rarely, NLEBs have been found roosting in structures such as barns and sheds; however, structures that may be used for roosting are likely located close to wooded habitat that would be used for foraging.

Potential Habitat within the Project Area

The USFWS's *Northern Long-eared Bat Interim Conference and Planning Guidance* (2014a) provides a home range estimate of 1.5 mi for NLEB and 2.5 mi for Indiana bats. In order to provide a conservative assessment of the potential foraging range and identify potential corridors of connected habitat in the vicinity of the Project, WEST's desktop assessment utilizes a 2.5-mi buffer around the Project boundary, referred to as the Assessment Area, in order to provide a conservative estimate of the potential foraging range of NLEB and to identify potential corridors of connected habitat in the vicinity of the Project

WEST derived potential NLEB summer habitat in the Assessment Area using a machine learning classification algorithm to delineate forest patches. The classifier was built using imagery from the Landsat 8 and Sentinel-2 satellites (USGS 2016a, European Space Agency 2017), as well as aerial imagery from the National Agriculture Imagery Program (USDA 2018) and used in a Random Forests model (Breiman 2001). The results from the model were filtered and visually assessed for accuracy, whereby false positives (areas mistakenly identified as forest) were removed, and forest boundaries were adjusted, as necessary.

WEST biologists determined the potential suitability of forested habitat within the Assessment Area for NLEB based on the USFWS's *Indiana Bat Section 7 and Section 10 Guidance for Wind*

Energy Projects (2011) and the *2018 Range-Wide Indiana Bat Summer Survey Guidelines* (2018f). According to the USFWS, both of these documents and the protocols therein can be used for NLEB presence/absence summer surveys (USFWS 2018g). For the purposes of this assessment, WEST categorized potentially suitable forest patches for NLEB within the Assessment Area into the following categories:

- Greater than 50 ac – Medium-large roost/foraging areas (larger areas of contiguous forests and/or riparian corridors).
- Between 15 and 50 ac – Small roost/foraging areas (smaller areas of forest comprised of woodlots and riparian corridors).
- Less than 15 ac – Commuting/travel corridors (typically include shelterbelts and small woodlots).

Although the NLEB is a forest-dependent species, the species will use open areas that are proximate to occupied habitat. Studies of Indiana and NLEB behavior using telemetry data on foraging activity have indicated that isolated trees or small forest patches might only be suitable as habitat when they are less than 1,000 ft from other forested/wooded habitats (USFWS 2014a, USFWS 2011). Therefore, a 1,000-ft connected habitat buffer was placed around forested patches to conservatively identify non-forested areas within the Assessment Area that could be utilized by NLEB moving between roosting and foraging areas.

Within the Assessment Area, wooded habitat is generally confined to small (less than 15 ac) woodlots and windbreak tree rows, with the majority of wooded areas consisting of scattered patches that would not be considered suitable summer habitat for NLEB (Figure 7). A total of seven forested patches were identified that are large enough to support NLEB (at least 15 ac), two of which include forested habitat within the Project boundary. The largest area of suitable habitat for NLEB (Habitat Area #1) is in the southwestern portion of the Assessment Area, and includes two small roost/foraging areas (between 15 and 50 ac) as well as several commuting/travel corridors. Habitat Area #1 extends into the southern portion of the Project boundary, where approximately 23 ac of forested patches could be used by NLEB for commuting/travel corridors.

Habitat Area #2 is located in the center of the Assessment Area (in the south-central portion of the Project), and includes one small roost/foraging area that consists of several connected windbreaks and small woodlots that could function as commuting/travel corridors. Habitat Area #2 is located within the Project boundary, where approximately 37 ac of forested patches could be used by NLEB. Because the portion of Habitat Area #2 that is large enough to support the NLEB (greater than 15 ac) includes windbreaks, rather than forested patches, and is otherwise unconnected to other areas of suitable habitat, it is unlikely that NLEB would utilize this area for roosting/foraging.

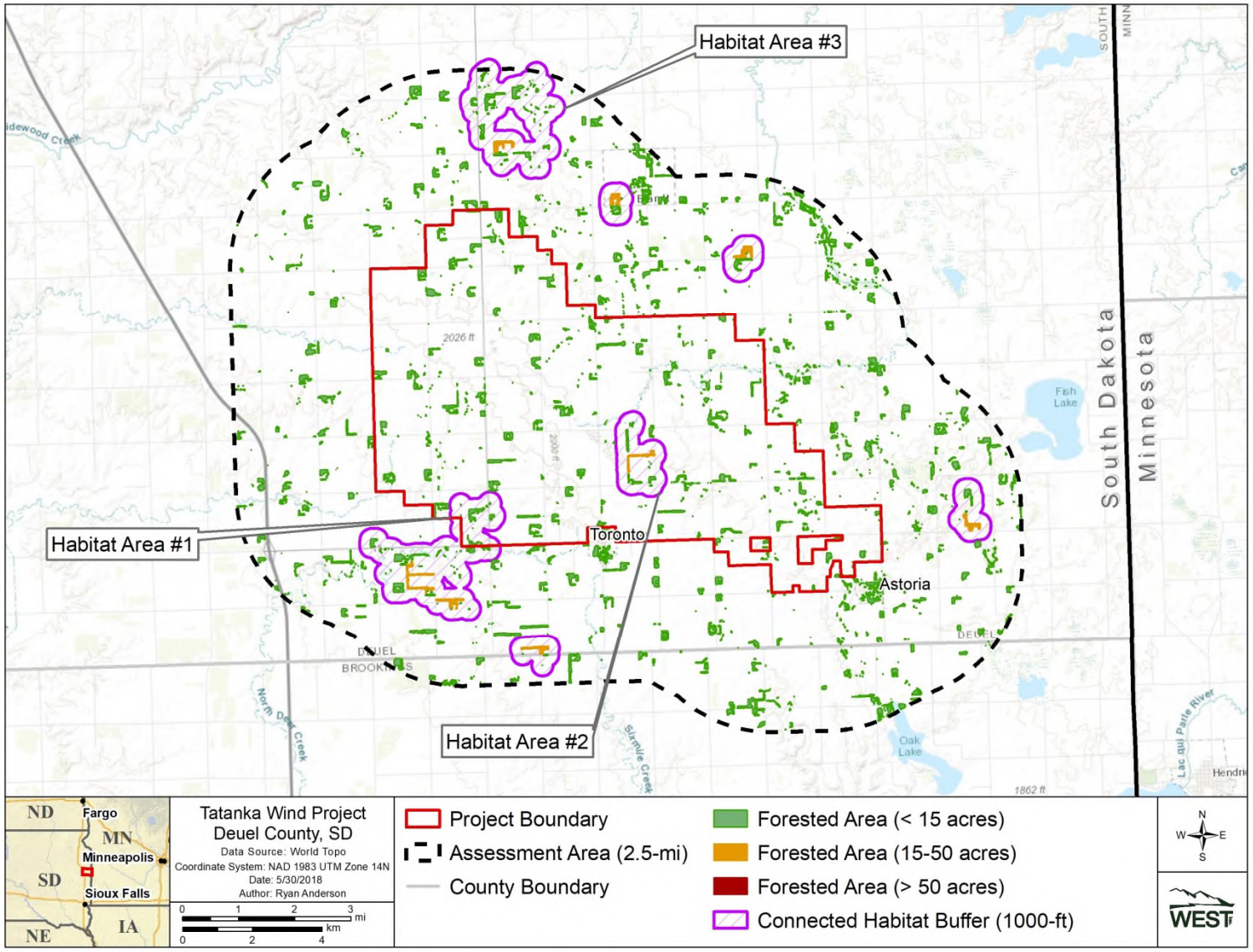

Figure 7. Potential northern long-eared bat habitat in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota.

Habitat Area #3 is in the northern portion of the Assessment Area, and includes one small roost/foraging area and numerous commuting/travel corridors. Habitat Area #3 is not connected to any forest patches within the Project boundary; therefore, if NLEB occur in Habitat Area #3 during the summer, they would not be expected to travel into the Project.

The four other forested patches identified that are large enough to support NLEB each contain one small roost/foraging area and a small number of patches that could be utilized as commuting/travel corridors. Because none of these areas are connected to forest patches within the Project boundary, NLEBs occurring within these areas would not be expected to travel into the Project.

Due to the paucity of data available regarding the distance that NLEB will travel over open land, and based on the USFWS conclusion that Indiana bats are unlikely to occur within project areas more than 1,000 ft from wooded areas (USFWS 2011), WEST conservatively recommends that if turbines are proposed within 1,000 ft of potential summer habitat for NLEB within Habitat Area #1 or Habitat Area #2, that coordination with USFWS should occur to determine if presence/absence surveys may be warranted in those areas. Presence/absence surveys should follow Phase 2 survey recommendations found in the *Northern Long-eared Bat Interim Conference and Planning Guidance* (USFWS 2014a) and *2018 Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2018g), and should occur in the recommended survey window, defined as May 15 through August 15.

5.1.3 Topeka Shiner

The Topeka shiner, an endangered species, is a small minnow that lives in small to mid-size prairie streams in the central United States where it is usually found in pool and run areas (South Dakota Game, Fish, and Parks [SDGFP] 2003). Within South Dakota, the Topeka shiner occupies tributaries of the James, Vermillion, and Big Sioux rivers. In the vicinity of the Project, the Topeka shiner has been documented in the Middle Big Sioux watershed, which flows into the Missouri River, but not within the Laq Qui Parle watershed, which flows into the Minnesota River (SDGFP 2003). Suitable streams tend to have good water quality and cool to moderate temperatures. Prairie rivers and streams where Topeka shiners are found are also generally slow-moving and naturally winding, with bottoms made of sand, gravel, or rubble often covered by a deep layer of silt (USFWS 2018h).

Critical habitat was designated for the Topeka shiner in 2004 (69 Federal Register 44736). Critical habitat has not been designated within the Project boundary; the closest designated critical habitat is in Lincoln County, Minnesota, approximately 18 mi southeast of the Project (Figure 8).

Within the Middle Big Sioux watershed, the Topeka shiner has been documented within 2.0 mi of the Project boundary in two waterbodies. The closest of these is 1.1 mi southwest of the Project, where the Topeka shiner was most recently documented in North Deer Creek in 2011. As depicted in Figure 8, North Deer Creek flows through the southwestern corner of the Project area downstream to where the species has been documented. The Topeka shiner was also documented in a tributary of Sixmile Creek 1.6 miles south of the Project in 1998; however, the tributary of Sixmile Creek is not directly connected to waterbodies within the Project boundary.

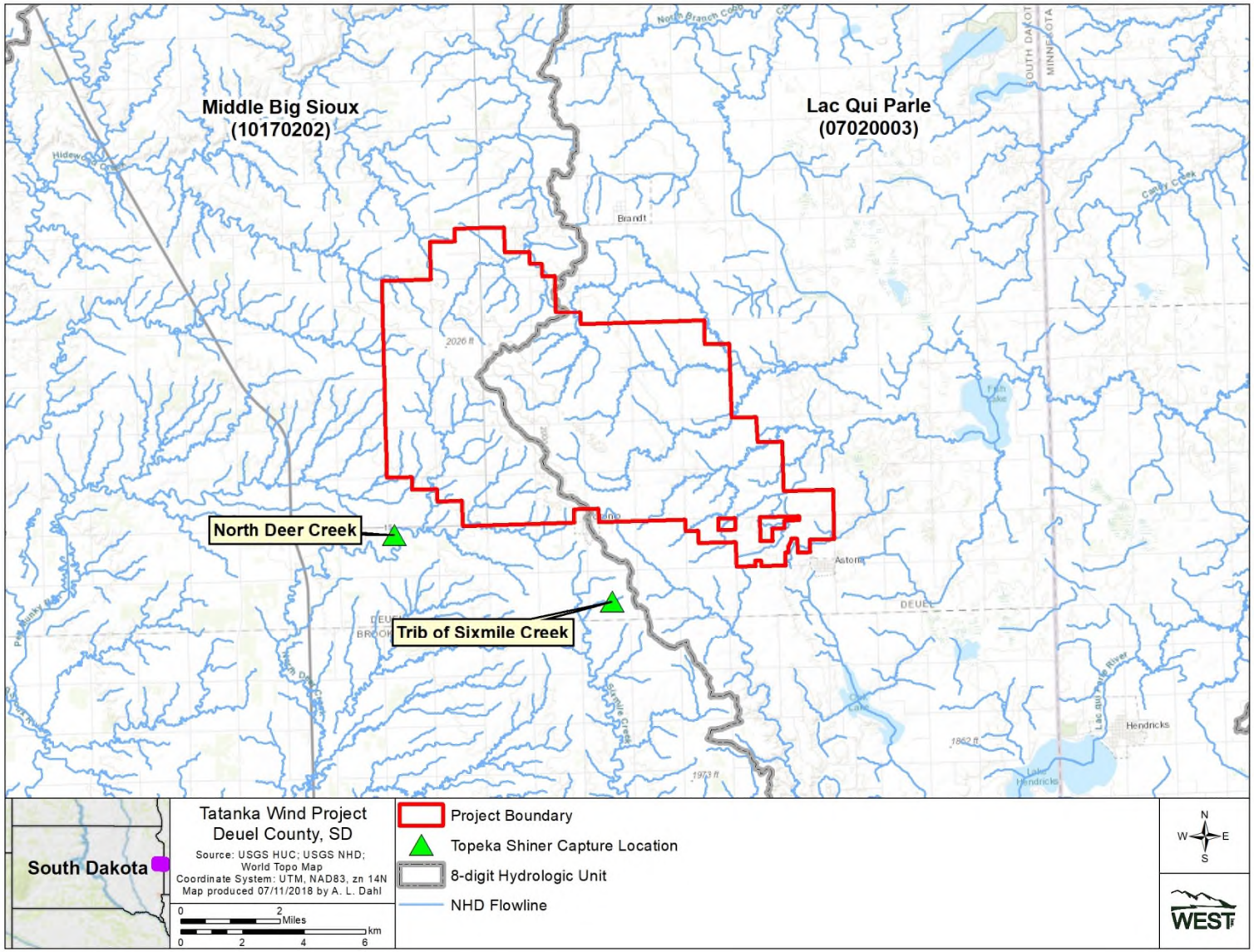

Figure 8. Documented occurrences of the Topeka shiner in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota (SDNHD 2018 [Appendix A]).

Due to the documented occurrence of Topeka shiners in North Deer Creek and the connectivity of this waterbody with the Project, WEST conservatively recommends that if in-stream activities are proposed within the portion of the Project in the Middle Big Sioux watershed (western portion of the Project; Figure 8), that coordination with USFWS should occur to determine if surveys are warranted and to develop avoidance and mitigation measures.

5.1.4 Dakota Skipper and Poweshiek Skipperling

The Dakota skipper (federally threatened) and Poweshiek skipperling (federally endangered) are small butterflies that occur within native prairie habitat. Critical habitat was designated for the Dakota skipper and Poweshiek skipperling in 2015 (80 Federal Register 59248–59384). South Dakota Unit 2 is the nearest designated critical habitat for the Dakota skipper and Poweshiek skipperling, which is approximately 3.0 mi south-southeast of the Project, adjacent to Oak Lake in Brookings County (Figure 9).

The Dakota skipper is endemic to North American tallgrass and mixed-grass prairie and does not inhabit non-native grasslands, weedy roadsides, tame hayland, or other habitats that are not remnant native prairie. In addition, Dakota skippers have not been recorded in reconstructed prairie—e.g., former cropland that has been replanted to native prairie (USFWS 2018b). The Dakota skipper occurs within two general habitat types, described as Type A and Type B habitats by the USFWS (2018a). Type A habitats include low wet-mesic prairie with little topographic relief that occurs on near-shore glacial lake deposits (Royer et al. 2008). Type B habitats occur primarily on rolling terrain over gravelly glacial moraine deposits and are dominated by big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and needle or porcupine grasses (*Hesperostipa* spp.). In northeastern South Dakota, Dakota skippers inhabit primarily Type B habitats with abundant purple coneflower (*Echinacea purpurea*), but have also been observed in wet-mesic prairie that is dominated by big bluestem (USFWS 2018b).

The Poweshiek skipperling also occurs within high quality tallgrass prairie in upland, dry areas as well as prairie fens, grassy lake and stream margins, moist meadows, sedge meadow, and wet-to-dry prairie. Although South Dakota historically contained approximately 24% of all known records of the Poweshiek skipperling, the species may be extirpated from the state (USFWS 2014c). The species was last observed in South Dakota in 2008 (79 Federal Register 63672–63748).

To identify native prairie habitat that could support the Dakota skipper or Poweshiek skipperling within the Project boundary, and as discussed in additional detail in Section 4.4, WEST biologists compared data from the SDSU system and lands identified by the USGS NLCD (2011, Homer et al. 2015) as herbaceous or hay/pasture with current aerial imagery (ESRI 2018). Additionally, WEST referred to areas of suitable habitat identified during 2015 field visits as characteristic of native prairie communities. The 2015 field visits focused on leased lands that were accessible within a previous project boundary; the 2015 assessment did not cover all of the grasslands in the current Project, but did identify several areas of potential native prairie communities (WEST 2015, unpublished data). Based on this review, potentially undisturbed grasslands that may provide suitable habitat for the Dakota skipper and/or Poweshiek skipperling comprise approximately 3,154 ac of land within the Project.

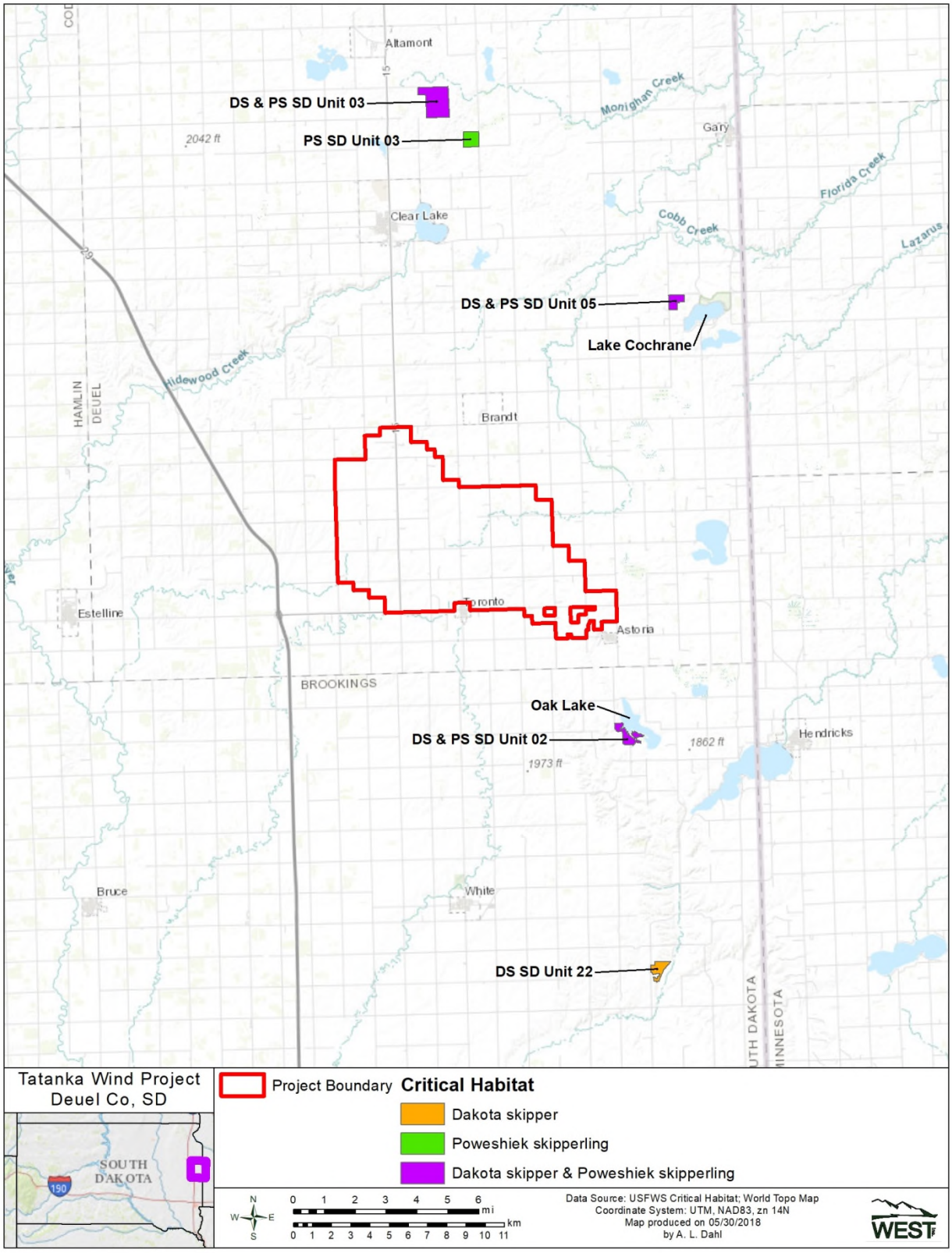

Figure 9. Federally designated critical habitat for the Dakota skipper and Poweshiek skipperling in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota.

Flight surveys were conducted in two of the patches of suitable habitat during the peak flight period for these species in 2015 (HDR Engineering 2015; Figure 10); no flight surveys were conducted at the other patches that were confirmed to be suitable habitat in 2015 because potential impacts from Project construction were not anticipated at that time. No Dakota skippers or Poweshiek skipperlings were observed during the 2015 flight surveys; therefore, the species were determined to be absent at the two surveyed locations.

Due to the extent of potential native prairie identified within the Project boundary, WEST recommends that a field-based assessment occur within the 2018 field season to evaluate grassland condition and identify areas where high quality native prairie are present that are most likely to support the Dakota skipper and/or Poweshiek skipperling. If construction activities are proposed within native prairies, species-specific surveys should be conducted in accordance with the 2018 Dakota Skipper (*Hesperia dacotae*) North Dakota Survey Protocol (USFWS 2018a); if surveys indicate the presence of one or both of these butterfly species, coordination with USFWS should occur in order to develop avoidance and mitigation measures.

5.2 State-listed Species

The state of South Dakota maintains a list of endangered and threatened species, for which take is a violation of state law (South Dakota Codified Law 34A-8-9). Although the state of South Dakota has a process by which take of endangered and threatened species can be authorized (South Dakota Codified Law 34A-8-8), it is designed to authorize take associated with scientific, zoological, or educational purposes and does not include take associated with otherwise lawful activity (typically referred to as incidental take).

To obtain information on state-listed species potentially present within or near the Project, WEST reviewed the state of South Dakota's list of threatened, endangered, and candidate species documented within Deuel County, which was last updated in 2016 (SDGFP 2016), and requested a SDNHP database review of rare plants, animals, and ecosystems documented in or near the Project. The SDNHP's response to this request, dated May 30, 2018, is provided in Appendix A.

Three state-listed endangered or threatened species have been documented within Deuel County, including the northern river otter, banded killifish, and northern redbelly dace (Table 4; SDGFP 2016); however, none of these species has been documented within or near the Project (Appendix A). Because the northern river otter occurs within large, slow-moving waterbodies where large fish are present (Kiesnow and Dieter 2005), which are not present within the Project boundary, the potential for the Project to impact this species is considered minimal. The banded killifish and northern redbelly dace both occur within a variety of aquatic habitats, including streams, ponds, and lakes (Ohio Division of Wildlife 2018, Pasbrig 2014). Although the potential for these species to occur within the Project is low, if in-stream activities are proposed, we recommend that coordination with SDNHP and SDGFP occur to determine the nearest documented occurrence of these species, whether surveys are warranted, and to develop avoidance and mitigation measures.

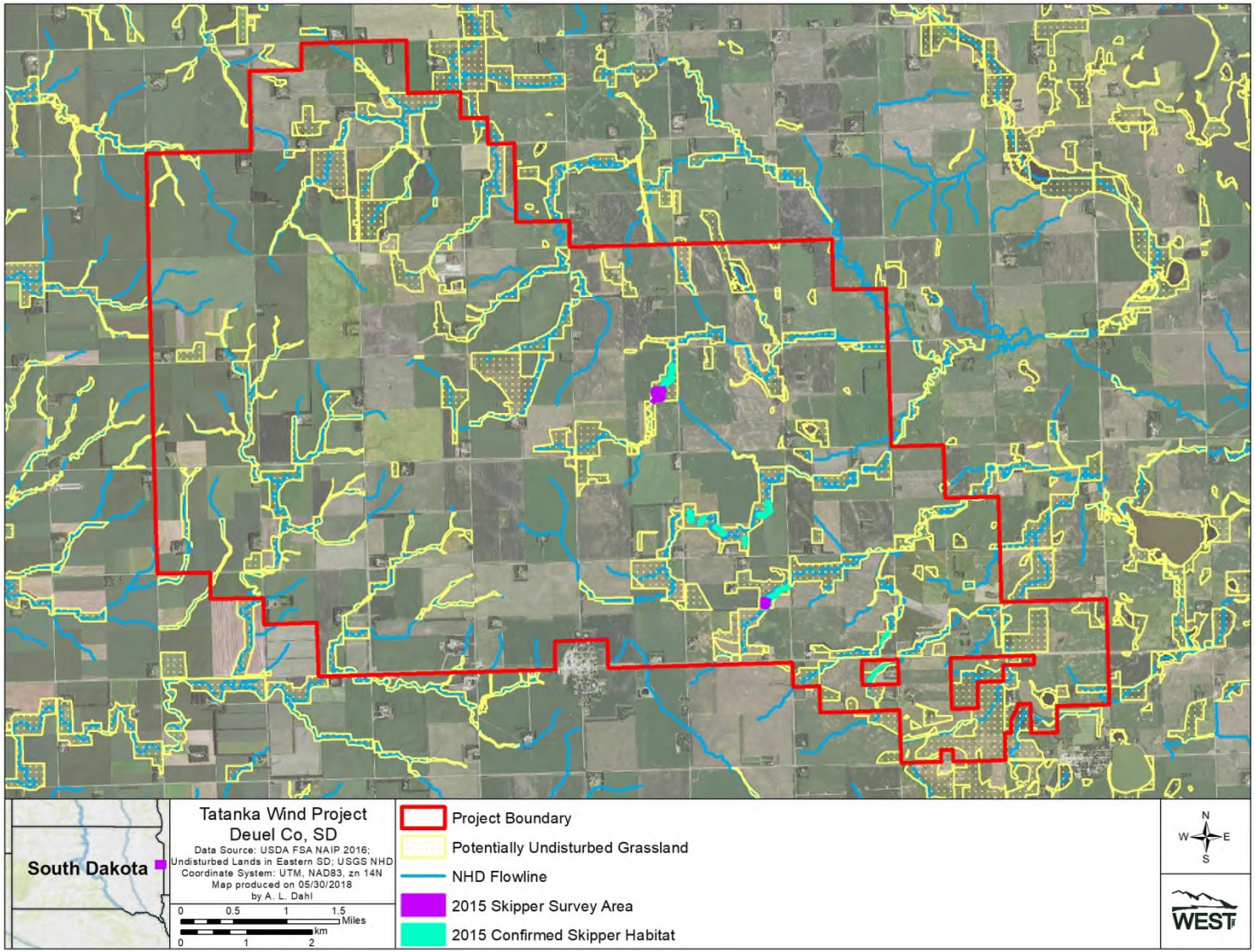

Figure 10. Potentially undisturbed lands and potentially suitable habitat for the Dakota skipper and Poweshiek skipperling identified during field surveys in 2015 within the Tatanka Wind Project, Deuel County, South Dakota.

5.3 Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are afforded legal protection under authority of the Bald and Golden Eagle Protection Act (BGEPA;16 United States Code [USC] §§ 668–668d) and the Migratory Bird Treaty Act (MBTA; 16 USC §§ 703-712). In September 2009, the USFWS established rules (Eagle Rule; 50 Code of Federal Regulations (CFR) 22.26 and 22.27) authorizing limited legal take of Bald and Golden Eagles and their nests "when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided." Such authorization is provided in the form of a take permit issued by the USFWS, consistent with specified regulatory criteria. On December 16, 2016, the USFWS issued a revised Eagle Rule that includes changes to the regulations for eagle incidental take permits and eagle nest take permits. The revisions to the Eagle Rule went into effect on January 17, 2017, and include changes to permit issuance criteria, duration (including a maximum permit term of 30 years), compensatory mitigation standards, and permit application requirements. To date, no eagle incidental take permits have been issued for wind projects under the new rule.

As discussed in the sections below, bald eagles have been observed occasionally in and near the Project, but there have only been a few sightings of golden eagles or near the Project in recent years.

5.3.1 Bald Eagle

Bald eagles prefer to use mature trees near permanent bodies of water (e.g., rivers or lakes) with an abundant prey source for their nesting, roosting, and foraging activities (Swenson et al. 1986, Mojica et al. 2008). As described in Sections 4.1 and 5.1.2, approximately 65% of land cover within the Project boundary is cultivated cropland, and less than 1% of the Project consists of forested habitat that is generally confined to small woodlots and windbreak tree rows. Furthermore, the majority of the land near the Project does not include large rivers or wetland systems that might provide substantial foraging opportunities for eagles. However, several lakes (e.g., Oak Lake, Fish Lake, and Lake Hendricks) east of the Project provide foraging and potential nesting habitat for bald eagles.

There have been both historic and recent sightings of bald eagles adjacent to or near the Project area. Based on eBird data, there were two bald eagle sightings adjacent to and north of the Project in 2017 (eBird 2018). Several bald eagles have been observed within five miles of the Project, including near Oak Lake during the period of 2014-2017. These eagles were typically observed during the winter months and migration periods (eBird 2018).

Based on these known occurrences of bald eagles near the Project and the history of eagles in eastern South Dakota, bald eagles may use the Project for foraging activities during the winter, migration, and breeding/nesting seasons. However, it is likely that most bald eagle nesting and foraging activities are concentrated at the nearby lakes and rivers that are outside of the Project. Due to the potential for bald eagle use of the Project area, and as discussed in additional detail in Section 7, WEST recommends that additional Tier 3 studies per the WEG and Stage 2 studies per the ECPG be considered prior to development of a wind farm in the Project area.

5.3.2 Golden Eagle

Golden eagles commonly breed in the western United States (Kochert et al. 2002); the Project is outside of their breeding range. Although scarce, golden eagles are occasionally observed in eastern South Dakota during the winter and individual birds may migrate through the region (Birds of North America 2018, eBird 2018). There has been one reported sighting of a golden eagle in or near the Project, which occurred in March 2017 adjacent to and north of the Project (eBird 2018). Golden eagle use within the Project is likely limited to rare occurrences during migration or the winter. However, due to the potential for golden eagle use of the Project area, and as discussed in additional detail in Section 7, WEST recommends that additional Tier 3 studies per the WEG and Stage 2 studies per the ECPG be considered prior to development of a wind farm in the Project area.

6 BIRD AND BAT OVERVIEW

The sections below provide a general overview of potential bird and bat habitat and use in or near the Project. These overviews are intended to characterize the types of birds and bats that may use or migrate through the Project and to identify any areas where these species may concentrate. Although development of the Project could have incidental impacts on these species or their habitats, project-specific recommendations relating to these species are not warranted at this time.

6.1 Birds

As discussed in the sections below, numerous bird species have been documented near the Project. The vast majority of these are migratory birds, which are protected by the MBTA. The MBTA implements four treaties that provide for international protection of migratory birds. Historically, the MBTA has been interpreted to be a strict liability statute, meaning that proof of intent, knowledge, or negligence is not an element of an MBTA violation. Actions resulting in a "taking" or possession (permanent or temporary) of a protected species, in the absence of authorization from the USFWS or other regulatory authority (e.g., authorization under the BGEPA or Migratory Bird Harvest Information Program) were considered violations of the MBTA. The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect…" (50 CFR § 10.12).

On December 22, 2017, the Office of Solicitor of the US Department of the Interior (DOI) released a legal opinion, M-37050, addressing the issue of incidental take under the MBTA, which withdraws and replaces M-37041 on the same topic issued near the end of the Obama administration. The new M-Opinion concludes that, "consistent with the text, history, and purpose of the MBTA, the statute'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." (DOI 2017). The USFWS released a memorandum on April 11, 2018 clarifying that, "the MBTA's prohibitions on take apply when the purpose of an action is to take migratory birds, their eggs, or their nests." (USFWS 2018c) Accordingly, the current policy of the DOI is that incidental take of migratory birds resulting from

the operation of a wind project is not regulated by the MBTA. Although the Project will not result in purposeful take of migratory birds, the following sections are intended to provide a robust analysis of potential bird use in the vicinity of the Project.

6.1.1 Migratory Birds

The Project is located within the Central Flyway, which is used by migrating waterfowl, waterbirds, shorebirds, songbirds, and raptors. Of these species groups, waterfowl has the greatest potential to migrate through the Project area. Waterfowl migration corridors that follow a broad front through eastern South Dakota are used by as many as three million dabbling ducks (USGS 2013). The WPAs and WMAs within and near the Project provide feeding and resting areas for waterfowl, waterbirds, and shorebirds migrating through this region.

6.1.2 USFWS Birds of Conservation Concern

The USFWS lists 27 species as Birds of Conservation Concern (BCC) within the Prairie Potholes Bird Conservation Region where the Project is located (USFWS 2008); the USFWS has determined that six of these species are of particular concern at the Project location (Table 5). The BCC species have been identified as vulnerable to population declines in the area by the USFWS (2002). A review of eBird data (2018) indicates that the BCC species identified by the USFWS have been sighted near the Project in recent years, but that sightings are infrequent and primarily occur east of the Project near Oak Lake.

Table 5. Birds of conservation concern identified by the USFWS as being of particular concern near the Tatanka Wind Project, Deuel County, South Dakota.

Species	Season
Black tern (*Chlidonias niger*)	Breeding
Black-billed cuckoo (*Coccyzus erythropthalmus*)	Breeding
Bobolink (*Dolichonyx oryzivorus*)	Breeding
Franklin's gull (*Leucophaeus pipixcan*)	Breeding
Red-headed woodpecker (*Melanerpes erythrocephalus*)	Breeding
Ruddy turnstone (*Arenaria interpres*)	Migration

Source: USFWS IPaC Report in Appendix A

6.1.3 Important Bird Areas

The National Audubon Society (Audubon) has identified Important Bird Areas (IBAs) that provide essential habitat for a variety of bird species and are important for the conservation of bird populations (Audubon 2018a). These IBAs include sites for breeding, wintering, and/or migrating birds, and can range from a few acres to thousands of acres in size.

There are three recognized IBAs within approximately 15 mi of the Project, including Oakwood Lakes IBA and two portions of the Prairie Coteau Complex IBA (Figure 11). The Oakwood Lakes IBA is approximately 15 miles southwest of the Project in Deuel County, and includes bur oak and cottonwood forests, planted pines, grassland, and open water habitats; islands in the northeastern part of the IBA support a large wading/waterbird colony (Audubon 2018b). The Prairie Coteau Complex IBA is located east of the Project in Yellow Medicine and Lincoln counties, Minnesota; the closest portion of the IBA is approximately 7 miles northeast of the Project. The Prairie Coteau Complex IBA focuses on prairie, grassland, and marsh birds, including consistent sightings of the upland sandpiper (*Bartramia longicauda*), dickcissel (*Spiza americana*), and bobolink (*Dolichonyx oryzivorus*) (Audubon 2018c).

6.1.4 USGS Breeding Bird Survey

The USGS North American Breeding Bird Survey (BBS) is a collaborative effort between the USGS Patuxent Wildlife Research Center and Environment Canada's Wildlife Service. The objective of the survey is to monitor the status and trends of North American bird populations via standardized protocol collected by participants along thousands of randomly established roadside routes throughout the continent.

The closest BBS route (Tyler) is approximately 25 mi east of the Project (Figure 11). The Tyler BBS route has been monitored a total of 18 years between 1993 and 2017. A total of 85 bird species have been observed along this route, with annual species numbers ranging from 21 in 2004 to 47 in 1994 (Pardieck et al. 2018). The most common species were red-winged blackbird (*Agelaius phoeniceus*) and common grackle (*Quiscalus quiscula*). Bald eagles were infrequently seen along this route, with one bald eagle observed in 2014, 2016, and 2017, and none observed all other years that the route was surveyed. Five additional raptor species have also been observed along the route, including the American kestrel (*Falco sparverius)*, great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and turkey vulture (*Cathartes aura*). Each of the five BCC species identified in Table 5 that occur in the area during the breeding season have been documented along the Tyler BBS route. Of these, the bobolink has been documented most frequently, which was documented a total of 60 times between 1993 and 2016, although it was not observed along the Tyler BBS route during the 2017 survey (Pardieck et al. 2018).

6.1.5 Raptors

Breeding raptors could nest in a variety of habitats in and near the Project. Tree and cavity nesters could occupy small woodlots and shelterbelts surrounding area farm buildings and residences. Raptor nesting also could occur (predominantly in trees) along riparian corridors and woody wetlands in the Project. However, forested habitat for breeding raptors is limited, accounting for less than 1% of the Project, and is generally confined to small woodlots and windbreak tree rows. Nesting in the agricultural and developed areas would be limited to manmade structures, such as power poles and other infrastructure.

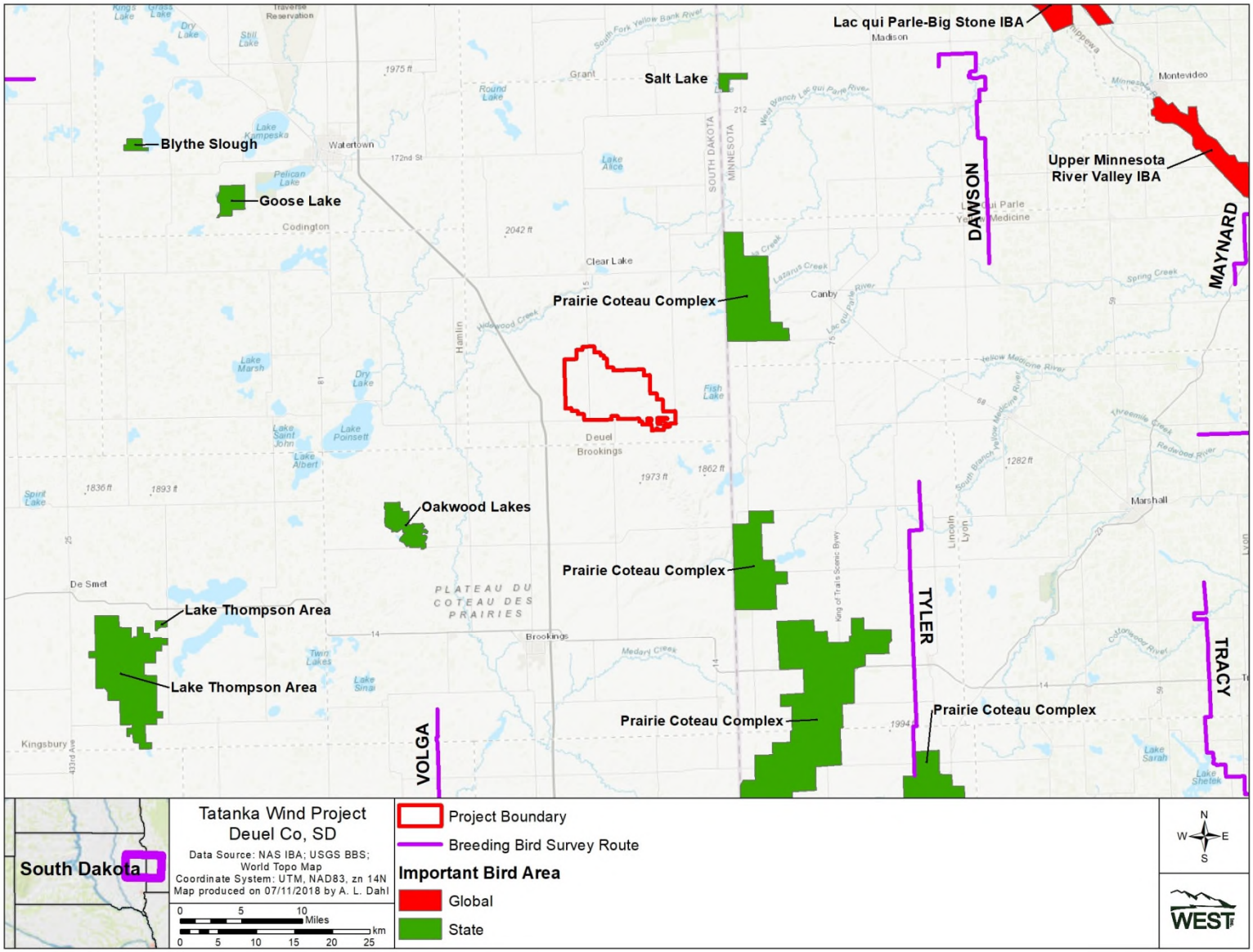

Figure 11. Important Bird Areas in the vicinity of the Tatanka Wind Project, Deuel County, South Dakota.

During migration, raptors could rest and forage in the Project, depending on habitats preferred by individual raptor species, weather, and prey availability. Several factors influence the migratory patterns of raptors, the most significant of which is geography (Liguori 2005). Two geographical features are primarily used by raptors during migration: ridgelines and shorelines of large bodies of water (Liguori 2005). Updrafts formed as wind hits ridges and thermals created over land, not water, make for energy-efficient travel for raptors over long distances (Liguori 2005). It is for this reason that raptors tend to follow prominent ridges with defined edges during migration. The Project is situated in a flat to gently rolling landscape with no distinct ridges or other prominent topographical features, and therefore, raptor migration would be expected to occur in a broad front fashion with no areas of concentration or funneling in the Project.

6.2 Bats

Six bat species occur in eastern South Dakota (Harvey et al. 2011, Bat Conservation International 2018; Table 6). These species could potentially occur in the Project during all seasons except winter when they are hibernating or have migrated to warmer places. More detailed information on the NLEB is provided in Section 5.1.

Table 6. Bat species with potential to occur in or near the Tatanka Wind Project, Deuel County, South Dakota.

Common Name	Scientific Name
Big brown bat	*Eptesicus fuscus*
Eastern red bat	*Lasiurus borealis*
Hoary bat	*Lasiurus cinereus*
Little brown bat	*Myotis lucifugus*
Northern long-eared bat [1]	*Myotis septentrionalis*
Silver-haired bat	*Lasionycteris noctivagans*

[1] Federally listed as a threatened species

Based on 2011 USGS NLCD forestland cover types in the Project area, the Project has approximately 127.0 ac of woodland habitat for tree-roosting bats, with most of this habitat located in scattered woodlots throughout the Project area (Figure 7). The presence of wetlands, ponds, and cultivated cropland may also attract bats for foraging and drinking opportunities.

7 WEG TIER 2 AND ECPG STAGE 1 QUESTION RESPONSES

As described in the WEG (USFWS 2012), Tier 2 studies help to identify potential issues that may need to be addressed before further actions can be taken with the development or operation of a project. The following discussion provides answers to the WEG Tier 2 questions for the Project.

1. **Are known species of concern present on the proposed site, or is habitat (including designated critical habitat) present for these species?**

   The federally protected bald eagle is known to occur near the Project, particularly during migration and winter; however, based on documented sightings of bald eagles near the Project and the history of eagles in eastern South Dakota, it is likely that most bald eagle

nesting and foraging activities are concentrated at the nearby lakes that are outside of the Project to the east.

Federally listed as threatened, the NLEB could potentially occur within the Project boundary during spring and fall migration; however, preferred summer roosting and foraging habitat (i.e., forested areas) compose less than 1% of the Project, and therefore, NLEB occurrence within the Project boundary during the summer is likely to be limited. Critical habitat has not been designated for this species.

Federally listed as endangered, the Topeka shiner could potentially occur within the Project boundary. This species has been documented within North Deer Creek, which flows through the southwestern portion of the Project; the closest documented occurrence was approximately 1.1 mi southwest of the Project. The closest designated critical habitat for the Topeka shiner is approximately 18 mi southeast of the Project.

The Dakota skipper (federally listed as threatened) and Poweshiek skipperling (federally listed as endangered) could potentially occur within the Project boundary. Although these species have not been documented within the Project, potentially suitable habitat for these species may be present. Based on USGS NLCD data, approximately 28% of the land within the Project boundary includes herbaceous land and hay/pasture. Within these areas, potentially undisturbed grasslands (as mapped by SDSU) include approximately 3,154 ac of land. If high-quality native prairie habitat is present within these areas, it is possible that the Dakota skipper and/or Poweshiek skipperling may occur. The closest designated critical habitat (South Dakota Unit 2) for Dakota skipper and Poweshiek skipperling is approximately three mi south-southeast of the Project, adjacent to Oak Lake in Brookings County (Figure 9).

2. Does the landscape contain areas where development is precluded by law or designated as sensitive according to scientifically credible information?

One federally managed area is present within the Project boundary (Deuel County WPA 48), which is located in the eastern portion of the Project. The Project boundary also contains five privately owned parcels that have USFWS-protected wetland basins within them, and two privately owned parcels with USFWS grassland easements. While development is not completely precluded in these areas, impacts to protected wetland basins (within parcels with USFWS wetland easements) are not allowed, and any proposed impacts to grasslands within grassland easements would be subject to review and permit through the USFWS Wetland Management District. In addition, several WPAs and SCAs occur in the vicinity of the Project boundary, which have the potential to provide suitable habitat for migrating birds and other wildlife.

The closest IBA (Prairie Coteau Complex) is located approximately seven mi east of the Project.

3. **Are plant communities of concern present or likely to be present at the site?**

   The Project contains a total of 3,154 ac of potentially undisturbed grasslands, which may include native prairie communities. The Project also contains two privately owned parcels, totaling 102 acres, with USFWS grassland easements that preclude them from removal/cropping. However, federally and state-listed plants are not known to occur within Deuel County, and the Project does not contain any designated plant communities of concern.

4. **Are there known critical areas of wildlife congregation, including, but not limited to, maternity roosts, hibernacula, staging areas, winter ranges, nesting sites, migration stopovers or corridors, leks, or other areas of seasonal importance?**

   No critical areas of wildlife congregation are known to occur within or near the Project boundary.

5. **Using best available scientific information, has the relevant federal, state, tribal, and/or local agency determined the potential presence of a population of a species of habitat fragmentation concern?**

   The Project area has been historically cleared for agricultural purposes and habitat is currently highly fragmented. Larger areas of herbaceous land are present within an area extending from the upper northcentral portion of the Project to the southeastern portion of the Project. However, the majority of these grassland areas are expected to be of relatively low quality based on cattle grazing observed during the site visit, existing fragmentation associated with agricultural land use, and because they have not been identified as potentially undisturbed lands. Therefore, it is unlikely that there is a population of a species of habitat fragmentation concern in the Project area.

6. **Which species of birds and bats, especially those known to be at risk by wind energy facilities, are likely to use the proposed site based on an assessment of site attributes?**

   Bald eagles and other raptors have been observed adjacent to and near the Project area. The USFWS has identified six BCC of particular concern at the Project location (Table 5).

   Six bat species have the potential to occur within the Project boundary (Table 6), including the federally threatened NLEB. However, as described above, because forest habitat in the Project area is highly fragmented, and includes less than 1% of the Project, it is expected that bat use of the Project area is low during the summer months. Although numerous waterbodies are present, because the Project does not appear to contain high quality habitat for bats, it is expected that migrating bats would be more likely to occur within higher quality habitat east of the Project.

7. **Is there a potential for significant adverse impacts to species of concern based on the answers to the questions above, and considering the design of the proposed project?**

   In general, the Project poses a relatively low risk to species of concern due to scarcity of these species and limited suitable habitat in the Project area. The Project could pose a slightly higher risk of impacts to Dakota skipper and/or Poweshiek skipperling if native prairie habitat is present within the Project boundary and direct impacts to those habitats is proposed. Additional information gathered as part of Tier 3 studies at the Project would help to further answer this question.

The ECPG (USFWS 2013a) suggest specific questions that should be considered to facilitate placing a prospective project site into an appropriate risk category. These questions are answered below based on the information compiled during this review, which constitutes a Stage 1 initial site assessment.

1. **Does existing or historical information indicate that eagles or eagle habitat may be present within the geographic region under development consideration?**

   Bald eagles have been observed adjacent to and near the Project area, and suitable eagle habitat (i.e., wooded riparian habitat along lakes and rivers) is located east of the Project boundary, although it is relatively limited.

2. **Within a prospective project site, are there areas of habitat known to be or potentially valuable to eagles that would be destroyed or degraded due to the project?**

   Land use within the Project area is predominantly cultivated farmland and developed land (70% of the Project area), which provides limited foraging or nesting habitat. There are only 127 ac (less than 1% of the Project area) of forest within the Project boundary; most of the forests consist of small woodlots at farmsteads scattered throughout the area. There are several larger waterbodies (e.g., Oak Lake, Fish Lake, and Lake Hendricks) east of the Project that provide suitable foraging and nesting habitat for bald eagles.

3. **Are there important eagle use areas or migration concentration sites documented or thought to occur in the project area?**

   There are no known important eagle use areas or migration concentration sites in the Project, based on the assessments done to date. The waterbodies east of the Project boundary have more potential for eagle use. Additional information gathered as part of Tier 3 eagle use studies at the Project would help to further answer this question.

4. **Does existing or historical information indicate that habitat supporting abundant prey for eagles may be present within the geographic region under development consideration?**

   Abundant prey for eagles is not expected to be present within the Project area. Some foraging opportunities may be present in the form of carrion and small game within grasslands, or livestock carcasses associated with agricultural operations.

5. **For a given prospective site, is there potential for significant adverse impacts to eagles based on answers to above questions and considering the design of the proposed project?**

   The potential for significant adverse impacts to bald eagles from construction and operation of the Project appears to be relatively low. Although there have been some publicly reported bald eagle observations adjacent to and near the Project area, the overall quality of eagle habitat and potential for eagle use in the Project area is low due to extensive cropland, and a lack of foraging areas and nesting substrate. Additional information gathered as part of Tier 3 eagle use studies at the Project would help to further answer this question.

Based on the findings in this SCS report, it is recommended that additional Tier 3 studies per the WEG and Stage 2 studies per the ECPG be considered prior to development of a wind farm in this Project area. Additional studies may include: 1) eagle and other large bird use surveys, 2) raptor nest surveys, and 3) acoustic bat surveys. State and federal agencies (i.e., SDGFP and USFWS) should be consulted regarding these surveys as well as the proposed Project.

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Appendix B. Site Photographs

Photo 1. Grasslands present within southeastern portion of Project.

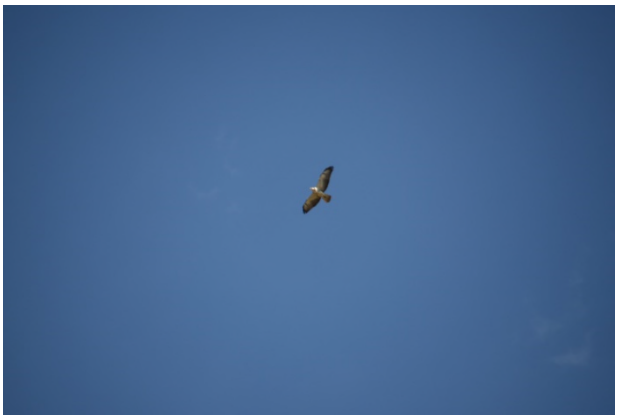


Photo 2. Photo facing east from County Road 311 / 483rd Avenue in the southeastern portion of the Project

Photo 3. Photo facing north from South Dakota Highway 28 in the southeastern portion of the Project.

Photo 4. Photo facing south from South Dakota Highway 28 in the southeastern portion of the Project.

Photo 5. Photo facing south from South Dakota Highway 28 in the south-central portion of the Project.

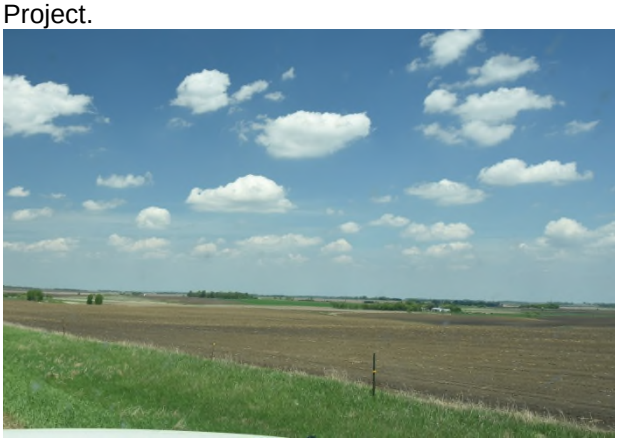


Photo 6. Agricultural field facing north on 192nd Street in the northeastern portion of the Project.

Photo 7. Field and ditch facing south on 191st Street in the central portion of the Project.

Photo 8. Forested patch facing east on 480th Avenue in the northeastern portion of the Project.

Photo 9. Pheasants Forever sign observed facing north on 192nd Street in the central portion of the Project.

Photo 10. Grassland observed facing north on 192nd Street in the central portion of the Project.

Photo 11. Grassland observed facing west on 178th Avenue in the northcentral portion of the Project.

Photo 11. Grassland observed facing south on 190th Street in the northcentral portion of the Project.

Appendix A. Agency Environmental Review Reports

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Deuel County, South Dakota

Local office

South Dakota Ecological Services Field Office

(605) 224-8693
(605) 224-9974

420 South Garfield Avenue, Suite 400
Pierre, SD 57501-5408

http://www.fws.gov/southdakotafieldoffice/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Red Knot Calidris canutus rufa No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened

Fishes

NAME	STATUS
Topeka Shiner Notropis topeka (=tristis) There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4122	Endangered

Insects

NAME	STATUS
Dakota Skipper Hesperia dacotae There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1028	Threatened
Poweshiek Skipperling Oarisma poweshiek There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/9161	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Tern *Chlidonias niger* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

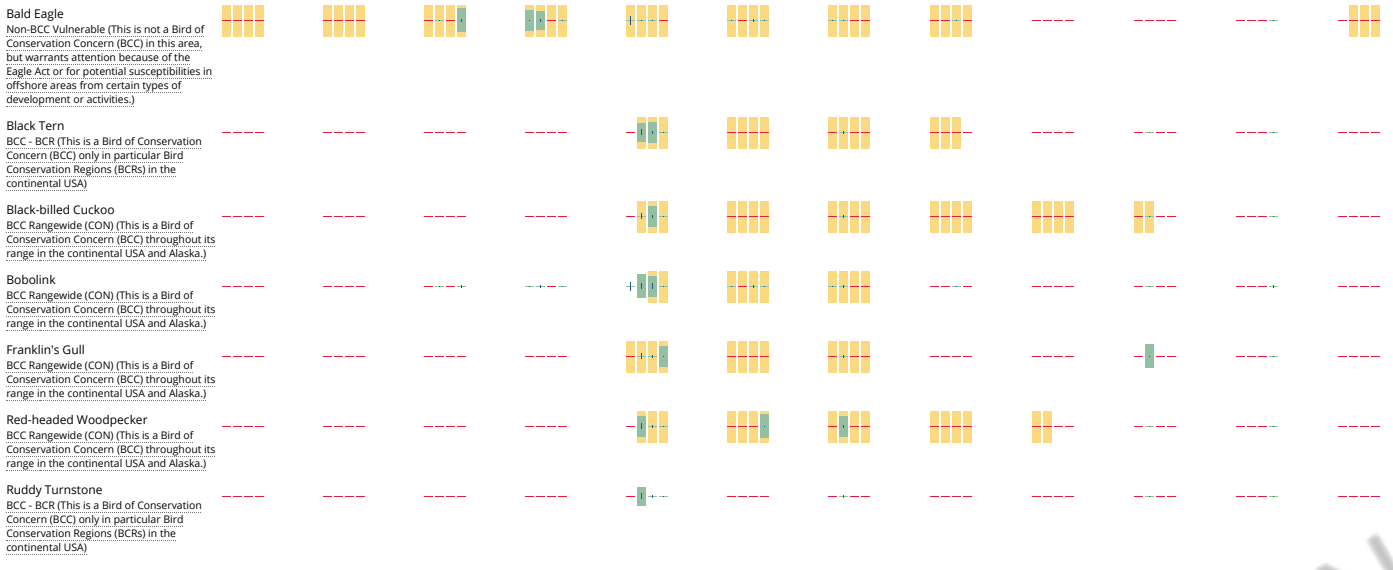
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
Madison Wetland Management District	130.81 acres

(605) 256-2974
(605) 256-9432

MAILING ADDRESS
P.O. Box 48
Madison, SD 57042-0048

PHYSICAL ADDRESS
23520 Sd Highway 19
Madison, SD 57042-0048

https://www.fws.gov/refuges/profiles/index.cfm?id=64560

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the NWI map for a full list.

FRESHWATER EMERGENT WETLAND
- PEM1/ABFd
- PEM1C
- PEM1Cd
- PEM1/ABF
- PEM1A
- PEM1Ad
- PEM1Cx
- PEM1/SSCd
- PEM1Fd
- PEM1/ABFh
- PEM1/FOCd
- PEM1/FOC

FRESHWATER FORESTED/SHRUB WETLAND
- PFOC
- PFOCd
- PSSCd
- PFOA
- PSSAd
- PFOCx
- PSSA

FRESHWATER POND
- PABFx
- PABFh

LAKE
- L2ABG

RIVERINE
- R4SBC
- R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Janelle Rieland <jrieland@west-inc.com>

RE: Natural Heritage Program Data Request

1 message

Heimerl, Casey <Casey.Heimerl@state.sd.us> Wed, May 30, 2018 at 11:27 AM
To: Janelle Rieland <jrieland@west-inc.com>

Hi Janelle,

Attached is a shapefile of records from the Natural Heritage Database that occurred within the project area you provided. Please note that many places in South Dakota have not been surveyed for rare or protected species and the absence of any additional records from the database does not preclude their presence in your project area.

Also attached is an invoice for the request and a description of the attribute fields in the shapefile.

If you have any questions please feel free to contact me.

~Casey

From: Janelle Rieland [mailto:jrieland@west-inc.com]
Sent: Wednesday, May 30, 2018 11:03 AM
To: Heimerl, Casey
Subject: Re: [EXT] Natural Heritage Program Data Request

Hi Casey,

Attached, please find the signed data use agreement. Thanks for your help!

On Wed, May 30, 2018 at 10:38 AM Heimerl, Casey <Casey.Heimerl@state.sd.us> wrote:

> Hi Janelle,
>
> There will be a couple records returned from this search. Could you please sign and email me back the attached data use agreement?
>
> Thanks,
>
> ~Casey
>
> **From:** Janelle Rieland [mailto:jrieland@west-inc.com]
> **Sent:** Tuesday, May 29, 2018 9:41 AM
> **To:** Heimerl, Casey
> **Subject:** Re: [EXT] Natural Heritage Program Data Request
>
> Good morning Casey,
>
> Thank you for getting back to me! Attached, please find the shapefile of the project area of interest.
>
> Have a wonderful morning,
>
> On Tue, May 29, 2018 at 9:34 AM Heimerl, Casey <Casey.Heimerl@state.sd.us> wrote:
>
> > Hi Janelle,
> >
> > I received your request for SD Natural Heritage data. Please provide me with a map or a shapefile (preferably) for your requested search area. I also want to make sure you are aware of the fees associated with data requests. Fees include $30 per hour of staff time required and $30 per database search. Once I receive your project area I can provide you with a cost estimate before I proceed if necessary. If the search results in any records, I will also require you to sign a data use agreement.
> >
> > Thanks!
> >
> > ~Casey
> >
> > **Casey Heimerl** | *Wildlife Biologist*
> >
> > South Dakota Game, Fish and Parks
> >
> > 523 East Capitol Avenue | Pierre, SD 57501
> >
> > 605.773.4345 | Casey.Heimerl@state.sd.us
> >
> > **From:** info@gfp.sd.us [mailto:info@gfp.sd.us]
> > **Sent:** Thursday, May 24, 2018 4:41 PM
> > **To:** jrieland@west-inc.com

Cc: Heimerl, Casey
Subject: Natural Heritage Program Data Request

South Dakota - Game, Fish, and Parks

Natural Heritage Program Data Request

A new form was just submitted from the http://gfp.sd.gov/ website with the following information:

ID:	8
Agency/Org/Business:	Western EcoSystems Technology, Inc. (WEST)
Name:	Janelle Rieland
Address:	7575 Golden Valley Road, Suite 350 Golden Valley, MN 55427
Email:	jrieland@west-inc.com
Phone:	612-310-8012
Fax:	
URL:	
Element or Subject:	Looking to obtain records of known federally and state-listed species and other environmentally sensitive resources located in or near a proposed project site.
Type of Data:	Shape files (ideally), location, and species information.
Purpose of Request:	Preliminary site evaluation

--

Janelle Rieland

Project Manager

Western Ecosystems Technology, Inc.
Environmental & Statistical Consultants

7575 Golden Valley Road, Suite 350

Golden Valley, MN 55427

Office - 763-270-0953

Cell - 612-310-8012

jrieland@west-inc.com

www.west-inc.com

Follow WEST: Facebook, Twitter, Linked In, Join our Mailing list

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Janelle Rieland

Project Manager

Western Ecosystems Technology, Inc.
Environmental & Statistical Consultants

7575 Golden Valley Road, Suite 350

Golden Valley, MN 55427

Office - 763-270-0953

Cell - 612-310-8012

jrieland@west-inc.com

www.west-inc.com

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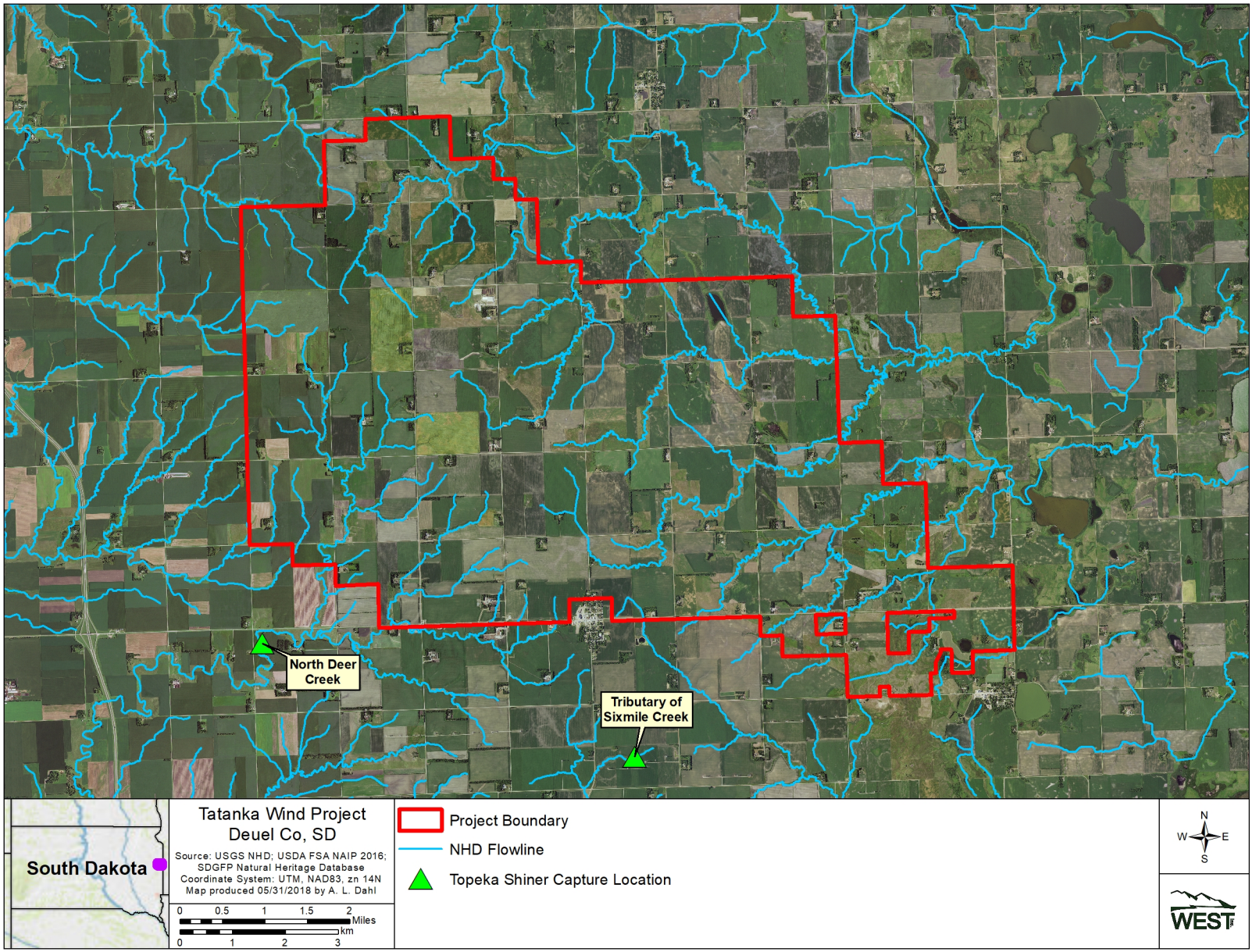
3 attachments

SDNHP-5-30-18.zip
3K

Invoice SDNHP-05-30-18-01.pdf
45K

EOdatafields.pdf
77K


North Deer Creek
Tributary of Sixmile Creek
South Dakota
Tatanka Wind Project
Deuel Co, SD
Source: USGS NHD; USDA FSA NAIP 2016; SDGFP Natural Heritage Database
Coordinate System: UTM, NAD83, zn 14N
Map produced 05/31/2018 by A. L. Dahl
0 0.5 1 1.5 2 Miles
0 1 2 3 km
Project Boundary
NHD Flowline
Topeka Shiner Capture Location
N
W E
S
WEST