Dakota Skipper Habitat Evaluation
345-Kilovolt Transmission Line
Aurora Wind Energy Project
Mountrail County, North Dakota

Final Report

Prepared for:

Aurora Wind Project, LLC

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1 INTRODUCTION

Aurora Wind Project, LLC (Aurora), a wholly-owned subsidiary of Tradewind Energy, Inc., is considering the development of the Aurora Wind Energy Project (Project) and associated 345-kilovolt (kV) Transmission Line (Line) in Williams and Mountrail counties, North Dakota (Figure 1). The Dakota skipper (DASK, *Hesperia dacotae*), a federally threatened butterfly, has the potential to occur within Mountrail County (US Fish and Wildlife Service [USFWS] 2016b, 2018). To support development of the Project, Aurora contracted Western EcoSystems Technology, Inc. (WEST) to conduct surveys to identify potential DASK habitat along the Line in Mountrail County, North Dakota. This report describes the results of a pedestrian field survey conducted on August 29, 2018 and November 2, 2018.

This habitat evaluation was completed following habitat definitions provided in the USFWS *Guidance for Interagency Cooperation under Section 7(a)(2) of the Endangered Species Act for the Dakota Skipper, Dakota Skipper Critical Habitat, and Poweshiek Skipperling Critical Habitat Version 1.1* (Guidance; USFWS 2016a).

2 PROJECT DESCRIPTION

The Project and Line encompass an area of approximately 19,462 hectares (ha; 48,092 acres [ac]), with the Line terminating approximately 1.6 kilometers (km; 1.0 miles [mi]) north of the city of Tioga, North Dakota. The Project and a majority (27.4 km [17.0 mi]) of the Line corridor are within Williams County, North Dakota, with approximately 4.8 km (3.0 mi) of the Line being located in Mountrail County; this is the section of Line for which the DASK habitat evaluation was conducted. The location of the Line was selected based on a variety of factors, including input and direction from landowners as well as the location of the existing Basin Electric Power Cooperative Tande 345-kv Substation in western Mountrail County, which is the Point of Interconnection for the Project.

The Project is located within the Missouri Coteau Slope and River Breaks Level IV Ecoregions (US Environmental Protection Agency 2017), in an area of nearly flat to gently rolling topography previously dominated by short- and mixed-grass prairies that has extensively been converted to agricultural and livestock production lands (Bryce et al. 1996). Land conversion to agricultural crops in flat areas and livestock production on steeper lands along drainages has been extensive; oil and gas extraction are also major activities in the general region (Bryce et al. 1996, Wang et al. 2018).

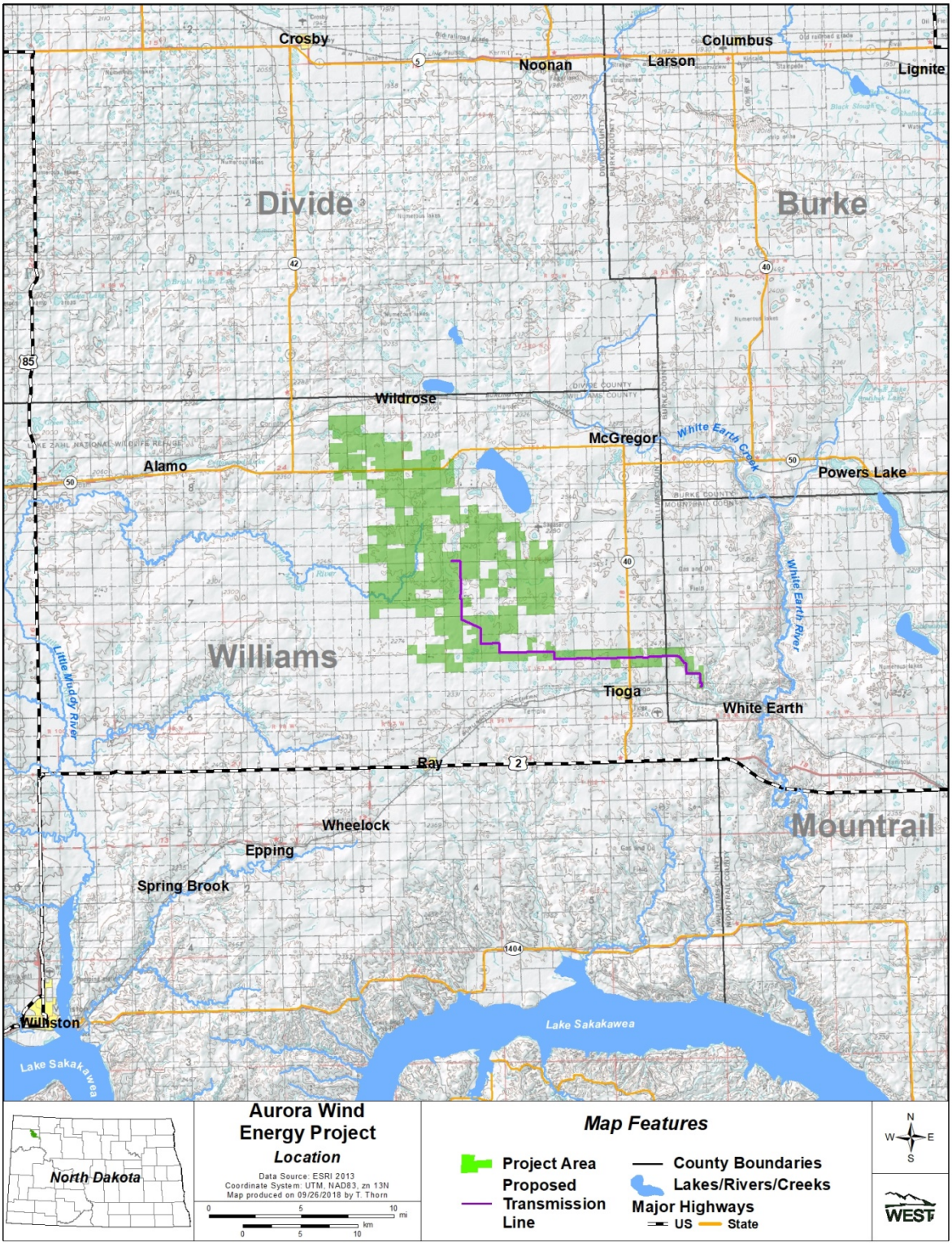

Figure 1. Location of the Aurora Wind Energy Project and associated 345-kilovolt transmission line in Williams and Mountrail counties, North Dakota.

3 METHODS

3.1 Dakota Skipper

The Dakota skipper is a small, federally threatened butterfly (ESA; 16 United States Code Section 1538 1973, USFWS 2014a) that lives in high-quality, unbroken, mixed- and tall-grass prairie of the Northern Great Plains (USFWS 2015a). Potential DASK habitat is characterized by two types of prairie habitat (USFWS 2015a). Type A habitat typically occurs in wet-mesic portions of bluestem (*Andropogon* spp.) grasslands with wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and smooth camas (*Zygadenus elegans*), being the indicator nectar plant species. Type B habitat is upland prairies dominated by bluestem grasses (*Schizachyrium* spp.) and needlegrasses (*Stipa* spp.), and includes wildflower forb species, such as black-eyed Susan (*Rudbeckia hirta*), fleabanes (*Erigeron* spp.), blanket flowers (*Gaillardia* spp.), purple prairie clover (*Dalea purpurea*), and purple coneflower (*Echinacea angustifolia*).

The USFWS has identified critical habitat for DASK within six states, including North Dakota (USFWS 2015b). No critical habitat for DASK is located within the Project area or Line, and the nearest critical habitat is located south of the Missouri River in McKenzie County, approximately 52.5 km (32.6 mi) southwest of the Project (80 Federal Register [FR] 190: 59248–59384 2015). Critical habitat is defined as an area with habitat features that are essential for the survival and recovery of a listed species, which may require special management considerations or protections. A DASK population is possibly present located at Lostwood National Wildlife Refuge (NWR) in Burke County, approximately 32.2 km (20.0 mi) east of the Project (USFWS 2018).

3.2 Field Surveys

A desktop analysis identified potential grassland areas within the Line corridor. A pedestrian field survey for potential DASK habitat was conducted on August 29, 2018, within the identified grasslands within the 45.7 m (150.0 ft) wide Line corridor. On October 10, 2018, the southeast portion of the Line corridor was widened to 182.9 m (600.0 ft) to further assess potential DASK habitat for evaluation of construction access for the Line. An additional pedestrian field survey for potential DASK habitat was conducted on November 2, 2018, within the portions of the widened Line corridor that were not surveyed previously. During the field surveys, a WEST biologist walked meandering transects to observe all grassland habitat within the survey corridor to identify potential DASK habitat within the Line corridor and surrounding landscape. All areas within the Line corridor containing the characteristics of the prairie types described above were delineated using a sub-meter Trimble GPS unit (commonly, Trimble) and were considered potential DASK habitat.

Mapping was done by delineating the transitional line between potentially suitable habitat and unsuitable DASK habitat. While the focus of the potential DASK habitat mapping was within the

Line corridor, the biologist mapped potential DASK habitat beyond the Line corridor boundary, if present, to assist with siting and development as well as construction planning for the Project. Photographs were taken to document each potential DASK habitat area. Areas mapped in the field were later processed using ArcGIS to create a polygon shapefile denoting potential DASK habitat areas within the Line corridor.

4 RESULTS

Approximately 50.5 ha (124.7 ac) of grasslands were surveyed within the Line corridor, resulting in the identification of 15 areas of potential DASK habitat located mostly in the southeast part of the Line corridor within approximately 1.6 km of the substation (Figure 2). All potential DASK habitat areas were located on private land and occurred in unbroken, native prairies that contained DASK habitat indicator species such as native grass species (bluestem, needlegrasses, and blue grama [*Bouteloua gracilis*]), purple and prairie [*Ratibida coumnifera*] coneflower, and purple prairie clover. All areas had been grazed during 2018, as evidenced by cattle cow droppings present at the time of the first field surveys. Photographs of the potential DASK habitat areas are included in Appendix A.

5 CONCLUSIONS

Population declines for the DASK have been observed the last 20 years; however, reasons for this decline are still poorly understood (USFWS 2015a). Habitat fragmentation, conversion to croplands, pathogens, invasive species, and insecticide and herbicide use have resulted in loss and degradation of preferred tallgrass prairie habitat, and have been suggested as possible causes of decline (USFWS 2013, Dyke et al. 2015).

No critical habitat for DASK is located within the Project area or Line, and the nearest critical habitat is located south of the Missouri River in McKenzie County, approximately 52.5 km southwest of the Project. A population of DASK is possibly present at Lostwood NWR in Burke County, approximately 32.2 km east of the Project.

Results from this habitat evaluation indicated that potential DASK habitat was located on private lands within the Line corridor and occurred in unbroken, native prairies that contained DASK habitat indicator species. These results can be incorporated into the design and location of the Line, which will also include specific input from landowners as to the location of the corridor. Impacts to DASK will be minimized by avoiding pole placement within suitable habitat present within the Line corridor. As Project development continues, additional assessments and agency coordination will occur, as necessary, to avoid Project-related impacts during construction and operation.

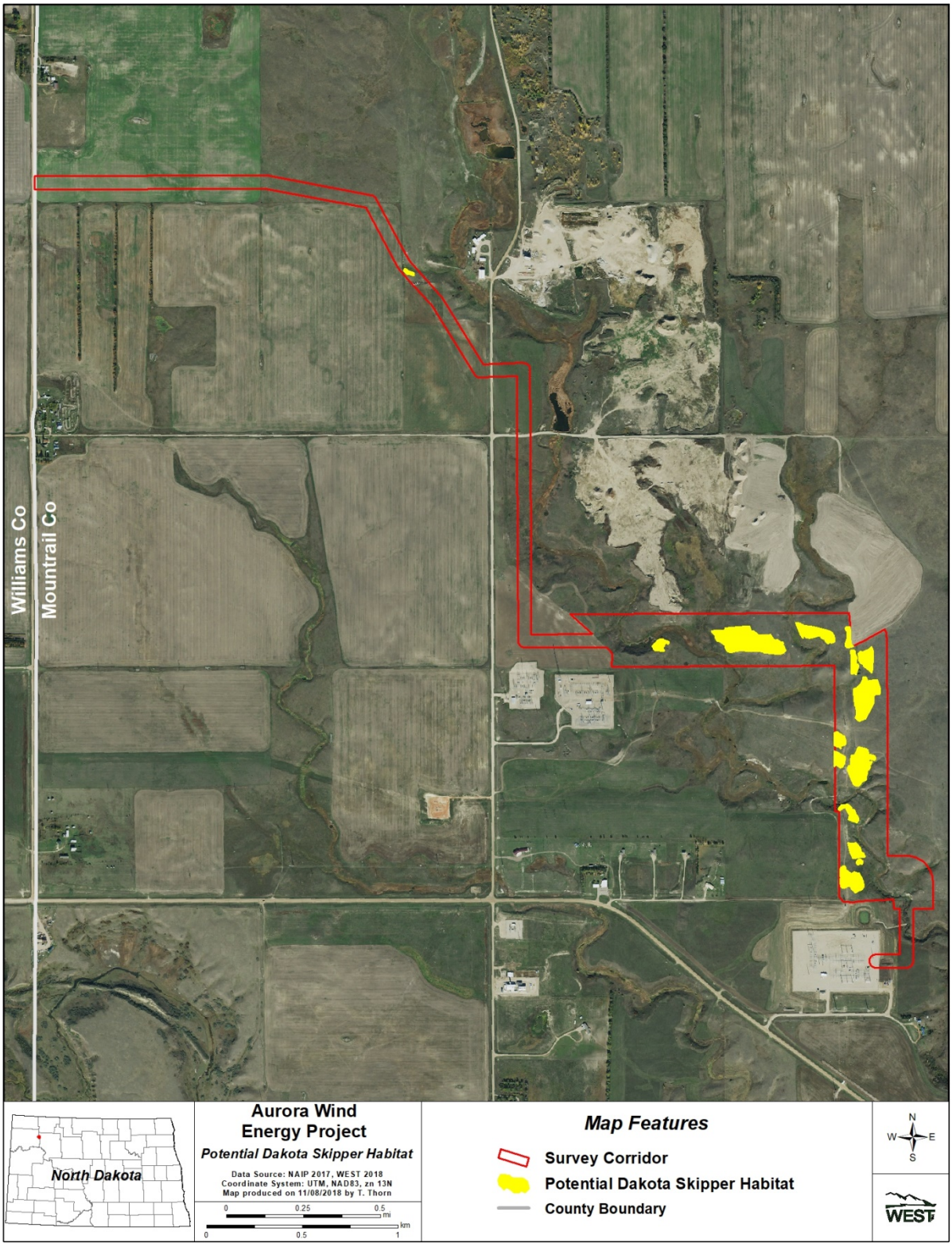

Figure 2. Potential Dakota skipper habitat within the section of the 345-kilovolt transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018.

6 REFERENCES

16 United States Code (USC) § 1538. 1973. Title 16 - Conservation; Chapter 35 - Endangered Species; Section (§) 1538 - Prohibited Acts. 16 USC 1538. December 28, 1973. [Public Law (Pub. L.) 93–205, § 9, December 28, 1973, 87 Statute (Stat.) 893; Pub. L. 95–632, § 4, November 10, 1978, 92 Stat. 3760; Pub. L. 97–304, § 9(b), October 13, 1982, 96 Stat. 1426; Pub. L. 100–478, Title I, § 1006, Title II, § 2301, October 7, 1988, 102 Stat. 2308, 2321; Pub. L. 100–653, Title IX, § 905, November 14, 1988, 102 Stat. 3835.]. Available online: https://www.gpo.gov/fdsys/pkg/USCODE-2011-title16/pdf/USCODE-2011-title16-chap35-sec1538.pdf

80 Federal Register (FR) 190: 59248-59384. 2015. 50 Cfr 17. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Dakota Skipper and Poweshiek Skipperling. Final rule. Department of the Interior Fish and Wildlife Service. 80 FR 59248. October 1, 2015. Available online at: https://www.fws.gov/midwest/endangered/insects/dask/pdf/FRFinalCH1Oct2015.pdf

Bryce, S. A., J. M. Omernik, D. A. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S. H. Azevedo. 1996. Ecoregions of North Dakota and South Dakota. (Color poster with map, descriptive text, summary tables, and photographs.) US Geological Survey (USGS) map (map scale 1:1,500,000). USGS, Reston, Virginia. US Environmental Protection Agency (USEPA). Available online: https://www.epa.gov/eco-research/ecoregion-download-files-state-region-8#pane-39

Dyke, S. R., S. K. Johnson, and P. T. Isakson. 2015. North Dakota State Wildlife Action Plan. North Dakota Game and Fish Department, Bismarck, North Dakota. Available online: https://gf.nd.gov/wildlife/swap

ESRI. 2013. World Topographic Map. ArcGIS Resource Center. ESRI, producers of ArcGIS software. ESRI, Redlands, California. Last modified June 6, 2018. Available online: http://www.arcgis.com/home/item.html?id=30e5fe3149c34df1ba922e6f5bbf808f

North American Datum (NAD). 1983. Nad83 Geodetic Datum.

US Environmental Protection Agency (USEPA). 2017. Level Iii and Level Iv Ecoregions of the Continental United States. Ecosystems Research, USEPA. Last updated February 8, 2017. Information and maps online: https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states

US Fish and Wildlife Service (USFWS). 2013. South Dakota Filed Office: Dakota Skipper (Hesperia Dacotae). Updated September 9, 2013. Accessed October 2018. Available online at: http://www.fws.gov/southdakotafieldoffice/skipper.HTM

US Fish and Wildlife Service (USFWS). 2015a. Dakota Skipper (Hesperia Dacotae) Fact Sheet. USFWS Midwest Region Endangered Species. Last Updated March 12, 2018. Available online at: http://www.fws.gov/midwest/Endangered/insects/dask/daskFactSheet.html

US Fish and Wildlife Service (USFWS). 2015b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Dakota Skipper and Poweshiek Skipperling. Final rule. Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17. 80 Federal Register (FR) 190: 59248-59384. October 1, 2015.

US Fish and Wildlife Service (USFWS). 2016a. Guidance for Interagency Cooperation under Section 7(a)(2) of the Endangered Species Act for the Dakota Skipper, Dokota Skipper Critical Habitat, and Poweshiek Skipperling Critical Habitat Version 1.1. US Fish and Wildlife Service, Regions 3 and 6. Accessed: May 2016. Availalbe online: https://www.fws.gov/midwest/endangered/insects/dask/pdf/DakotaSkipperS7GuidanceV1.1.pdf

US Fish and Wildlife Service (USFWS). 2016b. Species Profile: Dakota Skipper (Hesperia Dacotae). Last updated: October 2015. USFWS Endangered Species Program homepage: http://www.fws.gov/endangered/; USFWS Environmental Conservation Online System (ECOS) portal available at: http://ecos.fws.gov/ecos/indexPublic.do; Dakota skipper profile available at: https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=1028

U.S. Fish and Wildlife Service. 2018. Species status assessment report for the Dakota skipper (Hesperia dacotae). 97 pp.

Wang, T., A. Ayesh, D. Hennessy, and H. Feng. 2018. Cropland Reflux: Trends in and Locations of Land Use Change in the Dakotas, 2007 to 2012 and 2012 to 2017. South Dakota Agricultural Experiment Station and South Dakota State University Economics Department. July 2018. Available online: https://ageconsearch.umn.edu/record/274938/files/Cropland%20Reflux.pdf

Appendix A. Photographs of Potential Dakota Skipper Habitat within the Section of the Transmission Line Corridor in Mountrail County, North Dakota, Associated with the Aurora Wind Energy Project, Surveyed on August 29 and November 2, 2018.

Appendix A1. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018

Appendix A2. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018

Appendix A3. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018

Appendix A4. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018

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Appendix A10. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018

Appendix A11. Potential Dakota skipper habitat within the section of the transmission line corridor in Mountrail County, North Dakota, associated with the Aurora Wind Energy Project, surveyed on August 29 and November 2, 2018