

CRISI Project, Ward County, ND
Dakota skipper (*Hesperia dacotae*)
2022 Occupancy Surveys

Submitted
to

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Data Summary Report
October 12, 2022

Submitted
by

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Summary

This project targeted a 49.7-acre ‘potential habitat’ area Dakota skipper occupancy surveys in the western portion of the proposed CRISI project in Ward County, North Dakota. The north and south portions of the ‘potential habitat’ area were separated by non-habitat, so they were treated as separate survey units and remapped using 2021 NAIP aerial photography. After remapping, the ‘potential habitat’ was 36.1 acres in the north unit and 7.4 acres in the south unit, for a total of 43.5 acres.

Most of the north unit contained Dakota skipper habitat that ranged from fair to good quality, with the best habitat quality on slopes and knobs in the western portion, many of which extended further west of the boundary. Habitat in the south unit was restricted to a moderately small area at the south end with quality ranging from fair to good, a couple very small fair quality areas at the north end of the main grassland area, and a medium size fair-good quality area extending to the northwest from the northwest portion of the main grassland area.

Complete butterfly surveys were conducted on 13, 15, and 16 July. Kevin Ploof assisted with surveys in portions of the north unit on each of the surveys and in the south unit on 13 July. Despite the presence of fair-good quality habitat throughout the north unit, very few butterflies were seen during any of the surveys. Expectations were lower for the south unit given the smaller size and isolation of the habitat areas, but the results (one butterfly observed per survey), were much worse than expected. No Dakota skippers were documented during these surveys. Based on the butterflies that were seen and the phenology of purple coneflowers, it was likely mid-late in the Dakota skipper flight during these surveys. Despite the presence of habitat with good potential for supporting Dakota skippers, these surveys suggest that it is unlikely that this area supports a Dakota skipper population. The overall low butterfly numbers also suggest the possibility of some factor affecting butterfly numbers in general, not just Dakota skippers.

Methods

Survey methods followed the 2022 Dakota Skipper (*Hesperia dacotae*) North Dakota Survey Protocol USFWS, Region 6 (June 2022). Surveys consisted of a complete meandered search within habitat areas and general meandered surveys between those areas. Complete butterfly surveys were conducted on 13, 15, and 16 July. Kevin Ploof, Ackerman Estvold, Environmental Specialist, assisted with surveys in portions of the North Unit on each of the surveys and in the South Unit on 13 July.

A 49.7-acre 'potential habitat' area, defined by Ackerman Estvold in the western portion of the proposed Consolidated Rail Infrastructure and Safety Improvements (CRISI) project in Ward County, North Dakota, was targeted for the Dakota skipper occupancy surveys. The north and south portions of the 'potential habitat' area were separated by non-habitat, so they were treated as separate survey units and remapped using 2021 NAIP aerial photography. After remapping, the 'potential habitat' was 36.1 acres in the north unit and 7.4 acres in the south unit, for a total of 43.5 acres. General observations during the surveys, habitat data point comments, track logs, and aerial photo interpretation were used to map estimated actual Dakota skipper habitat within the units. Estimated Dakota skipper habitat was 22.3 acres in the north unit and 1.9 acres in the south unit, for a total of 24.2 acres. Fieldwork focused on habitat mapping would be required to produce more accurate habitat maps.

Results

North Unit:

In the north unit, approximately 22.3 of the 36.1 acres were Dakota skipper habitat ([Appendix 2, Figure 2](#)). Habitat quality ranged from fair to good, with the best quality on slopes and knobs in the western portion, many of which extended further west of the boundary. Despite the presence of fair-good quality habitat throughout the north unit, very few butterflies were observed during any of the surveys. Wood nymph numbers (*Cercyonis pegala*) peaked at 20 during the 15 July survey and total wood nymph numbers made up 30 of the 45 butterflies observed during all the surveys. Two monarchs (*Danaus plexipus*) were seen during the 16 July survey.

South Unit:

In the south unit, approximately 1.9 of the 7.4 acres were Dakota skipper habitat ([Appendix 2, Figure 3](#)). Habitat was restricted to a moderately small fair to good quality area at the south end, a couple very small fair quality areas at the north end of the main grassland area, and a medium size fair-good quality area extending to the northwest from the northwest portion of the main grassland area. Expectations were lower for the south unit given the smaller size and isolation of the habitat areas, but the results (one butterfly observed per survey), were much worse than expected.

No Dakota skippers were documented during any of these surveys. Based on the butterflies that were seen and the phenology of purple coneflowers (disk florets mostly mid-late to late over the course of the surveys), surveys were likely during the mid-late portion of the Dakota skipper flight. Despite the presence of habitat with good potential for supporting Dakota skippers, these surveys suggest that it is very unlikely that Dakota skipper are present. The overall low butterfly numbers also suggest the possibility of some factor affecting butterfly numbers in general, not just Dakota skippers.

Results for the Dakota skipper occupancy surveys are summarized in the tables below and in the following appendices:

Tables 1-3 – All butterfly observations per unit per survey date and totals per all units

Appendix 1 – Detailed survey summaries per date and turbine

Appendix 2 – Maps illustrating the CRISI Project area, mapped habitat, and survey results

Appendix 3 – Checklist of butterflies observed or referenced in the report

Appendix 4 – GIS data index

Table 1. CRISI North butterfly observations per survey date.

Species Observed	Jul 13	Jul 15	Jul 16	Total
<i>Anatrytone logan</i>		1		1
<i>Cercyonis pegala</i>	4	20	6	30
<i>Colias philodice</i>	2	3		5
<i>Danaus plexipus</i>			2	2
<i>Pieris rapae</i>		1		1
<i>Plebejus melissa</i>	1	1		2
<i>Pontia protodice</i>		1	1	2
<i>Speyeria aphrodite</i>		1	1	2
Total Count:	7	28	10	45
Total Species:	3	7	4	8
Total Hours:	3.37	4.05	2.00	9.42
Observations/Hour:	2.1	6.9	3.3	4.8

Table 2. CRISI South butterfly observations per survey date.

Species Observed	Jul 13	Jul 15	Jul 16	Total
<i>Colias philodice</i>		1	1	2
<i>Plebejus melissa</i>	1			1
Total Count:	1	1	1	3
Total Species:	1	1	1	2
Total Hours:	0.78	0.98	0.78	2.54
Observations/Hour:	1.3	1.0	1.3	1.2

Table 3. CRISI North and South butterfly observation totals.

Species Observed	North	South	Total
<i>Anatrytone logan</i>	1		1
<i>Cercyonis pegala</i>	30		30
<i>Colias philodice</i>	5	2	7
<i>Danaus plexipus</i>	2		2
<i>Pieris rapae</i>	1		1
<i>Plebejus melissa</i>	2	1	3
<i>Pontia protodice</i>	2		2
<i>Speyeria aphrodite</i>	2		2
Total Count:	45	3	48
Total Species:	8	2	8
Total Hours:	9.42	2.54	11.96
Observations/Hour:	4.8	1.2	4.0

Discussion

Despite the presence of fair-good quality Dakota skipper habitat throughout the north unit and the context of more extensive tracts to the southwest, west, and northwest of the project area, very few butterflies were seen during any of the surveys. Expectations were lower for the south unit given the smaller size and isolation of the habitat areas, but the results were much worse than expected. Based on the butterflies that were seen and the phenology of purple coneflowers, it was likely mid-late in the Dakota skipper flight during these surveys, but no Dakota skippers were documented.

The north unit had good potential for supporting Dakota skippers and, given the context of likely habitat in the surrounding landscape, it is possible that they could be present in the south unit. However, the results of these surveys suggest that it is very unlikely that this area supports a Dakota skipper population. The overall low butterfly numbers also suggest the possibility of some factor affecting butterfly numbers in general, not just Dakota skippers.

Appendix 1
CRISI Project
2022 Dakota Skipper Survey
Survey Summaries

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13 July 2022: Dakota skipper surveys in CRISI North and CRISI South	i
15 July 2022: Dakota skipper surveys in CRISI North and CRISI South	ii
16 July 2022: Dakota skipper surveys in CRISI North and CRISI South	iii

Explanation of Symbols:

♀ = Female; ♂ = Male

Butterfly Condition Ratings:

C1 = no apparent scale or wing wear (recently emerged)

C2 = moderate scale and/or minor wing wear

C3 = major scale and/or moderate wing wear

C4 = major scale and wing wear

Intermediate wear indicated with a +/-

Plant Phenology Abbreviations: E = Early; M = Mid; L = Late

2022 Dakota Skipper Survey Summaries

Ackerman-Estvold – CRISI Project, Ward County, ND

CRISI North (W2 W2 W2 SE4 Sec 8; W2 W2 NW4 NE4 Sec 17, T155N R82W)

CRISI South (W2 W2 W2 SW4 NE4 & W2 W2 W2 NW4 SE4 Sec 17, T155N R82W)

Date: **13 July 2022 (Wednesday)**

Surveyor: **Jerry Selby and Kevin Ploof**

Time:

South: 09:17 am – 10:04 am = 0 hrs 47 min → **0.78 hrs**

North: 01:53 pm – 05:15 pm = 3 hrs 22 min → **3.37 hrs**

Total: 4 hrs 09 min → **4.15 hrs**

Weather:

01:53 pm Temp = 82° F Wind = 8 mph S % Clear = 90-100%

05:15 pm Temp = 84° F Wind = 8 mph SW % Clear = 50-75%

Primary Target Species Observed: NONE

Secondary Target Species Observed: NONE

Species Observed	Survey Area		Total	Comments
	North	South		
<i>Cercyonis pegala</i>	4		4	
<i>Colias philodice</i>	2		2	
<i>Plebejus melissa</i>	1	1	2	2♂
Total Count:	7	1	8	
Total Species:	3	1	3	
Total Hours:	3.37	0.78	4.15	
Observations/Hour:	2.1	1.3	1.9	

CRISI Plants/Phenology (13 July):

<i>Achillea millefolium</i> var. <i>occidentalis</i> (western yarrow)	M-L Bloom
<i>Asclepias speciosa</i> (showy milkweed)	Bud; E Bloom
<i>Asclepias viridiflora</i> (green comet milkweed)	Bloom
<i>Calylophus serrulatus</i> (yellow sundrops)	Bloom
<i>Lilium philadelphicum</i> (wood lily)	M-L Bloom
<i>Ratibida columnifera</i> (prairie coneflower)	M Bloom
<i>Zigadenus elegans</i> (mountain death camas)	M-L Bloom

Date: **15 July 2022 (Friday)**

Surveyor: **Jerry Selby and Kevin Ploof**

Time:

North: 10:40 am – 02:43 pm = 4 hrs 03 min → **4.05 hrs**

South: 03:23 pm – 04:22 pm = 0 hrs 59 min → **0.98 hrs**

Total: 5 hrs 02 min → **5.03 hrs**

Weather:

10:40 am Temp = 73° F Wind = 5 mph SE % Clear = 25-50%

02:43 pm Temp = 88° F Wind = 4 mph SE % Clear = 75-90%

04:22 pm Temp = 90° F Wind = 5 mph SE % Clear = 75-90%

Primary Target Species Observed: NONE

Secondary Target Species Observed: NONE

Species Observed	Survey Area		Total	Comments
	North	South		
<i>Anatrytone logan</i>	1		1	
<i>Cercyonis pegala</i>	20		20	
<i>Colias philodice</i>	3	1	4	
<i>Pieris rapae</i>	1		1	
<i>Plebejus melissa</i>	1		1	2♀
<i>Pontia protodice</i>	1		1	
<i>Speyeria aphrodite</i>	1		1	
Total Count:	28	1	29	
Total Species:	7	1	7	
Total Hours:	4.05	0.98	5.03	
Observations/Hour:	6.9	1.0	5.8	

CRISI Plants/Phenology (15 July):

<i>Achillea millefolium</i> var. <i>occidentalis</i> (western yarrow)	M-L Bloom
<i>Asclepias viridiflora</i> (green comet milkweed)	Bloom
<i>Calylophus serrulatus</i> (yellow sundrops)	Bloom
<i>Dalea purpurea</i> (purple prairie clover)	E-M Bloom
<i>Echinacea angustifolia</i> (purple coneflower)	Disks M-L (most)
<i>Pedimelum argophyllum</i> (silverleaf Indian breadroot)	Bloom
<i>Zigadenus elegans</i> (mountain death camas)	L Bloom

Date: **16 July 2022 (Saturday)**

Surveyor: **Jerry Selby and Kevin Ploof**

Time:

North: 09:30 am – 12:30 pm = 3 hrs 00 min → **3.00 hrs**

South: 01:15 pm – 02:02 pm = 0 hrs 47 min → **0.78 hrs**

Total: 3 hrs 47 min → **3.78 hrs**

Weather:

09:30 am Temp = 74° F Wind = 6 mph SE gusty % Clear = 75-90%

12:30 pm Temp = 87° F Wind = 11 mph SW gusty % Clear = 90-100%

02:02 pm Temp = 93° F Wind = 4 mph SW % Clear = 90-100%

Primary Target Species Observed: NONE

Secondary Target Species Observed:

CRISI North: Monarch (*Danaus plexipus*) – 2

Species Observed	<u>Survey Area</u>		Total	Comments
	North	South		
<i>Cercyonis pegala</i>	6		6	
<i>Colias philodice</i>		1	1	
<i>Danaus plexipus</i>	2		2	
<i>Pontia protodice</i>	1		1	
<i>Speyeria aphrodite</i>	1		1	
Total Count:	10	1	11	
Total Species:	4	1	5	
Total Hours:	3.00	0.78	3.78	
Observations/Hour:	3.3	1.3	2.9	

CRISI Plants/Phenology (16 July):

<i>Achillea millefolium</i> var. <i>occidentalis</i> (western yarrow)	M-L Bloom
<i>Asclepias viridiflora</i> (green comet milkweed)	Bloom
<i>Calylophus serrulatus</i> (yellow sundrops)	Bloom
<i>Cirsium undulatum</i> (nodding plumeless thistle)	Bloom; Fruit
<i>Dalea purpurea</i> (purple prairie clover)	M-L Bloom
<i>Echinacea angustifolia</i> (purple coneflower)	Disks L (most); M (some); E (few)
<i>Pedimelum argophyllum</i> (silverleaf Indian breadroot)	Bloom
<i>Ratibida columnifera</i> (prairie coneflower)	M-L Bloom

Appendix 2
CRISI Project
2022 Dakota Skipper Survey
Project Area, Habitat, and Survey Maps

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Figure 06. CRISI Dakota skipper survey: 16 July 2022 (Sec 8 & 17, T155N R82W, Ward County, ND).....	vi

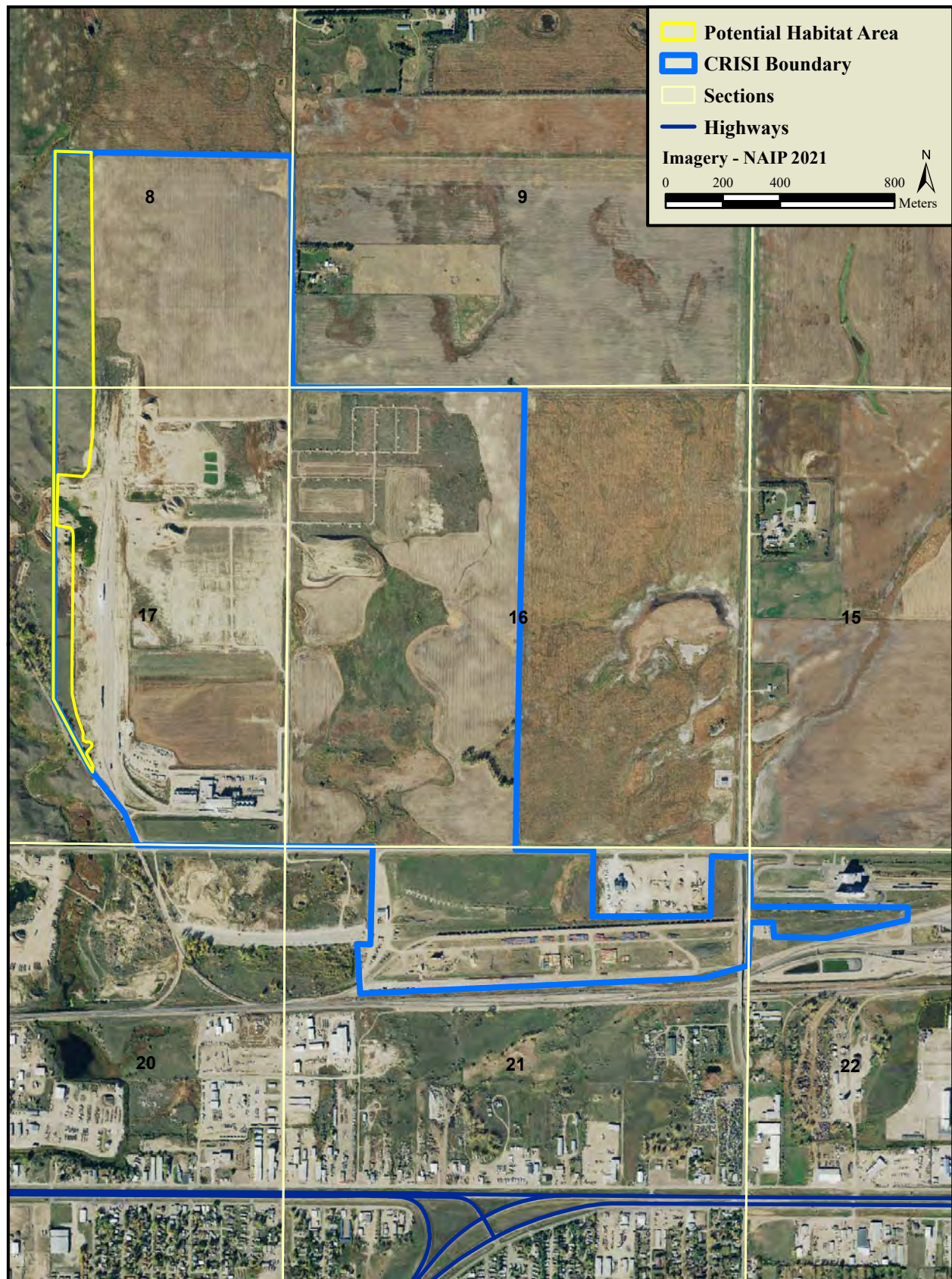


Figure 01. CRISI 2022 Dakota skipper survey project area (Sec 8 & 17, T155N R82W, Ward County, ND).

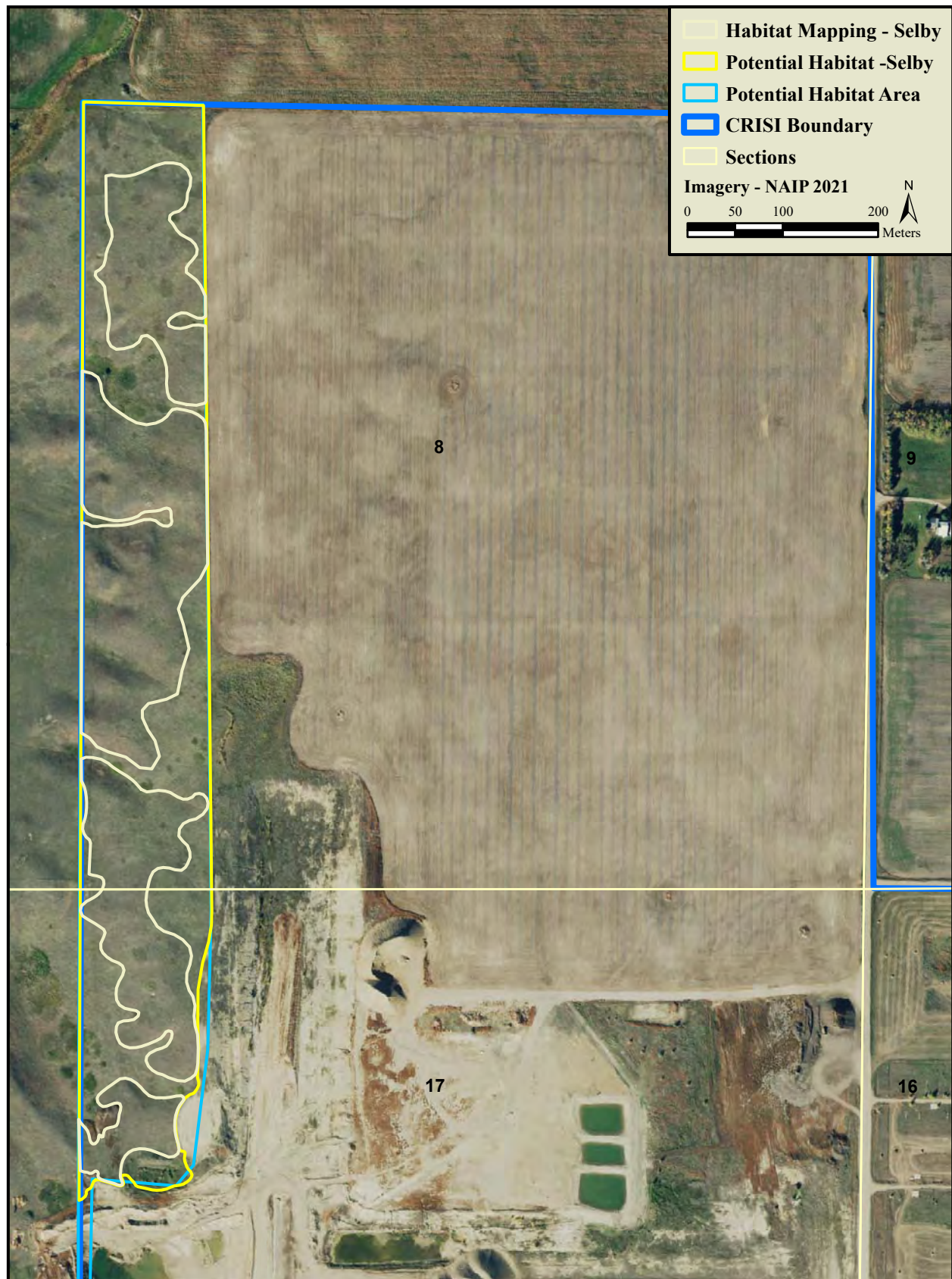


Figure 02. CRISI North (Sec 8 & 17, T155N R82W, Ward County, ND): Dakota skipper habitat.

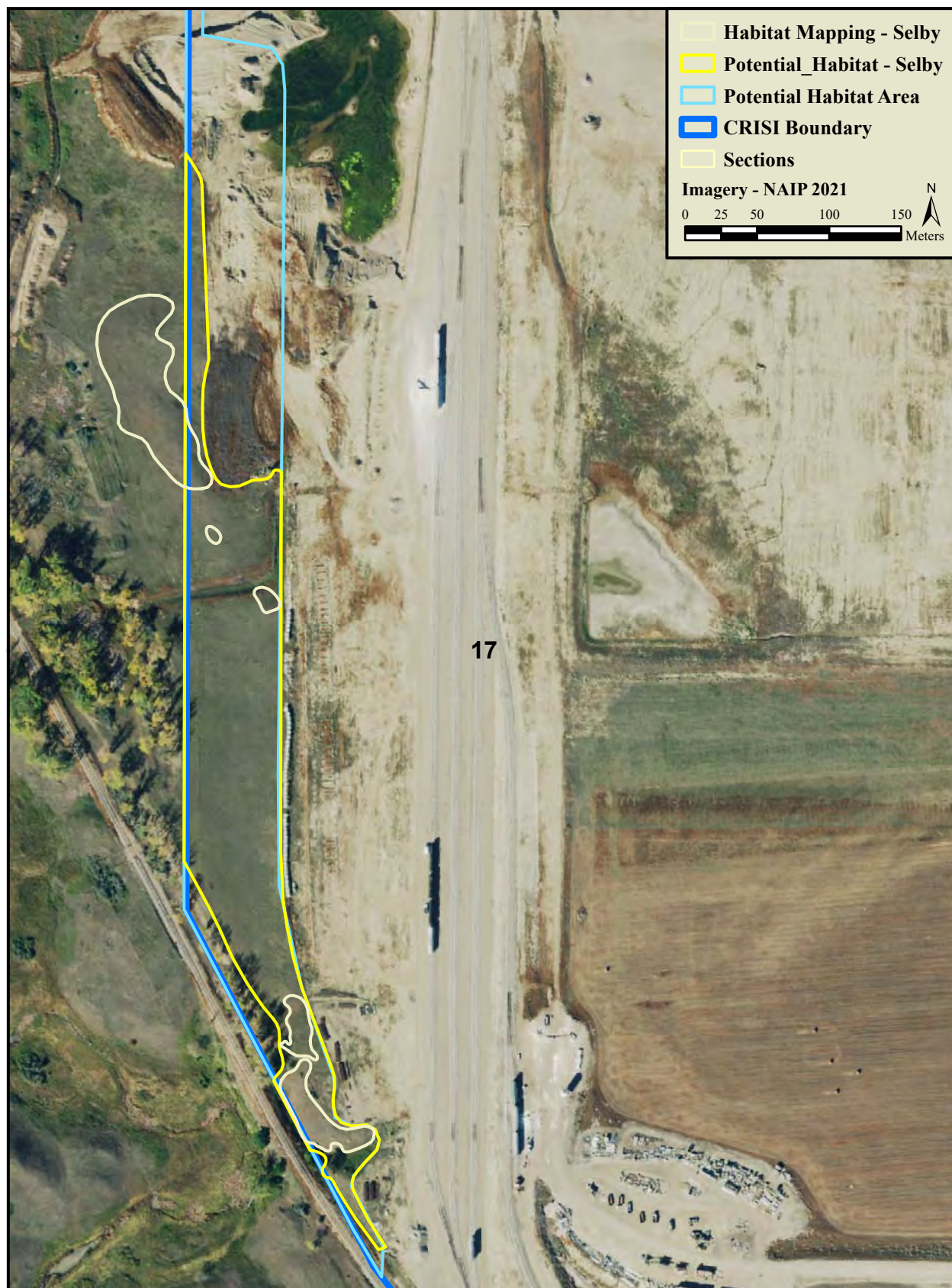


Figure 03. CRISI South (Sec 17, T155N R82W, Ward County, ND): Dakota skipper habitat.

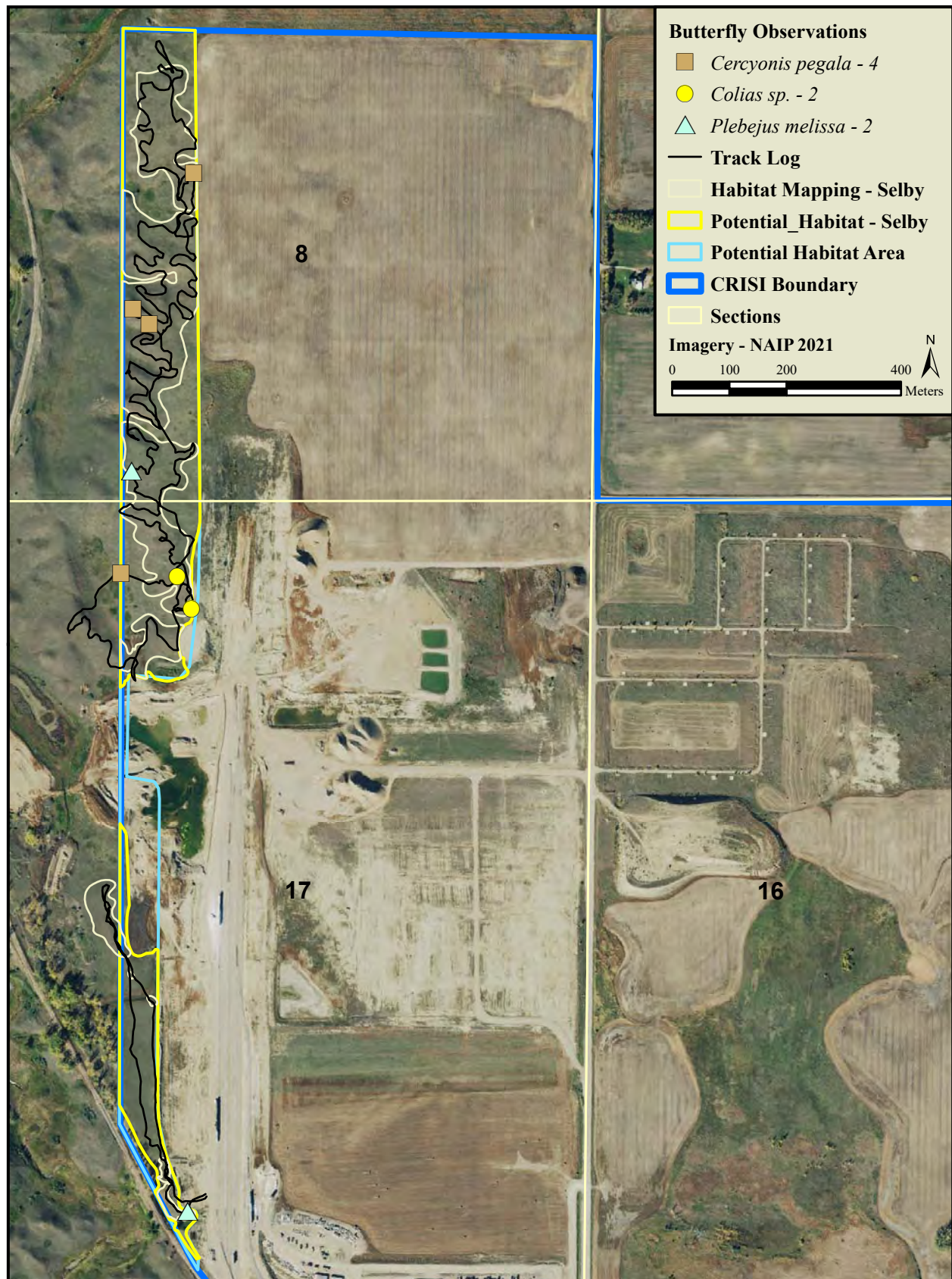


Figure 04. CRISI Dakota skipper survey: 13 July 2022 (Sec 8 & 17, T155N R82W, Ward County, ND).

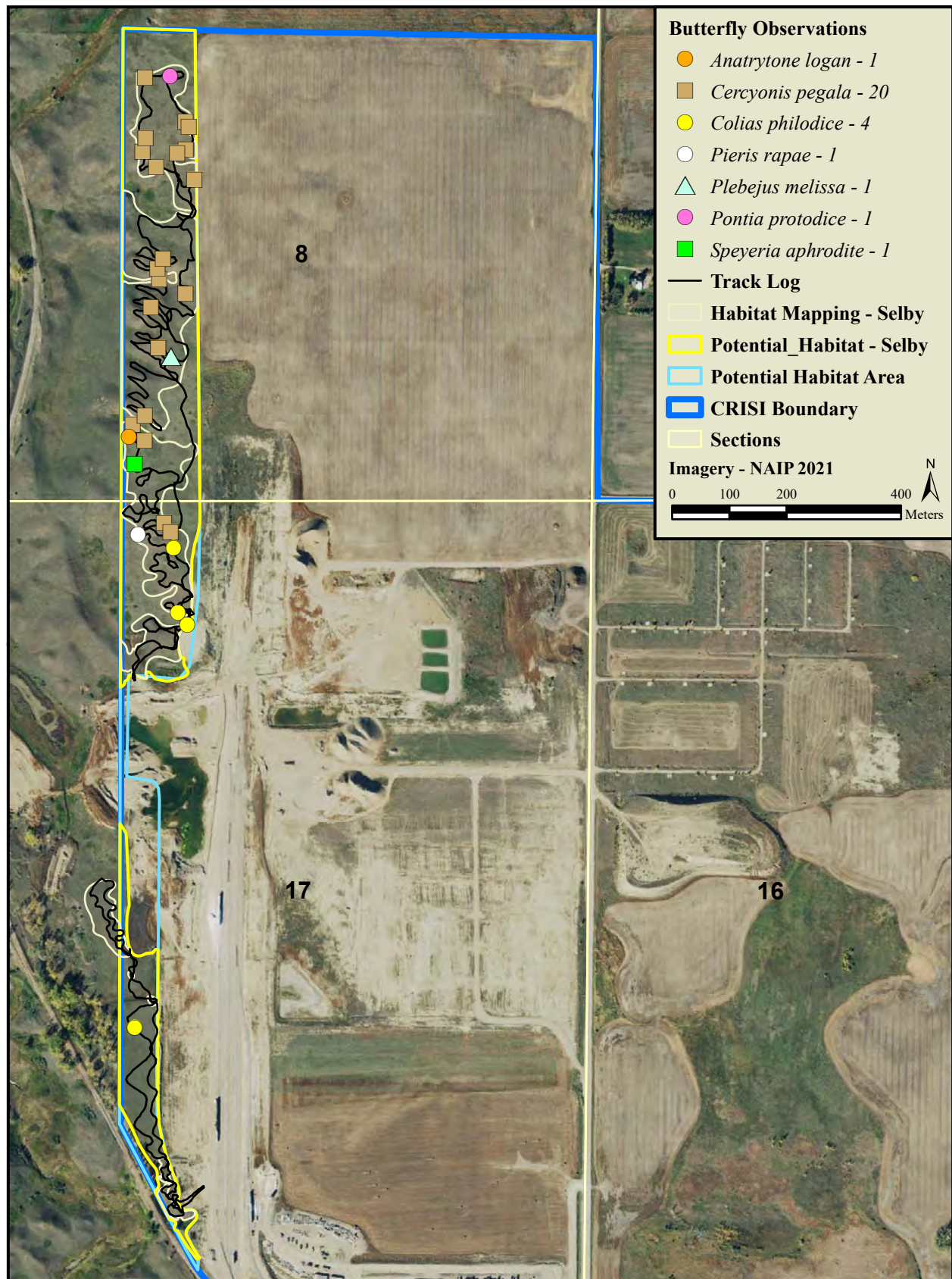


Figure 05. CRISI Dakota skipper survey: 15 July 2022 (Sec 8 & 17, T155N R82W, Ward County, ND).



Figure 06. CRISI Dakota skipper survey: 16 July 2022 (Sec 8 & 17, T155N R82W, Ward County, ND).

Appendix 3

CRISI Project

2022 Dakota Skipper Survey

Butterfly Checklist

Nomenclature for scientific and common names follows Lotts and Naberhaus (2021)

Species Code – 1st three letters of genus and species names

Bold – primary and secondary target species

* Designates species mentioned in report, but not observed during surveys

Code	Binomial	Common Name
Analog	<i>Anatrytone logan</i>	Delaware Skipper
Cerpeg	<i>Cercyonis pegala</i>	Common Wood-Nymph
Colphi	<i>Colias philodice</i>	Clouded Sulphur
Danple	<i>Danaus plexippus</i>	Monarch
* Hesdac	<i>Hesperia dacotae</i>	Dakota Skipper
Pierap	<i>Pieris rapae</i>	Cabbage White
Plemel	<i>Plebejus melissa</i>	Melissa Blue
Ponpro	<i>Pontia protodice</i>	Checkered White
Speaph	<i>Speyeria aphrodite</i>	Aphrodite Fritillary

Lotts, Kelly and Thomas Naberhaus, coordinators. 2021. Butterflies and Moths of North America. Data set accessed 2022-10-05 at <http://www.butterfliesandmoths.org/>.

Appendix 4
CRISI Project
2022 Dakota Skipper Survey
GIS Data Index

EGIS Survey Data – Original:

Survey data (daily GPS shape files; attribute tables reviewed and edited as needed)

Survey track logs (original daily point shape files)

EGIS Survey Data – Line Track Logs:

Survey track logs – Original (daily point shape files converted to line shape files)

Survey track logs – Survey (general daily line shape files clipped to survey areas)

EGIS Mapping Data:

Revised ‘potential habitat’ areas (north and south units with boundaries revised based on NAIP 2021 aerial photography)

Dakota skipper habitat (estimated actual Dakota skipper habitat mapped within the units)