

**Appendix J – Northern Long-Eared Bat Habitat
Assessment**



South Deuel Wind Northern Long-eared Bat Habitat Assessment

October 10 – October 12, 2022

DEUEL HARVEST WIND ENERGY SOUTH LLC

South Deuel Wind

5/23/2024



South Deuel Wind Northern Long-eared Bat Habitat Assessment

prepared for

DEUEL HARVEST WIND ENERGY SOUTH LLC
South Deuel Wind
Deuel County, South Dakota

Project No. 134150

5/23/2024

prepared by

Burns & McDonnell
Kansas City, Missouri

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TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION	1-1
1.1 Ecological Setting	1-1
1.2 Northern Long-eared Bat Habitat Description.....	1-2
2.0 METHODS.....	2-1
3.0 RESULTS.....	3-1
4.0 REFERENCES	4-1
APPENDIX A – REPRESENTATIVE SITE PHOTOGRAPHS OF SUITABLE SUMMER HABITAT	
APPENDIX B – NORTHERN LONG-EARED BAT SUITABLE SUMMER HABITAT MAPS	

LIST OF FIGURES

	<u>Page No.</u>
Figure 3-1: Suitable Summer Habitat for Northern Long-eared Bat	3-3

LIST OF TABLES

	<u>Page No.</u>
Table 1-1: Land Cover Types within the South Deuel Wind Project Area in Deuel County, South Dakota	1-2
Table 3-1: Potentially Suitable Habitat Evaluated During the Field-based Assessment.....	3-2

LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
Guidelines	Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines
NAIP	National Agriculture Imagery Program
NLCD	National Land Cover Dataset
NLEB	Northern Long-eared Bat
Project	South Deuel Wind
USFWS	U.S. Fish & Wildlife Service

1.0 INTRODUCTION

Deuel Harvest Wind Energy South LLC has proposed the development of the South Deuel Wind Project (Project) in Deuel County, South Dakota. The Project Area (Figure 1-1) consists of approximately 34,339 acres of land, primarily in agricultural land use.

The objective of this study was to assess the presence of potential summer roosting and foraging habitat for northern long-eared bat [*Myotis septentrionalis*] (NLEB) in the Project Area. The NLEB was listed under the Endangered Species Act (1973) as a federally endangered species throughout its range (U.S. Fish and Wildlife Service [USFWS] 2023a) following the habitat assessment. Although the habitat assessment was completed in 2022, the assessment adapted methodology from the USFWS guidance on Indiana bats (*Myotis sodalis*); the NLEB guidance that was released in 2023 followed the same methodology that had been set for the Indiana bats. Therefore, the assessment was completed in accordance with the Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines [Guidelines] (USFWS 2023b).

1.1 Ecological Setting

The Project Area is located within Ecoregions 46k (Prairie Coteau) and 46m (Big Sioux Basin) of the Northern Glaciated Plains, which spans across the eastern edge of South Dakota (Bryce et al. 1996). Both ecoregions have historically supported both tallgrass and shortgrass prairies. These native grasslands however, have been predominantly converted to agriculture croplands (Bryce et al. 1996), with soybeans (*Glycine max*) and corn (*Zea mays*) as the dominant crops (Miller 1997). The primary difference between the Prairie Coteau and Big Sioux Basin Ecoregions is that the Big Sioux has a well-developed drainage network, whereas the Prairie Coteau has no drainage pattern in the undulating landscape (Bryce et al. 1996).

According to the 2019 National Land Cover Dataset (NLCD) land cover classifications (USGS 2019), cultivated crops (73 percent) is the dominant land cover type in the Project Area (Table 1-1). Herbaceous is the second most common cover type at 16 percent (Table 1-1). According to the data collected during the grassland reconnaissance and site reconnaissance, the grassland areas include both introduced planted and native species. The predominance of cultivated crops and introduced cool season grasses for forage has reduced and fragmented the extent of undisturbed or native habitats occurring within the Project Area.

Table 1-1: Land Cover Types within the South Deuel Wind Project Area in Deuel County, South Dakota

Cover Type	Acres	Percent
Cultivated crops	25,045	73
Grassland/Herbaceous	5,451	16
Emergent herbaceous wetlands	1,473	4
Developed, open space	1,045	3
Pasture/Hay	777	2
Deciduous forest	262	1
Open water	170	<1
Developed, low intensity	63	<1
Developed, medium intensity	37	<1
Mixed forest	5	<1
Woody wetlands	5	<1
Developed, high intensity	3	<1
Shrub/Scrub	1	<1
Total^a	34,339	

Source: USGS 2019

^a Sums of values may not add to total value shown, due to rounding.

1.2 Northern Long-eared Bat Habitat Description

The NLEB is a forest interior species that roosts and forages in large, intact blocks of forest (USFWS 2022). Potential roost trees include live and dead trees at least three inches diameter at breast-height that have sloughing bark, cracks, crevices, or hollows. This species is also known to roost in anthropogenic structures such as bridges and barns near forested areas (USFWS 2022). NLEBs prefer larger tracts of forest (USFWS 2022) that are typically at least 10 contiguous acres. NLEBs may travel up to 1,000 feet across open areas to access additional forested areas, so smaller forested areas within 1,000 feet of larger forest blocks may also be used by the species (USFWS 2023b).

At the time this study was initiated, it was assumed the range of the NLEB overlapped with the entirety of the Project Area. However, the USFWS released an updated range map for the species (last updated August 14, 2023, [USFWS 2023c]) indicating that the NLEB range only intersects the Project Area in the northwest corner of the Project Area.

2.0 METHODS

Potentially suitable habitat was evaluated using desktop and field methods. The area evaluated included the Project Area and a 1-mile buffer of the Project Area. The desktop methodology included a review of 2022 National Agriculture Imagery Program (NAIP) aerial imagery to hand-digitize areas of forest (USDA 2020). Areas of at least 10 acres of contiguous forest were selected as the core areas of potential NLEB roosting habitat. Forest areas of any size that were within 1000 feet of the core areas were also included as potential habitat. Anthropogenic structures were not included in this assessment, although some suitable structures may occur within 1000 feet of suitable forest habitat. Isolated anthropogenic structures, isolated trees, and isolated small forest stands (less than 10 ac in size) located more than 1,000 ft away from suitable forested habitat were considered unsuitable habitat for NLEB (Henderson and Broders 2008, USFWS 2023b). A total of 14 areas met the desktop criteria for potentially suitable habitat, 7 of which were within the Project Area.

The field assessment was conducted between October 10 and October 12, 2022. During the field habitat assessment, the areas identified through the desktop assessment were viewed and photographed from public roads. Dominant tree species, tree sizes, and occurrence of potential roost trees were noted for each area. Areas with mid- to late-successional forest were determined to be suitable for the NLEB, whereas areas that had been cleared or were dominated by early-successional forest, such as windbreaks consisting of eastern red cedar (*Juniperus virginiana*), would be determined to be unsuitable.

3.0 RESULTS

A total of 14 areas met the desktop criteria for potentially suitable habitat, 6 of which were within the Project Area. All 14 areas were assessed in the field. Photographs are included in Appendix A, and detailed maps are included in Appendix B. Dominant tree species included eastern cottonwood (*Populus deltoides*), black willow (*Salix nigra*), ash (*Fraxinus* sp.), and maple (*Acer* sp.). All 14 areas were determined to be suitable for NLEB in the field (Figure 3-1). One additional area (F-15; within the Study Area but not the Project Area) was added based on an expansion of the Project Area in 2023. This area has not been evaluated in the field but is assumed to be suitable for the NLEB. These 15 areas total roughly 250.7 acres, with 90.3 acres being within the Project Area, and 160.4 acres being only within the Study Area, not in the Project Area.

The updated range map intersects the Project Area only in the northwest corner. A small portion of forest areas F-13 and F-15 intersect the current range of the NLEB. F-13 is located approximately 0.6 miles outside the Project Area. F-15 is located approximately 0.4 miles outside the Project Area. All the other potentially suitable habitat areas are outside the current range of the species.

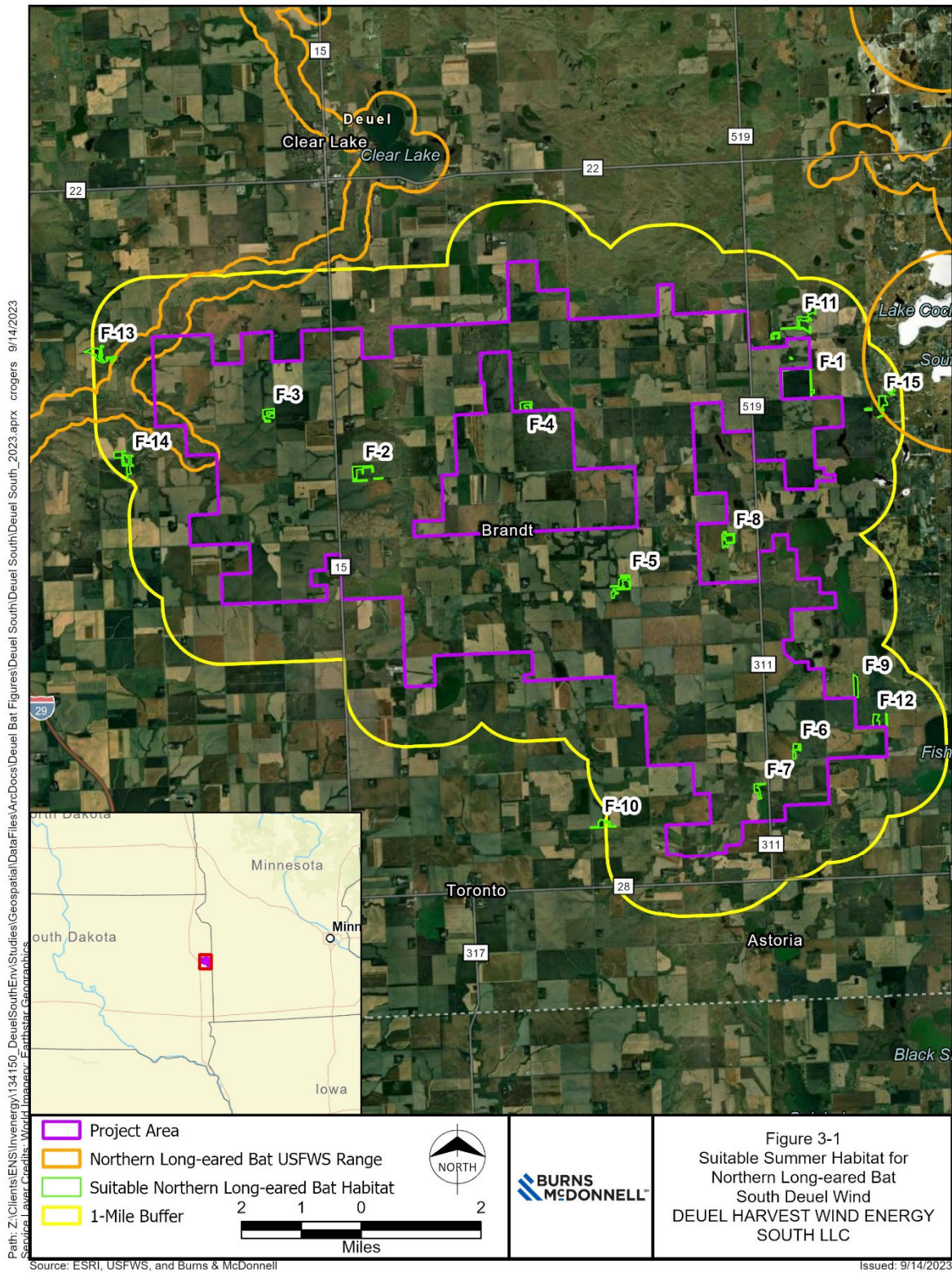
Table 3-1: Potentially Suitable Habitat Evaluated During the Field-based Assessment

Forest Area	Acres	Within Project Area	Dominant Species	Potential Roost Trees Observed	Description
F-1	10.8	No	Eastern cottonwood	No ¹	Tree line
F-2	21.1	Yes	Ash	Yes	Woodlot around residence
F-3	14.6	Yes	Ash	No ¹	Woodlot around residence
F-4	12.4	Yes	Eastern cottonwood and ash	Yes	Woodlot around residence
F-5	21.4	Yes	Ash	Yes	Woodlot around residence
F-6	10.4	Yes	Ash	No ¹	Woodlot around residence
F-7	10.4	Yes	Eastern cottonwood	Yes	Woodlot around residence
F-8	14.3	No	Eastern cottonwood	No ¹	Woodlot around residence
F-9	15.2	No	Eastern cottonwood	No ¹	Woodlot
F-10	12.0	No	Ash	No ¹	Woodlot around residence
F-11	30.9	No	Eastern cottonwood and black willow	Yes	Woodlot around residence
F-12	16.0	No	Eastern cottonwood	Yes	Woodlot
F-13	16.1	No	Eastern cottonwood	No ¹	Woodlot around residence
F-14	22.8	No	Ash and maple	No ¹	Woodlot around residence
F-15	22.3	No	Unknown	No ²	Woodlot around residence

¹Forest could not be fully viewed from public roads. Therefore, potential roost trees may still be present.

²Forest was outside the study area at the time of the field survey. Therefore, no field-based information is available.

Figure 3-1: Suitable Summer Habitat for Northern Long-eared Bat



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**APPENDIX A - REPRESENTATIVE SITE PHOTOGRAPHS OF SUITABLE
SUMMER HABITAT**



Photograph A-1: View of forest area F-1, facing north.



Photograph A-2: View of forest area F-1, facing north.

South Deuel Wind
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Representative Site Photographs of
Suitable Summer Habitat
October 10 - 12, 2022
Deuel County, South Dakota



Photograph A-3: View of forest area F-3, facing northwest.



Photograph A-4: View of forest area F-4, facing northeast.

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Representative Site Photographs of
Suitable Summer Habitat
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Deuel County, South Dakota



Photograph A-5: View of forest area F-5, facing north.



Photograph A-6: View of forest area F-6, facing north.

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Representative Site Photographs of
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Photograph A-7: View of forest area F-7, facing west.



Photograph A-8: View of forest area F-8, facing south.

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Representative Site Photographs of
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Deuel County, South Dakota



Photograph A-9: View of forest area F-9, facing north.



Photograph A-10: View of forest area F-10, facing north.

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Representative Site Photographs of
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Deuel County, South Dakota



Photograph A-11: View of forest area F-11, facing west.



Photograph A-12: View of forest area F-12, facing west.

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Representative Site Photographs of
Suitable Summer Habitat
October 10 - 12, 2022
Deuel County, South Dakota



Photograph A-13: View of forest area F-13, facing southwest.



Photograph A-14: View of forest area F-14, facing northwest.

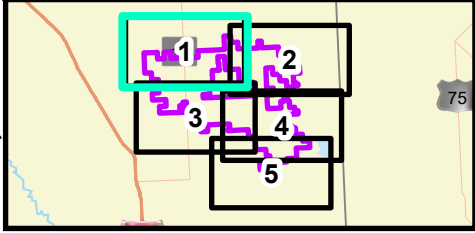
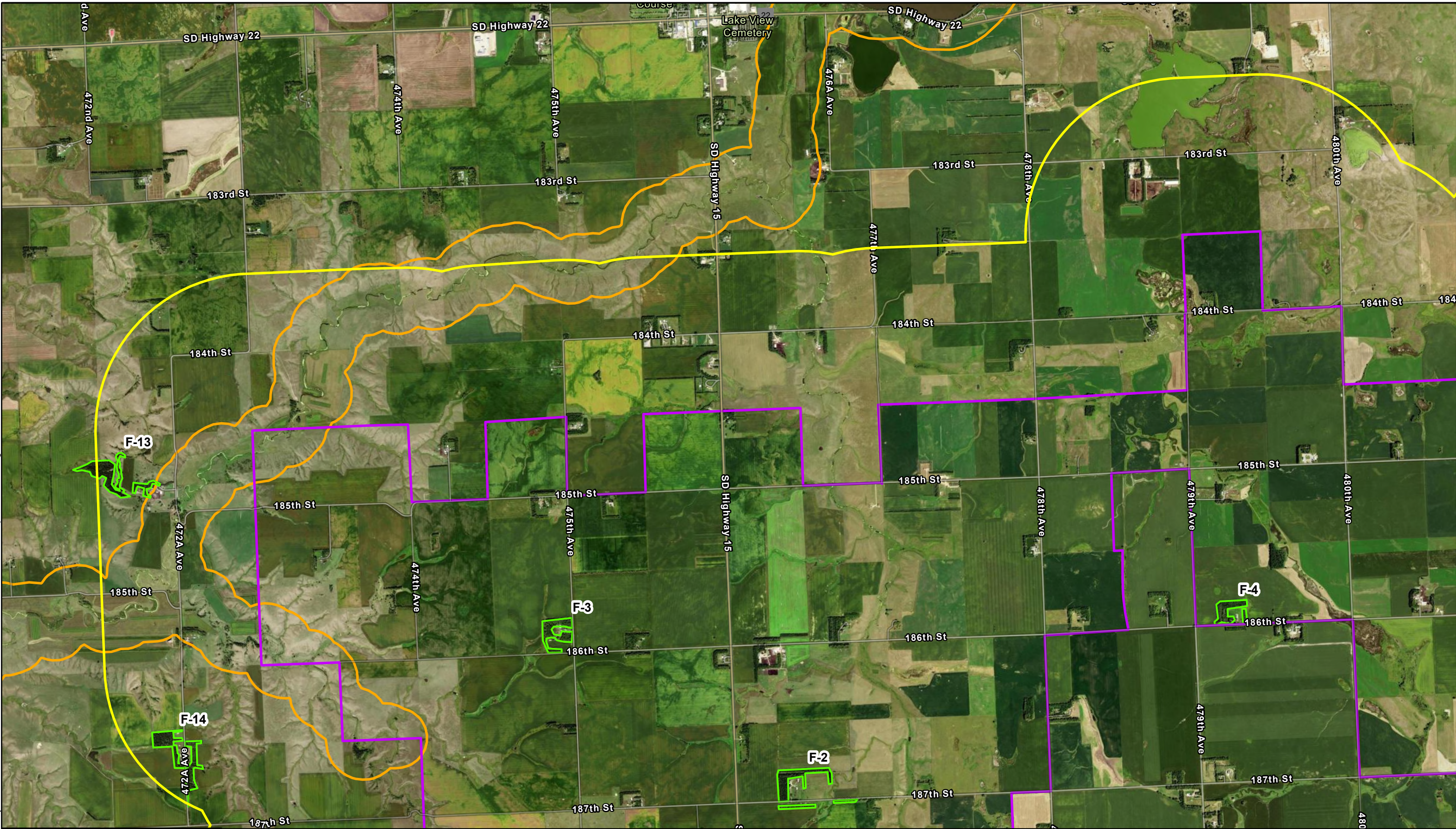
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Representative Site Photographs of
Suitable Summer Habitat
October 10 - 12, 2022
Deuel County, South Dakota

**APPENDIX B – NORTHERN LONG-EARED BAT SUITABLE SUMMER
HABITAT MAPS**

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Service Layer Credits: Dark Gray Base: South Dakota Game Fish and Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METINASA, USGS, EPA, NPS, US Census Bureau, USDA



- Project Area
- 1-Mile Buffer
- Suitable Northern Long-eared Bat Habitat
- Northern Long-eared Bat USFWS Range

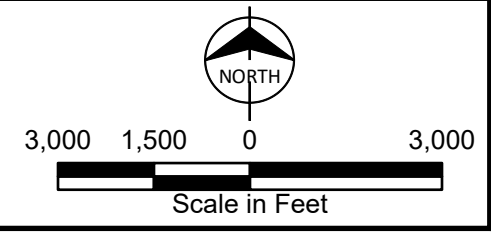
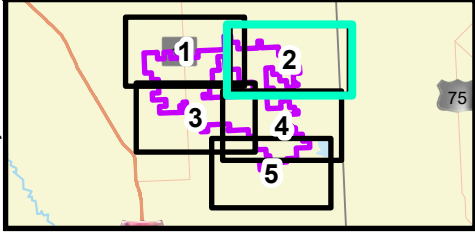
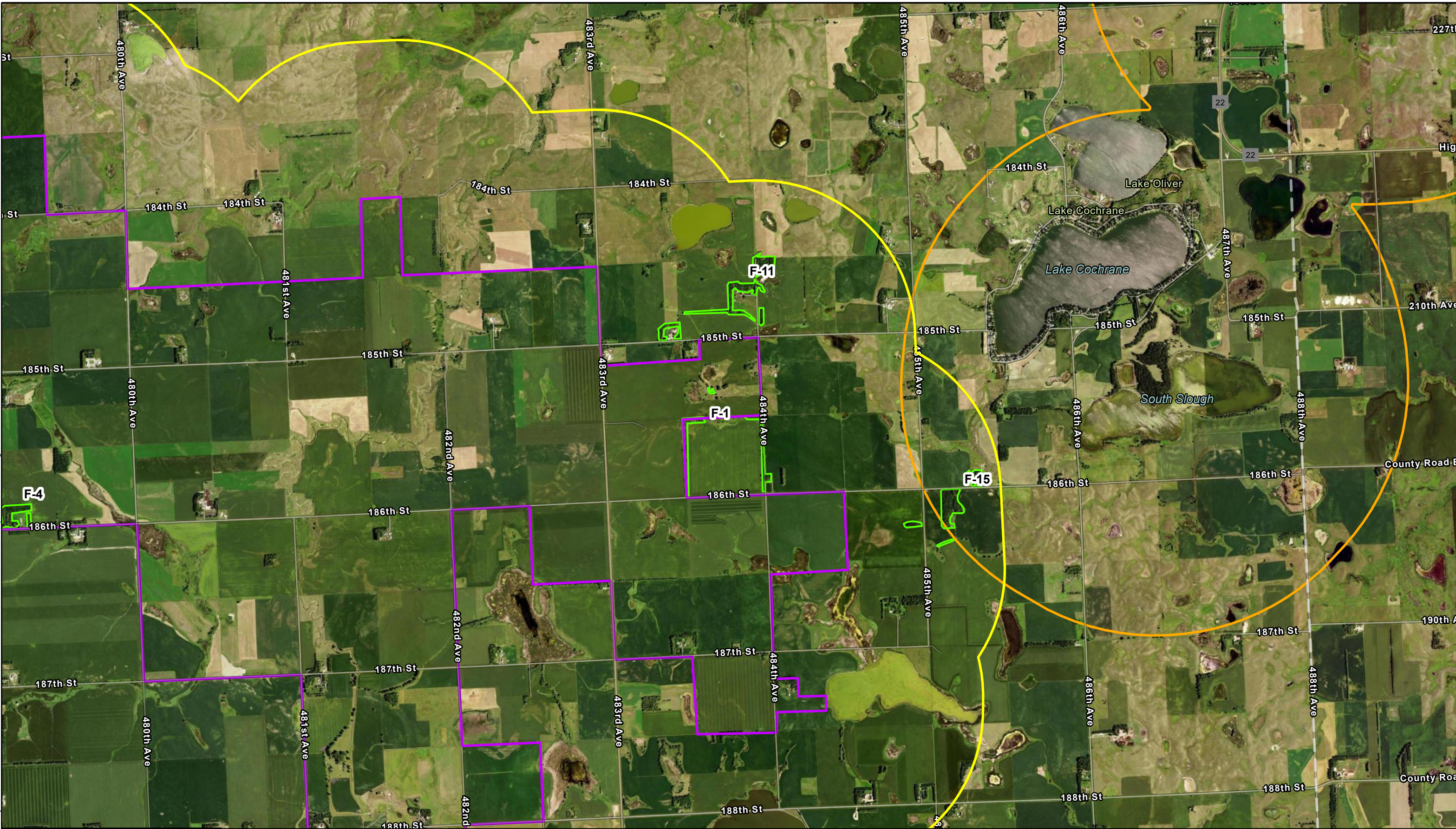


Figure B-1
Suitable Summer Habitat for
Northern Long-eared Bat
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Page 1 of 5

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Service Layer Credits: Dark Gray Base: South Dakota Game Fish and Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA



- Project Area
- 1-Mile Buffer
- Suitable Northern Long-eared Bat Habitat
- Northern Long-eared Bat USFWS Range

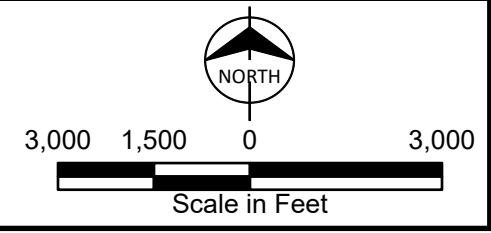
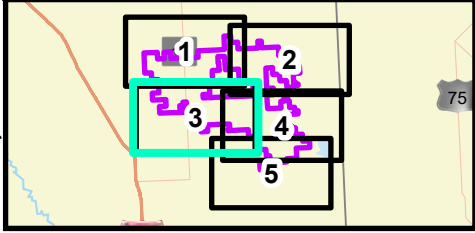






Figure B-1
Suitable Summer Habitat for
Northern Long-eared Bat
South Deuel Wind
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Page 2 of 5

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-  Project Area
-  1-Mile Buffer
-  Suitable Northern Long-eared Bat Habitat
-  Northern Long-eared Bat USFWS Range

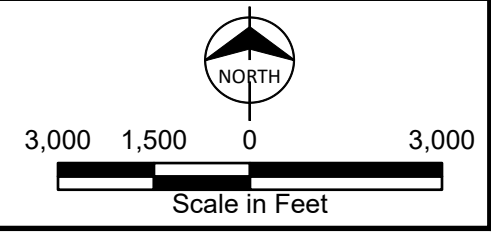
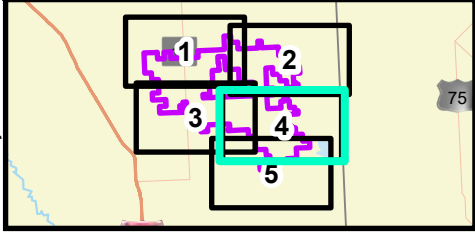
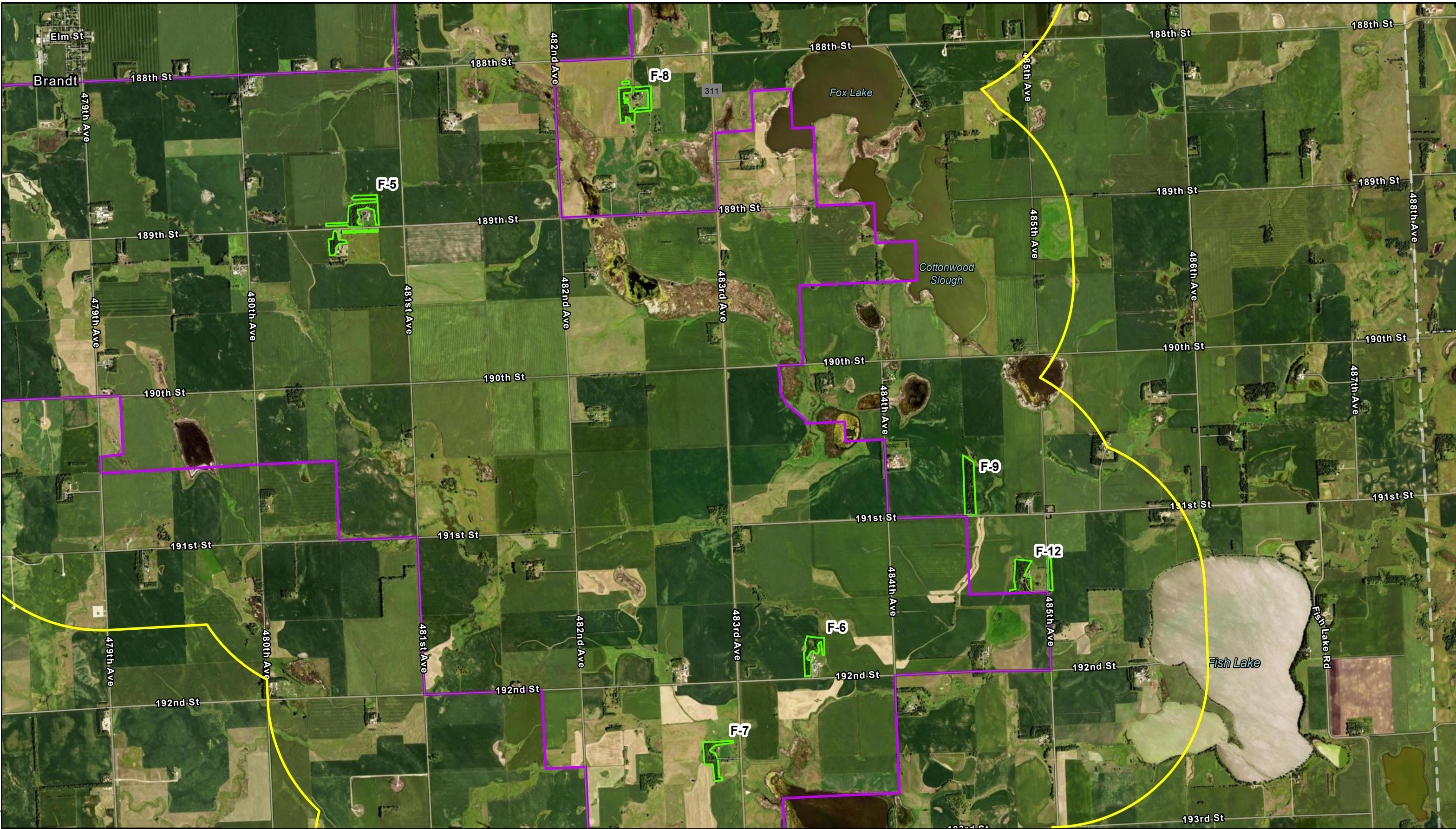






Figure B-1
Suitable Summer Habitat for
Northern Long-eared Bat
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Page 3 of 5

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-  Project Area
-  1-Mile Buffer
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-  Northern Long-eared Bat USFWS Range

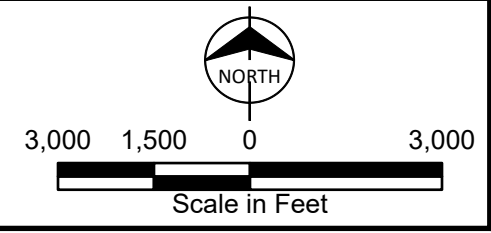
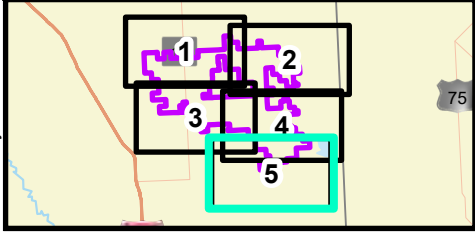
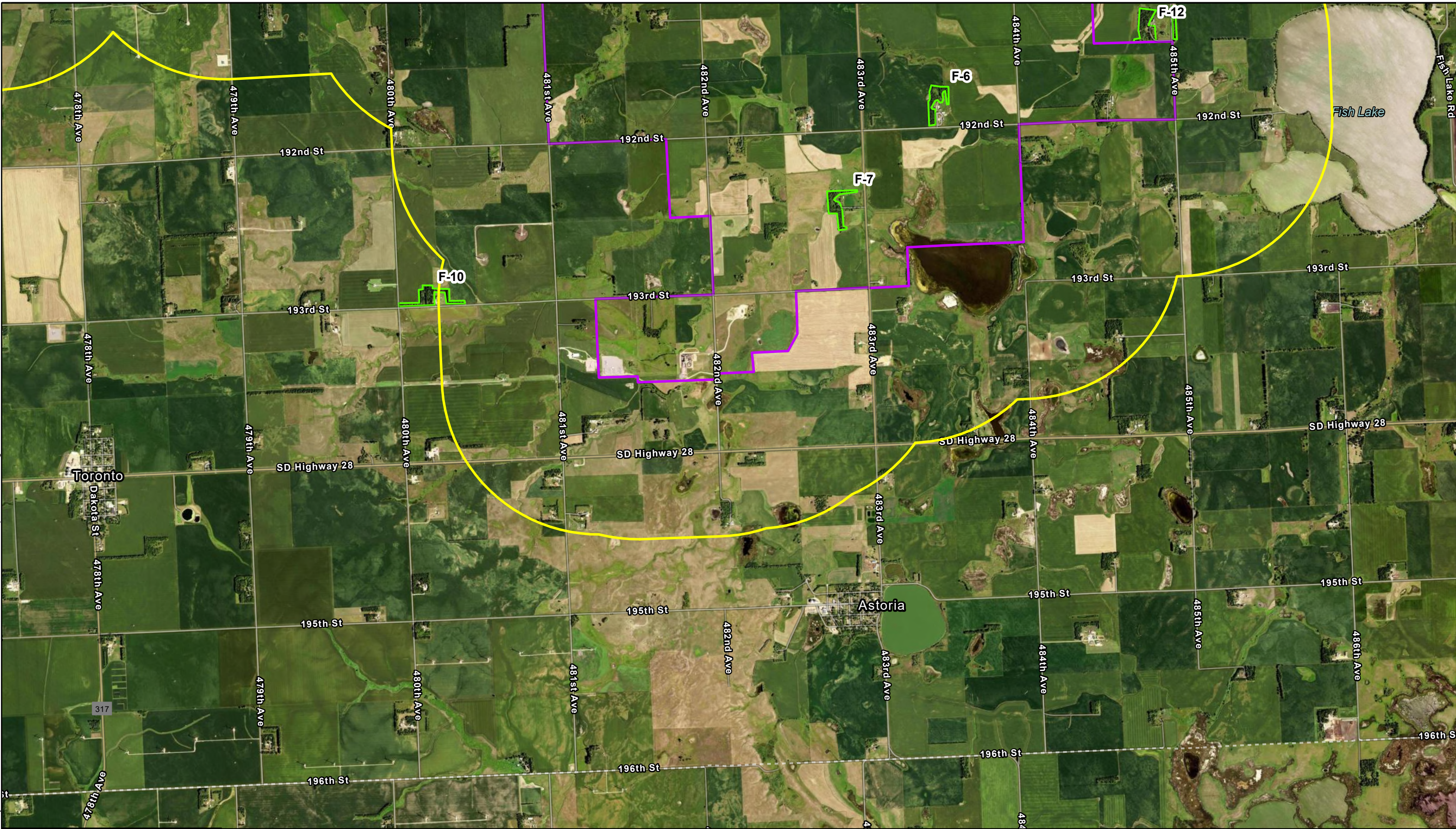






Figure B-1
Suitable Summer Habitat for
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Page 4 of 5

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-  Project Area
-  1-Mile Buffer
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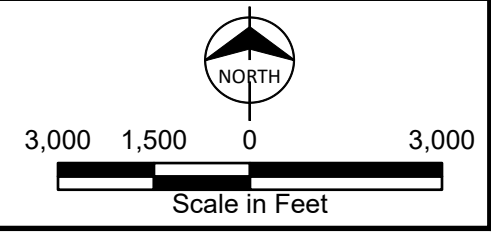


Figure B-1
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CREATE AMAZING.

Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
O 816-333-9400
F 816-333-3690
www.burnsmcd.com