Grassland Assessment

Ruso Wind Project

McHenry, McLean, and Ward Counties, North Dakota

Final Report

Prepared for:

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REPORT REFERENCE

Chodachek, K. 2019. Grassland Assessment, Ruso Wind Project, McHenry, McLean, and Ward Counties, North Dakota. Final Report. Prepared for Ruso Wind Partners, LLC, Birmingham, Alabama. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. June 13, 2019.

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INTRODUCTION

Ruso Wind Partners, LLC, a subsidiary of Southern Power Company (Southern) is developing the Ruso Wind Project (Project) in McHenry, McLean, and Ward counties, North Dakota (Figure 1). In 2018, Southern requested Western EcoSystems Technology, Inc. (WEST) conduct a grassland assessment to inform siting within the proposed development areas of the Project area (Figure 1; Chodachek and Moratz 2018). The following criteria were assessed during the 2018 review and field surveys: 1) identify sod type (i.e., unbroken native prairie or previously broken grasslands) and 2) record grass and forb species composition as potential indicator of quality of grasslands within proposed development areas during the field survey. This report provides an update to the 2018 grassland assessment to include areas not previously surveyed (Figure 2).

PROJECT AREA

The Project area is located approximately 5.0 mi (8.0 km) north of the town of Ruso, North Dakota (Figure 1), encompassing approximately 17,571 acres (ac; 7,111 hectares [ha]). The Project topography is flat to rolling, with elevations ranging from 1,777.9 – 2,206.7 feet (ft; 541.9 – 672.6 meters [m]) above sea level (US Geological Survey [USGS] 2019). The Project occurs within the Missouri Coteau and Drift Plains Level IV Ecoregions (US Environmental Protection Agency [USEPA]; USEPA 2017). The Missouri Coteau Level IV Ecoregion is dotted with wetland depressions and is used for tilled agriculture and grazing (Bryce et al. 1996). The Drift Plains Level IV Ecoregion contains many temporary and seasonal wetlands and most of the landscape has been tilled due to its productive soil and relatively level topography (Bryce et al. 1996).

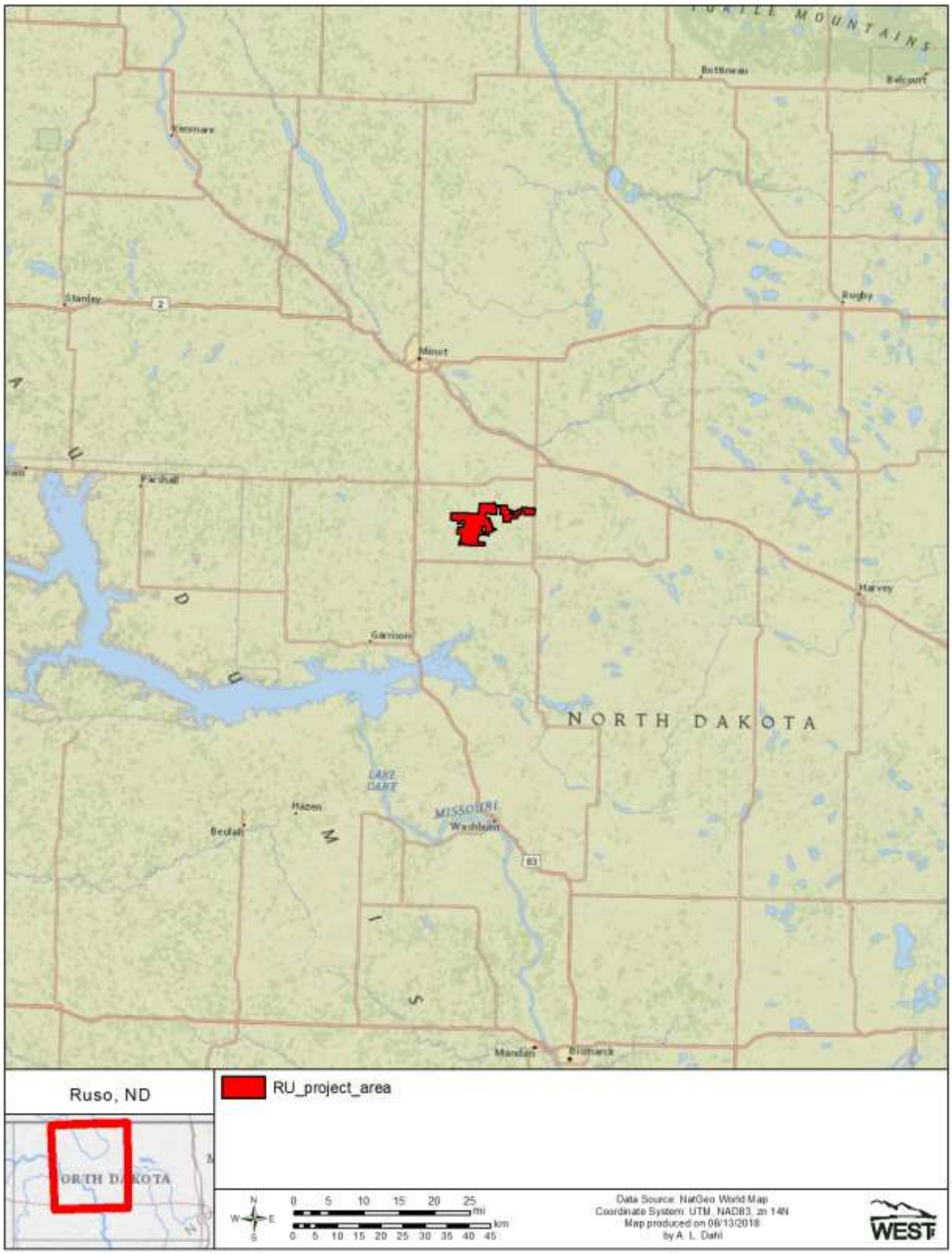

Figure 1. Location of the Ruso Wind Project in McHenry and Ward counties, North Dakota.

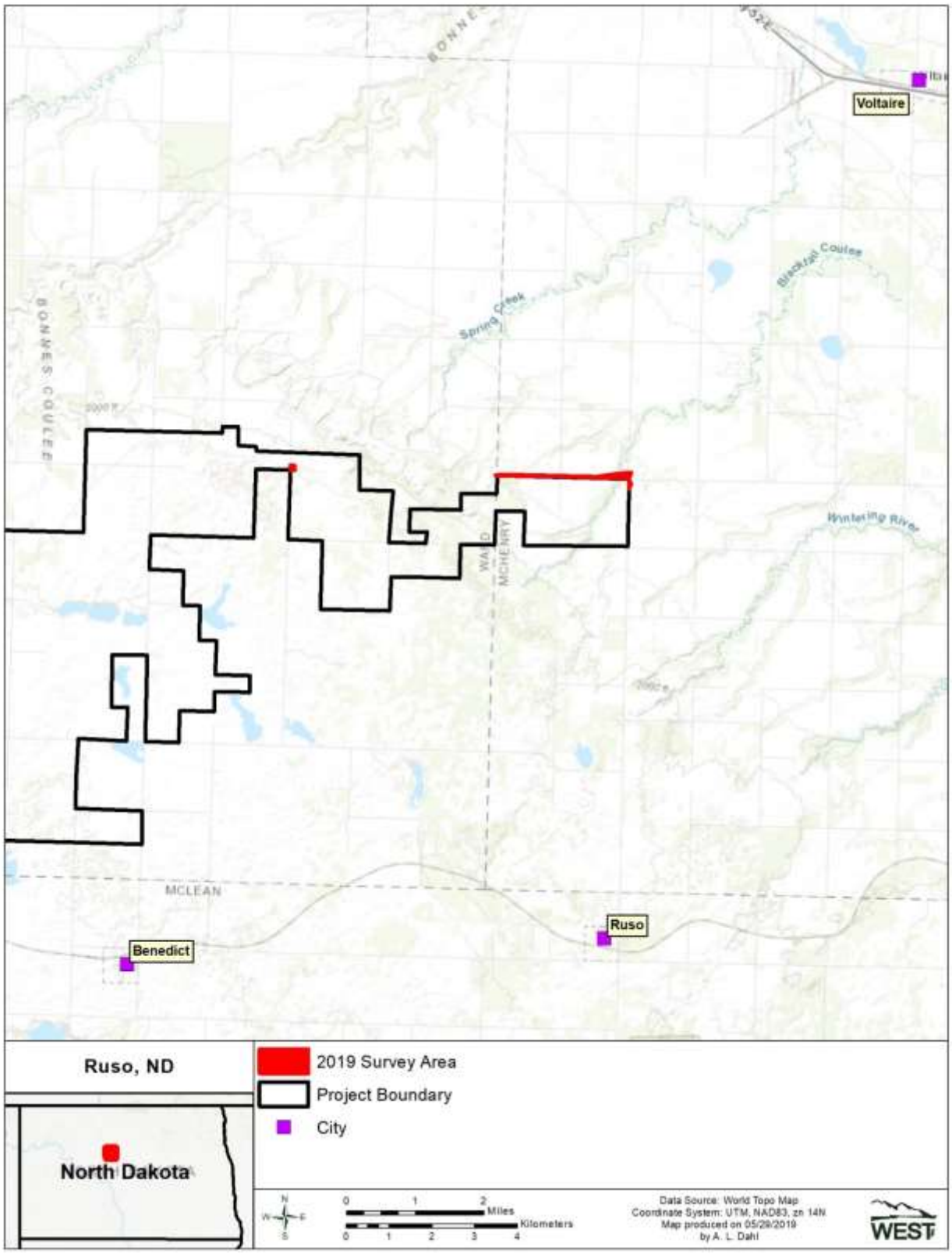

Figure 2. Location of the 2019 grassland survey area for the Ruso Wind Project in McHenry and Ward counties, North Dakota.

METHODS

Desktop Review

A desktop review of existing land use and land cover features within the Project area using current aerial photography (US Department of Agriculture [USDA] National Agriculture Imagery Program 2018), existing land cover data (National Land Cover Database 2016, USDA National Agricultural Statistics Service 2017), and North Dakota Game and Fish Department's (NDGFD) Native Habitat layer (NDGFD 2016) was completed using ESRI Software (ArcGIS 10.5.1). This desktop review resulted in a digital data layer land use/land cover polygons. Polygons were classified as grassland (i.e., unbroken native prairie or previously broken grassland) or other (i.e., non-grass areas such as cultivated cropland, roads, barren areas, development, wetlands, etc.). Unbroken native prairie showed no evidence of soil disturbance. Previously broken grasslands were identified based on features such as rock piles; presence, amount, and apparent height of trees and shrubs; field edge changes; straight line features indicating plowing, discing, harvesting, or planting; and any other features indicating human disturbance.

Field Surveys

Field surveys were completed May 28, 2019 to assess and confirm grassland boundaries, land use and land cover and sod type. Grasslands were visually assessed from public roads and on foot where access was permitted. Grasslands that appeared different than the desktop review were delineated on a map; identified as unbroken native prairie or previously broken grassland and digitized by a Geographic Information System (GIS) specialist at a later date. For each area surveyed, notes regarding the dominant grass type (native versus introduced), forb species composition, grazing status, shrub presence and composition, and presence/absence of scattered rocks were recorded. Photographs were taken to document the condition of grasslands surveyed.

Upon completion of field surveys, the grassland shapefile created during the desktop review was updated using the field survey data. Boundaries, sod type, and land use/land cover categories were updated as needed and survey type (i.e., visual only, pedestrian) was added to the shapefile.

Quality Assurance and Quality Control

Quality assurance and quality control measures were implemented at all stages of the study, including desktop review, field studies, data entry, and report writing. All field data sheets were inspected for completeness, accuracy, legibility, and entered into a Microsoft® access database. Any anomalous records from the database were compared to the raw data forms and any errors detected were corrected. Errors, omissions, or problems, were traced back to the raw data forms and rectified. All data sheets and electronic data files were retained for reference.

RESULTS

Desktop Review and Field Surveys

The 2019 survey area consists of approximately 15.04 ac (6.09 ha) of potential grassland, of which approximately 13.57 ac (5.49 ha) were assessed as unbroken native prairie and 1.47 ac (0.59 ha) were broken (Figure 3).

Geospatial Data

A shapefile was created based on the grassland assessment to describe grasslands assessed during the desktop review and field surveys. Attribute data are described in Table 1.

Table 1. Attributes and definitions for the grassland survey shapefile based on the desktop review and field surveys completed May 28, 2019 for the 2019 grassland survey area at the Ruso Wind Project in McHenry and Ward counties, North Dakota.

Attribute	Definition
grass_ID	Unique ID for each grassland polygon, corresponds to datasheets
sod_type	Sod type based on desktop review and field surveys (i.e., unbroken or previously broken grassland)
surv_type	Field survey type (i.e., pedestrian or visual only)

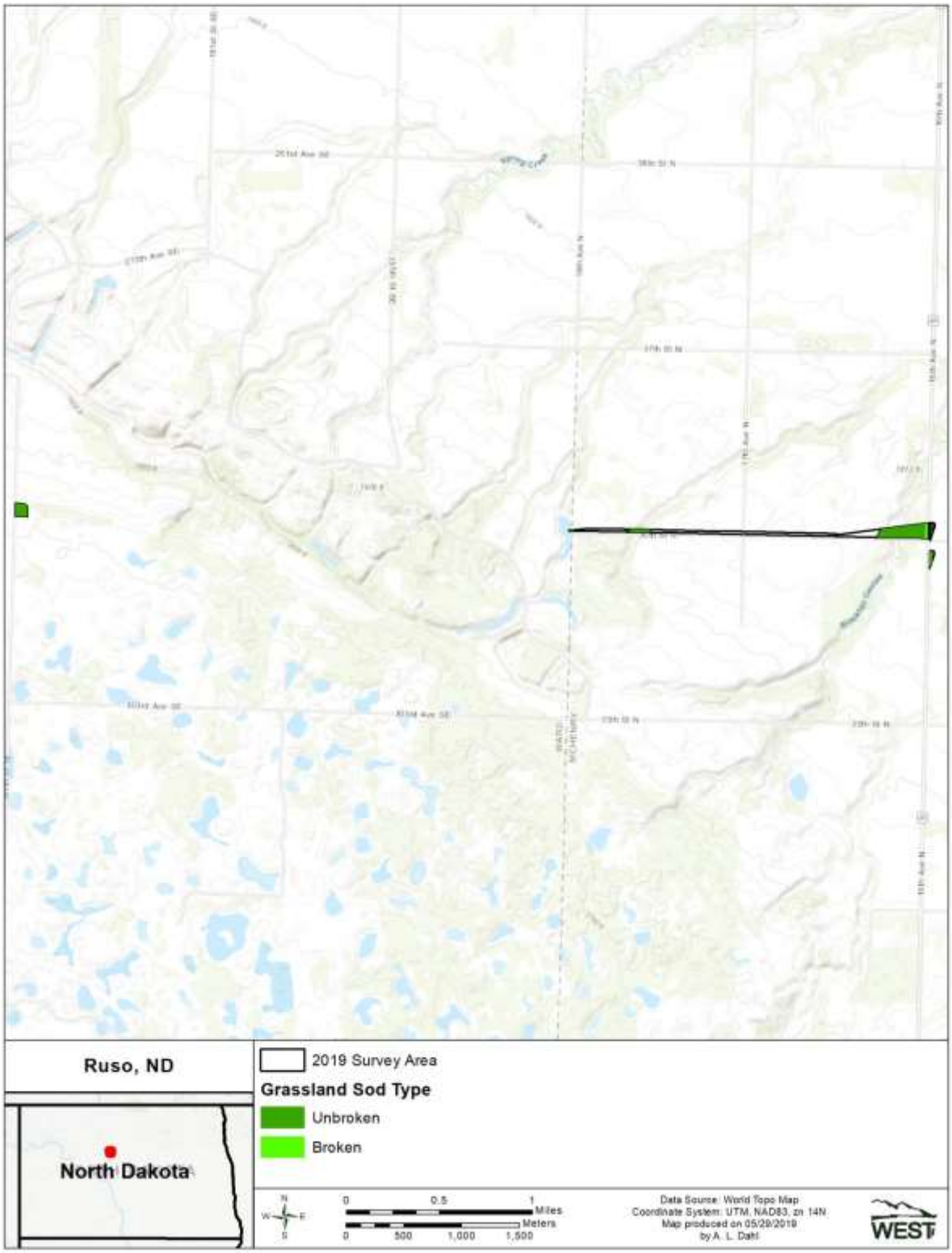

Figure 3. Grassland sod types assessed during field surveys completed May 28, 2019 for the 2019 grassland survey area at the Ruso Wind Project, McHenry and Ward counties, North Dakota.

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