

Hamre, John G.

From: Brinkman, Zanna A.
Sent: Monday, August 22, 2022 4:59 PM
To: Hamre, John G.
Subject: FW: Falkirk Revision
Attachments: PSC Falkirk Revision 42REV3.pdf; Falkirk_DakotaSkipper_Potential_Habittat_Results_July_2019_KDK - Final.pdf

John,

Combine this email with the two attachments and file as

\\coal\Mine Data\Falkirk Mine\Permits\NAFK - 8405\Revisions\No. 42\ FK_Rsp_to_USFWS_comments_8-3-22

Zanna Brinkman

*Director Reclamation & AML Divisions
ND Public Service Commission
600 E Blvd. Ave Dept. 408
Bismarck, ND 58505-0408*

(701) 328-3403

zbrinkman@nd.gov

From: Frye, Jason J <jason.frye@nacoal.com>
Sent: Wednesday, August 3, 2022 8:20 AM
To: Brinkman, Zanna A. <zbrinkman@nd.gov>; Welch, Guy A. <gwelch@nd.gov>
Cc: Burke, Stephen J <steve.burke@nacoal.com>
Subject: FW: Falkirk Revision

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Good morning Zanna and Guy,

This is a follow up to our conversation we had last week and the USFWS letter regarding potential suitable habitat for the Dakota skipper. As you aware, Falkirk conducted potential suitable habitat surveys for the Dakota skipper on lands permitted under Falkirk. This also included the native grasslands for the 8th addition in Section 33 and 36, T147N,R82W. This information was included in the 2018-2019 Biennial Wildlife Report and I also attached the report to this email. Please let me know if any additional follow will be needed to address the USFWS letter during the permitting process of the 8th addition.

Thanks

Jason Frye
Environmental Specialist

14 RC-22-144 Filed 08/03/2022 Pages: 73
Response to USFWS response to Advisory Request Letter
Falkirk Mining Company
Jason Frye

Falkirk Mining Company

Falkirk Mine | North American Coal

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FALKIRK MINE

A NACCO Company

From: Reinisch, Jerry D <jerry_reinisch@fws.gov>
Sent: Monday, July 25, 2022 7:52 AM
To: zbrinkman@nd.gov; Link, Greg W. <glink@nd.gov>; Frye, Jason J <jason.frye@nacoal.com>
Subject: Falkirk Revision

Ms. Brinkman:

Please see the attached letter with recommendations for Revision 42 for Falkirk Mine from the USFWS.

Regards

Jerry

Jerry D. Reinisch
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Bismarck, North Dakota 58501
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**DAKOTA SKIPPER (*Hesperia dacotae*)
POTENTIAL SUITABLE HABITAT SURVEY RESULTS
FOR THE FALKIRK MINING COMPANY**

by

**KDK CONSULTING
Kelly Krabbenhoft: Owner**

July 30, 2019

Introduction

KDK Consulting was hired by The Falkirk Mining Company to conduct vegetation assessments within permitted areas near Underwood, ND in McLean County. These surveys were initiated to determine if any potential suitable habitat for Dakota skippers were present within the mine. The purpose of this report is to provide documentation concerning results of these efforts.

Methodology

Guidelines for habitat evaluations were derived from narratives within the USFWS 2018 Dakota Skipper (*Hesperia dacotae*) North Dakota Survey Protocol and 79 FR 63672:63674-63675. The former publication stated that Dakota skippers are not likely to be present in cropped areas, previously cropped areas, non-native haylands, pasture or other grassland that is dominated by non-native species, or in areas where trees or shrubs predominate. The species occurs in some grazed lands that are dominated by native prairie vegetation. McLean County is listed as a county where the Dakota skipper population is considered possibly extirpated.

The landscape within the permit boundary was ground-truthed for the presence/absence of Dakota skipper potential suitable habitat. For this reason, we searched habitats with the potential vegetation needs for Dakota skipper life cycle requirements based on USFWS guidelines. Having extensive experience on native grasslands in North Dakota, Mr. Krabbenhoft is able to disseminate those native grassland ecosites with the potential for suitable habitat (Type B habitats as explained in USFWS Dakota skipper guidance material). To be as efficient as possible during data collection, we evaluated each section containing native grasslands prior to the flight period to determine the best areas to survey once the flight period was initiated. There were forty one sections that were ground-truthed and surveyed as part of this project. Thirty areas had data collected and inferences for the remaining eleven areas were made from similar data that was already collected. We wanted to conduct the surveys within the potential flight period to give as accurate of an assessment to the level of habitat quality and nectar sources that would be available on the landscape for the Dakota skipper.

Normal moisture levels produced adequate grass growth and forb proliferation in 2019, which made for good representations of the ecosites sampled within this project. Surveys were initiated on July 11th, 2019 and finished on July 13th to approximately coincide with the start of the Dakota skipper flight period in this part of the state. The start date was based on growing degree days and vegetation development, which were behind that of an average growing season. These phenological indicators change from year to year and one needs to be aware of this and be adaptive to changing conditions. It was approximately 2 weeks later than 2018 to get the same number of growing degrees days. Based on experience and literature evidence, there appears to be a correlation to the flight periods of Dakota skippers and common wood nymph. I would also add, once we see common wood nymphs is when we see regal fritillaries initiate their flight period. Between July 2nd and July 7th we observed a noticeable increase in the flowering availability of potential nectar species. The most noticeable of these phenological indicators included purple coneflower and wavy-leaf thistle. Although wavy-leaf thistle isn't listed as an important nectar source, my experience is that this species is one of the most utilized nectar sources by other skipper and butterfly species and may also be important for Dakota skippers if present within their territory. During our reconnaissance efforts, we observed our first common wood nymph on July 5th and our first regal fritillary on July 7th in 2019.

We utilized a Daubenmire frame to evaluate potential suitable habitats within each section containing native grassland of adequate size, along with ecosites that had the possibility of containing potential suitable habitats. Not all ecosites on the landscape have the potential of having appropriate vegetation necessary for the Dakota skipper life cycle. Aerial cover and number of potential nectar sources were documented in 10 frames within the best potential habitat for each section of land evaluated. Frames were taken at 10 meter intervals and the contents within each 20cm x 50cm frame were recorded. Based on discussions with other consultants who conduct similar assessments, plus what is in USFWS publications, we had an idea of the minimum requirements for potential suitable habitat. At a minimum, the area needed to be approximately ¼ acre in size, more than 50% native plant composition without counting Kentucky bluegrass in that percentage, have approximately 25% little bluestem (plus nice to have prairie dropseed, side-oats grama, or big bluestem in the community) and have 4 or more of the 10 Daubenmire frames record important Dakota skipper nectar plants. If any areas approached or exceeded thresholds, then we would conduct a Dakota skipper flowering plant line count along the same 100m transect utilized with the Daubenmire frame, employing the data sheet on page 17 of the USFWS 2018 Dakota Skipper (*Hesperia dacotae*) North Dakota Survey Protocol

A photograph, along with GPS points and management notes, were taken at each site evaluated. The following information documents the results of this effort.

Results

The following table summarizes where the potential suitable habitat assessments were taken and the management within each of these sites.

Table 1: Summary of Dakota Skipper Potential Suitable Habitat Evaluation Sites

Date	Evaluation Site	GPS Latitude/Longitude	Ecosite	Management
7/12/19	Sec. 7 (T146N, R81W)	47° 28.420', 101° 03.068'	SwGr	Moderate/Heavy Grazing
7/12/19	Sec. 18 (T146N, R81W)	47° 28.362', 101° 02.930'	SwGr	Moderate/Heavy Grazing
7/11/19	Sec. 4 (T145N, R82W)	47° 24.227', 101° 07.292'	TLy	Idle
7/11/19	Sec. 9 (T145N, R82W)	47° 24.011', 101° 08.014'	TLy	Moderate Grazing
7/13/19	Sec. 2 (T146N, R82W)	47° 29.334', 101° 05.947'	TLy	Light Grazing
7/13/19	Sec. 3 (T146N, R82W)	47° 29.344', 101° 07.227'	TLy	Light Grazing/Hayed
7/12/19	Sec. 23 (T146N, R82W)	47° 26.946', 101° 05.103'	TLy	Idle
7/12/19	Sec. 24 (T146N, R82W)	47° 27.409', 101° 04.057'	TLy	Idle
7/13/19	Sec. 33 (T147N, R82W)	47° 30.579', 101° 07.804'	TSa	Idle
7/13/19	Sec. 36 (T147N, R82W)	47° 30.399', 101° 03.445'	TLy	Moderate/Heavy Grazing
7/13/19	Sec. 36 (T147N, R82W)	47° 30.469', 101° 04.591'	TLy	Moderate/Heavy Grazing
7/12/19	Sec. 6 (T144N, R83W)	47° 19.648', 101° 15.128'	TLy	Idle
7/12/19	Sec. 7 (T144N, R83W)	47° 18.768', 101° 14.396'	SwLy	Moderate Grazing
7/12/19	Sec. 6 (T145N, R83W)	47° 24.829', 101° 18.723'	TLy	Light Grazing
7/11/19	Sec. 12 (T145N, R83W)	47° 23.171', 101° 12.338'	TLy	Idle
7/11/19	Sec. 18 (T145N, R83W)	47° 23.334', 101° 18.612'	TSa	Moderate Grazing
7/11/19	Sec. 19 (T145N, R83W)	47° 22.272', 101° 18.002'	TSa	Light Grazing
7/11/19	Sec. 20 (T145N, R83W)	47° 22.217', 101° 17.453'	TSa	Light Grazing
7/12/19	Sec. 32 (T145N, R83W)	47° 19.714', 101° 17.108'	TLy	Moderate/Heavy Grazing
7/12/19	Sec. 33 (T145N, R83W)	47° 19.723', 101° 15.205'	TLy	Idle
7/11/19	Sec. 36 (T145N, R83W)	47° 20.491', 101° 11.487'	TLy	Idle
7/11/19	Sec. 24 (T146N, R83W)	47° 26.934', 101° 11.125'	TLy	Idle
7/11/19	Sec. 29 (T146N, R83W)	47° 25.828', 101° 17.112'	TLy	Heavy Grazing
7/11/19	Sec. 32 (T146N, R83W)	47° 25.283', 101° 16.434'	TLy	Heavy Grazing
7/12/19	Sec. 2 (T144N, R84W)	47° 19.649', 101° 17.058'	TLy	Idle
7/12/19	Sec. 3 (T144N, R84W)	47° 19.097', 101° 18.348'	SwLy	Light Grazing
7/12/19	Sec. 11 (T144N, R84W)	47° 18.535', 101° 17.048'	SwLy	Light Grazing
7/11/19	Sec. 1 (T145N, R84W)	47° 24.904', 101° 19.473'	TLy	Idle
7/11/19	Sec. 2 (T145N, R84W)	47° 24.649', 101° 20.136'	TLy	Light Grazing
7/11/19	Sec. 12 (T145N, R84W)	47° 24.025', 101° 19.862'	TSa	Moderate Grazing
7/11/19	Sec. 13 (T145N, R84W)	47° 22.464', 101° 19.099'	TSa	Moderate Grazing
7/11/19	Sec. 36 (T146N, R84W)	47° 25.018', 101° 19.526'	TLy	Light Grazing

SwLy= Shallow Loamy, SwGr=Shallow to Gravel, TSa= Thin Sands, TLy=Thin Loamy

Idle= No Use; Light Grazing= <40% Use; Moderate Grazing= 40-60% Use,

Moderate/Heavy Grazing= 50-70% Use, Heavy Grazing= >70% Use

Section 36 (147-82): 47° 30.399', 101° 03.445' was a photo only for comparison with the SW4.

Below are photographs and Daubenmire aerial cover and nectar stem count data of each site evaluated.

Section 7: T146N, R81W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 7 (T146N, R81W)

Ecosite: SwGr

GPS Point: 47° 28.420', 101° 03.068'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		45	42	38	33	30	35	45	38	41	36	38.30
Bare		12	11	4	2	2	7	3	2	1	2	4.60
Native Forbs		10	8	7	15	6	12	8	17	5	15	10.30
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	2	0	0	0	0	0	0	0	0	0.20
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	18	9	22	13	19	11	13	15	18	20	15.80
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	7	13	17	4	9	10	7	4	4	5	8.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	2	3	3	2	0	1	2	2	1.50
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	12	11	8	14	10	6	5	6.60
<i>Stipa comata</i>	Needle-and-thread	0	3	0	18	20	15	10	5	23	15	10.90
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	8	12	10	0	0	0	0	8	0	0	3.80
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 7 (T146N, R81W) Ecosite: SwGr GPS Point: 47° 28.420', 101° 03.068'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	1
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	1

Section 18: T146N, R81W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 18 (T146N, R81W)

Ecosite: SwGr

GPS Point: 47° 28.362', 101° 02.930'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		58	45	38	35	40	44	42	49	54	52	45.70
Bare		7	3	2	17	1	6	1	3	2	6	4.80
Native Forbs		4	7	6	12	11	6	8	2	16	3	7.50
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	18	9	4	0	5	4	4.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	2	4	3	5	3	5	3	1	1	1	2.80
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	4	0	0	0.40
<i>Carex filifolia</i>	Threadleaf Sedge	1	2	1	2	2	4	2	3	2	2	2.10
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	2	0	0	0	0	0.20
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	1	1	0	0	0	0	0	0.20
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	3	25	20	7	10	10	17	21	7	12	13.20
<i>Stipa comata</i>	Needle-and-thread	25	14	18	11	14	14	23	17	13	12	16.10
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	12	10	0	0	0	0	0	8	3.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 18 (T146N, R81W) Ecosite: SwGr GPS Point: 47° 28.362', 101° 02.930'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	1	0	1	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	1	0	1	0	0	0	0	0

Section 4: T145N, R82W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 4 (T145N, R82W)

Ecosite: TLy

GPS Point: 47° 24.227', 101° 07.292'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		4	5	2	7	3	10	8	15	23	9	8.60
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		0	4	0	0	0	0	10	0	0	0	1.40
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	7	15	0	1	12	7	4.20
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	96	91	98	93	90	75	82	84	65	84	85.80
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 4 (T145N, R82W) Ecosite: TLy GPS Point: 47° 24.227', 101° 07.292'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 9: T145N, R82W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 9 (T145N, R82W)

Ecosite: TLy

GPS Point: 47° 24.011', 101° 08.014'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		18	36	45	40	35	42	38	40	55	42	39.10
Bare		8	0	11	2	4	0	3	0	8	3	3.90
Native Forbs		0	0	0	0	8	0	2	3	0	5	1.80
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	63	64	44	58	53	48	57	40	37	50	51.40
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	11	0	0	0	0	0	0	0	0	0	1.10
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	3	0	12	0	0	1.50
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	7	0	5	0	0	1.20
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 9 (T145N, R82W) Ecosite: TLy GPS Point: 47° 24.011', 101° 08.014'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 2: T146N, R82W



SE4 Section 34 (T147N, R82W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 13, 2019

Site: Sec. 2 (T146N, R82W)

Ecosite: TLy

GPS Point: 47° 29.334', 101° 05.947'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		15	35	33	38	40	45	35	30	37	35	34.30
Bare		8	2	3	1	1	0	1	0	5	2	2.30
Native Forbs		2	4	12	11	8	3	4	14	10	3	7.10
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	2	0	0	0.20
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	2	0	0.20
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	4	0	0	8	0	0	0	0	1.20
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	62	59	48	50	45	44	60	54	46	60	52.80
<i>Stipa comata</i>	Needle-and-thread	6	0	0	0	0	0	0	0	0	0	0.60
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	7	0	0	0	6	0	0	0	0	0	1.30
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 13, 2019
 Site: Sec. 2 (T146N, R82W) Ecosite: TLy GPS Point: 47° 29.334', 101° 05.947'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	1	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	1	0	0	0	0	0	0	0

Section 3: T146N, R82W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 13, 2019

Site: Sec. 3 (T146N, R82W)

Ecosite: TLy

GPS Point: 47° 29.344', 101° 07.227'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		28	30	25	33	20	23	17	26	35	38	27.50
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		4	14	8	10	21	2	3	4	10	8	8.40
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	30	20	40	15	10	23	30	15	18	20	22.10
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	38	36	27	42	49	52	50	55	37	34	42.00
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 13, 2019
 Site: Sec. 3 (T146N, R82W) Ecosite: TLy GPS Point: 47° 29.344', 101° 07.227'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 23: T146N, R82W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 23 (T146N, R82W)

Ecosite: TLy

GPS Point: 47° 26.946', 101° 05.103'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		30	44	35	36	35	45	40	42	33	41	38.10
Bare		0	0	2	0	0	0	0	0	0	0	0.20
Native Forbs		21	14	20	23	21	15	16	15	8	15	16.80
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	17	18	3.50
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	6	0	5	15	3	10	0	16	0	4	5.90
<i>Bouteloua gracilis</i>	Blue Grama	0	0	1	0	0	0	0	0	0	0	0.10
<i>Bromus inermis</i>	Smooth Brome	27	42	10	0	0	0	0	0	0	0	7.90
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	5	4	0	0	0	0	0.90
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	5	0	9	10	21	26	20	3	2	5	10.10
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	11	0	18	16	15	0	24	24	40	17	16.50
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 23 (T146N, R82W) Ecosite: TLy GPS Point: 47° 26.946', 101° 05.103'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	1	1	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	1	1	0	0	0	0	0

Section 24: T146N, R82W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 24 (T146N, R82W)

Ecosite: TLy

GPS Point: 47° 27.409', 101° 04.057'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		48	44	61	65	55	52	55	48	53	40	52.10
Bare		3	0	0	1	0	0	0	0	0	0	0.40
Native Forbs		12	0	0	9	10	21	12	6	22	4	9.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	37	56	39	25	0	0	0	46	0	33	23.60
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	7	0	0	0	0	0	0.70
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	28	17	33	0	25	23	12.60
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	10	0	0	0	0	1.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 24 (T146N, R82W) Ecosite: TLy GPS Point: 47° 27.409', 101° 04.057'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	1	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	1	0

Section 33: T147N, R82W (No Photo)

Potential Dakota Skipper Habitat Assessment											
Using A Daubenmire Frame For Aerial Cover											
At The Falkirk Mining Company											
Date: July 13, 2019											
Site: Sec. 33 (T147N, R82W) Ecosite: TSa (No Photo) GPS Point: 47° 30.579', 101° 07.804'											
Sample Number											Average
Species	1	2	3	4	5	6	7	8	9	10	
Litter	34	61	41	42	45	54	26	65	54	50	47.20
Bare	7	4	3	4	3	4	2	6	7	5	4.50
Native Forbs	0	0	0	3	5	7	0	4	0	0	1.90
Introduced Forbs											
Scientific Name	Common Name										
<i>Cirsium arvense</i>	Canada Thistle										
<i>Convolvulus arvensis</i>	Field Bindweed										
<i>Medicago sativa</i>	Alfalfa										
<i>Melilotus officinalis</i>	Yellow Sweet Clover										
Shrubs											
Scientific Name	Common Name										
<i>Rosa arkansana</i>	Prairie Wild Rose										
Grass Species											
Scientific Name	Common Name										
<i>Agropyron cristatum</i>	Crested Wheatgrass										
<i>Agropyron smithii</i>	Western Wheatgrass										
<i>Andropogon gerardii</i>	Big Bluestem										
<i>Andropogon hallii</i>	Sand Bluestem										
<i>Andropogon scoparius</i>	Little Bluestem										
<i>Aristida purpurea var. robusta</i>	Red Three-awn										
<i>Bouteloua curtipendula</i>	Sideoats Grama										
<i>Bouteloua gracilis</i>	Blue Grama										
<i>Bromus inermis</i>	Smooth Brome										
<i>Calamovilfa longifolia</i>	Prairie Sandreed										
<i>Carex filifolia</i>	Threadleaf Sedge										
<i>Carex heliophila</i>	Sun Sedge										
<i>Helictotrichon hookeri</i>	Spike Oat										
<i>Koeleria pyramidata</i>	Junegrass										
<i>Muhlenbergia cuspidata</i>	Plains Muhly										
<i>Poa pratensis</i>	Kentucky Bluegrass										
<i>Stipa comata</i>	Needle-and-thread										
<i>Stipa spartea</i>	Porcupinegrass										
<i>Stipa viridula</i>	Green Needlegrass										
SUM											100.00

Potential Dakota Skipper Habitat Assessment											
Using A Daubenmire Frame For Nectar Stem Counts											
At The Falkirk Mining Company											
Date: July 13, 2019											
Site: Sec. 33 (T147N, R82W)			Ecosite: TSa (No Photo)			GPS Point: 47° 30.579', 101° 07.804'					
Sample Number											
Species		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	1	0	0	0	0	1	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	1	0	0	0	0	1	0	0

Section 36: T147N, R82W



SE4. Photo Only. No Data. Image taken to show increased level of fringed sagewort compared to SW4.



SW4. Data for the section was collected at this point.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 13, 2019

Site: Sec. 36 (T147N, R82W)

Ecosite: TLy

GPS Point: 47° 30.469', 101° 04.591'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		40	47	41	38	35	33	47	30	40	28	37.90
Bare		4	2	1	4	3	1	3	2	2	1	2.30
Native Forbs		5	15	14	15	3	11	2	18	20	17	12.00
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	6	0	0	4	0	0	1	1	1	1.30
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	12	8	0	14	20	10	25	15	7	2	11.30
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	3	0	2	0	0	0	0	1	1	0	0.70
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	22	18	30	19	27	33	15	30	24	47	26.50
<i>Stipa comata</i>	Needle-and-thread	14	4	12	10	8	12	8	3	5	4	8.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 13, 2019
 Site: Sec. 36 (T147N, R82W) Ecosite: TLy GPS Point: 47° 30.469', 101° 04.591'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	1	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	1	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	1	1	0

Section 6: T144N, R83W



Section 5 (T144N, R83W) along with Sections 1 and 12 of (T144N, R84W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 6 (T144N, R83W)

Ecosite: TLy

GPS Point: 47° 19.648', 101° 15.128'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		40	56	40	45	46	50	45	52	35	40	44.90
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		0	4	0	0	8	3	15	0	6	0	3.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	8	0	5	4	6	5	0	8	10	0	4.60
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	34	18	30	28	8	0	3	7	0	0	12.80
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	18	22	25	23	20	30	37	33	30	44	28.20
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	12	0	0	0	0	1.20
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	12	0	0	0	19	16	4.70
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 6 (T144N, R83W) Ecosite: TLy GPS Point: 47° 19.648', 101° 15.128'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	1	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	1	0	0	0	0	0

Section 7: T144N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 7 (T144N, R83W)

Ecosite: SwLy

GPS Point: 47° 18.768', 101° 14.396'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		43	39	38	32	29	30	32	21	26	32	32.20
Bare		2	3	2	28	21	14	20	11	19	3	12.30
Native Forbs		3	4	8	3	8	11	5	11	5	3	6.10
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	2	0	0	0	0	0	0	0	0	0	0.20
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	3	15	5	14	12	11	10	16	8	9.40
<i>Aristida purpurea var. robusta</i>	Red Three-awn	44	48	10	10	0	0	0	8	0	9	12.90
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	6	7	0	0	0	0	1.30
<i>Bouteloua gracilis</i>	Blue Grama	5	2	0	0	0	3	7	5	2	4	2.80
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	2	0	0	0	0	0	0	0	0.20
<i>Carex filifolia</i>	Threadleaf Sedge	1	1	4	12	22	15	15	14	18	14	11.60
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	1	2	1	1	0.50
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	7	0	0	0	0	0	3	11	2.10
<i>Stipa comata</i>	Needle-and-thread	0	0	14	10	0	8	9	18	10	15	8.40
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 7 (T144N, R83W) Ecosite: SwLy GPS Point: 47° 18.768', 101° 14.396'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	1	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	1	0	0	0	0

Section 6: T145N, R83W



Sections 7 and 17 (T145N, R83W), along with Section 31 (T145N, R83W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 6 (T145N, R83W)

Ecosite: TLy

GPS Point: 47° 24.829', 101° 18.723'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		38	65	52	39	64	27	41	46	48	62	48.20
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		14	7	10	24	8	10	9	0	3	2	8.70
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	48	28	0	0	0	0	0	0	39	0	11.50
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	3	0	0	0	0	0	0.30
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	30	30	0	46	42	52	10	36	24.60
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	8	7	25	17	8	2	0	0	6.70
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 6 (T145N, R83W) Ecosite: TLy GPS Point: 47° 24.829', 101° 18.723'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	1	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	1	0	0	0	0	0	0

Section 12: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 12 (T145N, R83W)

Ecosite: TLy

GPS Point: 47° 23.171', 101° 12.338'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		7	4	10	3	5	2	6	3	8	5	5.30
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		0	0	0	0	0	0	0	0	0	0	0.00
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	93	96	90	97	95	98	94	97	92	95	94.70
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 12 (T145N, R83W) Ecosite: TLy GPS Point: 47° 23.171', 101° 12.338'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 18: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 18 (T145N, R83W)

Ecosite: TSa

GPS Point: 47° 23.334', 101° 18.612'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		41	63	56	72	40	35	40	44	37	75	50.30
Bare		0	0	0	0	4	0	0	0	0	0	0.40
Native Forbs		8	7	5	15	18	22	10	8	13	3	10.90
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	3	0	0	0	0	0	0	0	0.30
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	4	3	6	0	0	0	5	6	5	7	3.60
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	4	0	0	0	0.40
<i>Andropogon scoparius</i>	Little Bluestem	14	0	0	0	0	0	0	0	0	0	1.40
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	7	0	0	0.70
<i>Calamovilfa longifolia</i>	Prairie Sandreed	3	0	0	0	0	0	0	0	0	0	0.30
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	10	10	30	8	38	15	30	35	30	15	22.10
<i>Stipa comata</i>	Needle-and-thread	20	17	0	5	0	28	11	0	15	0	9.60
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 18 (T145N, R83W) Ecosite: TSa GPS Point: 47° 23.334', 101° 18.612'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	1	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	1	0	0	0	0

Section 19: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 19 (T145N, R83W)

Ecosite: TSa

GPS Point: 47° 22.272', 101° 18.002'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		33	61	40	48	49	31	52	51	44	65	47.40
Bare		0	0	7	0	0	3	0	0	0	0	1.00
Native Forbs		18	16	10	9	2	28	3	9	8	10	11.30
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	14	0	18	0	0	0	0	0	3	0	3.50
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	15	10	12	0	0	0	0	3.70
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	1	0	0	0	0	0	0.10
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	8	12	8	0	7	3.50
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	4	2	5	0	3	0	0	0	17	5	3.60
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	31	22	20	28	35	18	33	32	28	13	26.00
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	101	100	100	100	100	100	100	100	100	100.10

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 19 (T145N, R83W) Ecosite: TSa GPS Point: 47° 22.272', 101° 18.002'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	1	0	0	0	1
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	1	0	0	0	1

Section 20: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 20 (T145N, R83W)

Ecosite: TSa

GPS Point: 47° 22.217', 101° 17.453'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		38	49	40	41	45	60	33	31	41	42	42.00
Bare		0	0	5	0	0	0	0	0	0	0	0.50
Native Forbs		18	12	14	13	10	8	9	22	27	16	14.90
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	3	0	0	0	0	0	0.30
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	18	0	0	0	0	0	0	0	1.80
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	3	0	0	0	0	0	0	0	0	7	1.00
<i>Bromus inermis</i>	Smooth Brome	0	4	0	0	0	0	0	0	0	0	0.40
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	2	0	0	4	0	0.60
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	21	10	13	12	42	30	35	29	28	25	24.50
<i>Stipa comata</i>	Needle-and-thread	20	25	10	0	0	0	23	18	0	10	10.60
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	34	0	0	0	0	0	0	3.40
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 20 (T145N, R83W) Ecosite: TSa GPS Point: 47° 22.217', 101° 17.453'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	1	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	1	0	0	0

Section 32: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 32 (T145N, R83W)

Ecosite: TLy

GPS Point: 47° 19.217', 101° 17.108'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		45	47	39	55	25	51	43	36	40	48	42.90
Bare		23	17	28	15	23	10	8	17	15	18	17.40
Native Forbs		3	5	6	12	7	10	16	18	9	5	9.10
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	4	3	5	4	3	1	2	3	0	4	2.90
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	3	2	0	5	14	2	17	6	4.90
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	1	2	5	1	2	4	2	3	2	0	2.20
<i>Carex heliophila</i>	Sun Sedge	2	8	0	1	1	1	1	1	1	0	1.60
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	1	0	0	0	0.10
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	4	0	0	3	6	2	1	0	0	0	1.60
<i>Stipa comata</i>	Needle-and-thread	8	0	10	7	5	6	12	11	6	10	7.50
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	10	18	4	0	28	10	0	9	10	9	9.80
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 32 (T145N, R83W) Ecosite: TLy GPS Point: 47° 19.217', 101° 17.108'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	1	1	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	1	1	0	0

Section 33: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 33 (T145N, R83W)

Ecosite: TLy

GPS Point: 47° 19.723', 101° 15.205'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		35	42	41	38	56	48	58	43	44	37	44.20
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		10	12	5	8	10	14	5	18	17	6	10.50
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	2	0	0	0	0.20
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	8	5	3	0	0	7	0	0	10	0	3.30
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	7	3	2	5	0	0	0	0	0	4	2.10
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	3	0	0	2	0	1	0.60
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	12	10	4	16	21	10	5	15	9	38	14.00
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	10	0	0	10	12	0	3.20
<i>Stipa spartea</i>	Porcupinegrass	28	28	45	33	0	21	30	0	0	0	18.50
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	12	8	14	3.40
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 33 (T145N, R83W) Ecosite: TLy GPS Point: 47° 19.723', 101° 15.205'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	1	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	1	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	1	0	1	0	0	0

Section 36: T145N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 36 (T145N, R83W)

Ecosite: TLy

GPS Point: 47° 20.491', 101° 11.487'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		35	28	40	38	32	35	40	28	32	24	33.20
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		14	0	0	2	0	0	3	2	3	12	3.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	7	10	0	0	0	4	2.10
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	30	37	53	55	57	43	53	67	63	50	50.80
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	21	35	7	5	4	12	4	3	2	10	10.30
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 36 (T145N, R83W) Ecosite: TLy GPS Point: 47° 20.491', 101° 11.487'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 24: T146N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 24 (T146N, R83W)

Ecosite: TLy

GPS Point: 47° 26.934', 101° 11.125'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		35	32	30	33	20	29	58	33	38	35	34.30
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		3	0	17	5	3	7	3	4	0	3	4.50
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	4	5	12	7	2	4	0	0	0	0	3.40
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	60	32	58	0	0	15.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	37	51	30	35	60	0	0	0	54	44	31.10
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	21	12	11	20	15	0	7	5	8	18	11.70
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 24 (T146N, R83W) Ecosite: TLy GPS Point: 47° 26.934', 101° 11.125'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 29: T146N, R83W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 29 (T146N, R83W)

Ecosite: TLy

GPS Point: 47° 25.828', 101° 17.112'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		30	32	31	25	38	30	15	28	35	23	28.70
Bare		2	4	8	3	2	12	4	12	10	14	7.10
Native Forbs		0	3	7	12	4	10	12	8	7	11	7.40
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	8	10	6	5	5	4	2	4	1	4	4.90
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	36	30	9	8	6	29	27	24	30	19.90
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	3	0	5	0	4	3	1.50
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	1	0	0	0	2	0.30
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	50	15	18	46	40	29	23	9	6	5	24.10
<i>Stipa comata</i>	Needle-and-thread	10	0	0	0	0	8	10	12	13	8	6.10
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 29 (T146N, R83W) Ecosite: TLy GPS Point: 47° 25.828', 101° 17.112'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	1	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	1	0	0	0

Section 32: T146N, R83W



Section 5 (T145N, R83W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 32 (T146N, R83W)

Ecosite: TLy

GPS Point: 47° 25.283', 101° 16.434'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		18	30	16	26	32	38	36	30	28	32	28.60
Bare		4	3	1	10	3	2	4	7	4	3	4.10
Native Forbs		5	9	6	8	15	13	16	4	13	10	9.90
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	12	6	0	15	8	9	5	18	10	3	8.60
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	3	2	17	0	0	0	0	0	0	0	2.20
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	6	0	5	5	3	0	0	2	1	1	2.30
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	31	32	25	10	12	3	3	15	14	34	17.90
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	4	0	0	0	0	1	0	0	0	0.50
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	3	0	0.30
<i>Poa pratensis</i>	Kentucky Bluegrass	7	8	15	20	23	30	31	18	27	12	19.10
<i>Stipa comata</i>	Needle-and-thread	14	6	7	6	4	5	4	0	0	5	5.10
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	8	0	0	0	0	6	0	0	1.40
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 32 (T146N, R83W) Ecosite: TLy GPS Point: 47° 25.283', 101° 16.434'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	1	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	1	0	0	0	0	0

Section 2: T144N, R84W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 2 (T144N, R84W)

Ecosite: TLy

GPS Point: 47° 19.649', 101° 17.058'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		68	65	75	35	40	60	58	63	72	52	58.80
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		0	0	3	0	0	1	0	0	3	0	0.70
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	10	0	8	0	0	0	0	17	35	7.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	2	0	2	0	0	0	0	0	0.40
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	32	25	20	57	58	39	42	37	8	13	33.10
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 2 (T144N, R84W) Ecosite: TLy GPS Point: 47° 19.649', 101° 17.058'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida</i> var. <i>candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 3: T144N, R84W



NE4 Section 33 (T147N, R82W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 3 (T144N, R84W)

Ecosite: SwLy

GPS Point: 47° 19.097', 101° 18.348'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		48	53	32	45	52	48	57	30	65	42	47.20
Bare		11	9	18	15	4	20	2	20	5	4	10.80
Native Forbs		10	0	0	0	8	16	7	8	4	3	5.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	8	0.80
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	3	4	1	0	0	0	0	0	3	0	1.10
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	17	0	0	0	1.70
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	5	0	0	0	0	0	0.50
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	12	18	7	8	2	0	10	0	2	4	6.30
<i>Bouteloua gracilis</i>	Blue Grama	0	0	4	0	0	0	0	0	0	0	0.40
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	5	6	8	2	1	2	4	2	0	0	3.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	2	3	7	6	7	2.50
<i>Stipa comata</i>	Needle-and-thread	11	10	10	0	0	5	0	0	15	0	5.10
<i>Stipa spartea</i>	Porcupinegrass	0	0	20	30	28	0	0	33	0	32	14.30
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	7	0	0	0	0	0.70
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 3 (T144N, R84W) Ecosite: SwLy GPS Point: 47° 19.097', 101° 18.348'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	1	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	1	0

Section 11: T144N, R84W



Sections 2 and 10 (T144N, R84W) correlates to this information also.

**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 12, 2019

Site: Sec. 11 (T144N, R84W)

Ecosite: SwLy

GPS Point: 47° 18.535', 101° 17.048'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		30	55	52	28	49	31	41	30	62	53	43.10
Bare		3	0	0	10	13	7	0	0	0	0	3.30
Native Forbs		7	3	0	2	2	0	4	5	0	3	2.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	3	0	0	0	0	0.30
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	3	2	3	0	5	2	1.50
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	4	0	7	38	15	9	0	0	0	0	7.30
<i>Aristida purpurea var. robusta</i>	Red Three-awn	10	0	0	0	0	0	0	0	0	0	1.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	7	6	0	4	38	32	0	0	3	9.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	16	0	0	1.60
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	2	0	3	0	0	0	11	2	0	1.80
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	3	1	4	0	4	10	7	9	21	7	6.60
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	13	12	10	0	3.50
<i>Stipa spartea</i>	Porcupinegrass	43	32	31	19	10	0	0	0	0	32	16.70
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	17	0	0	1.70
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 12, 2019
 Site: Sec. 11 (T144N, R84W) Ecosite: SwLy GPS Point: 47° 18.535', 101° 17.048'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 1: T145N, R84W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 1 (T145N, R84W)

Ecosite: TLy

GPS Point: 47° 24.904', 101° 19.473'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		45	43	45	58	61	71	67	42	45	48	52.50
Bare		0	0	0	0	0	0	0	0	0	0	0.00
Native Forbs		12	3	3	12	15	10	12	3	0	18	8.80
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	4	6	0	7	1.70
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	7	0	0	14	0	0	0	0	2.10
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	3	4	0	0	0	0	0	0.70
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bromus inermis</i>	Smooth Brome	0	7	0	0	0	0	0	11	43	0	6.10
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	29	43	45	27	20	5	17	28	12	15	24.10
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	10	0	12	2.20
<i>Stipa spartea</i>	Porcupinegrass	0	4	0	0	0	0	0	0	0	0	0.40
<i>Stipa viridula</i>	Green Needlegrass	14	0	0	0	0	0	0	0	0	0	1.40
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 1 (T145N, R84W) Ecosite: TLy GPS Point: 47° 24.904', 101° 19.473'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	1	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida</i> var. <i>candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	1	0	0	0	0

Section 2: T145N, R84W



Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company

Date: July 11, 2019

Site: Sec. 2 (T145N, R84W)

Ecosite: TLy

GPS Point: 47° 24.649', 101° 20.136'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		30	40	35	42	20	50	25	31	30	45	34.80
Bare		8	3	9	8	18	4	8	2	5	5	7.00
Native Forbs		0	0	14	0	0	0	0	12	8	3	3.70
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	47	50	32	45	55	46	55	27	40	30	42.70
<i>Agropyron smithii</i>	Western Wheatgrass	0	1	7	5	2	0	2	0	0	0	1.70
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	12	6	3	0	5	0	10	22	7	1	6.60
<i>Bromus inermis</i>	Smooth Brome	3	0	0	0	0	0	0	0	0	12	1.50
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	6	0	0	0.60
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	0	0	0	0	4	0.40
<i>Stipa comata</i>	Needle-and-thread	0	0	0	0	0	0	0	0	10	0	1.00
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 2 (T145N, R84W) Ecosite: TLy GPS Point: 47° 24.649', 101° 20.136'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	1	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	1	0

Section 12: T145N, R84W



Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company

Date: July 11, 2019

Site: Sec. 12 (T145N, R84W)

Ecosite: TSa

GPS Point: 47° 24.025', 101° 19.862'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		30	35	38	27	33	30	35	18	23	25	29.40
Bare		5	4	7	7	3	1	8	6	2	2	4.50
Native Forbs		14	10	3	18	10	3	17	4	25	12	11.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	7	5	6	5	4	27	3	33	30	38	15.80
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	17	25	7	25	25	8	18	24	3	8	16.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	4	7	8	4	8	2	3	3	7	3	4.90
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa comata</i>	Needle-and-thread	23	14	31	14	17	29	16	12	10	12	17.80
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 12 (T145N, R84W) Ecosite: T5a GPS Point: 47° 24.025', 101° 19.862'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 13: T145N, R84W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 13 (T145N, R84W)

Ecosite: TSa

GPS Point: 47° 22.464', 101° 19.099'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		60	60	52	58	48	60	56	60	68	43	56.50
Bare		3	0	0	0	0	0	0	0	0	0	0.30
Native Forbs		2	12	14	11	0	8	2	10	3	4	6.60
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	2	0	0	0	4	2	0.80
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	4	0	1	10	1	0	2	5	0	2.30
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	3	0	0	0	6	0	9	0	0	0	1.80
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	0	0	0	0	0	0.00
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	0	0	0	0.00
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	2	1	2	0	0	0	0	0.50
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	22	24	34	28	25	22	23	28	20	27	25.30
<i>Stipa comata</i>	Needle-and-thread	10	0	0	0	8	7	10	0	0	24	5.90
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Stipa viridula</i>	Green Needlegrass	0	0	0	0	0	0	0	0	0	0	0.00
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 13 (T145N, R84W) Ecosite: TSa GPS Point: 47° 22.464', 101° 19.099'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	0	0	0

Section 36: T146N, R84W



**Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Aerial Cover
At The Falkirk Mining Company**

Date: July 11, 2019

Site: Sec. 36 (T146N, R84W)

Ecosite: TLy

GPS Point: 47° 25.018', 101° 19.526'

		Sample Number										
Species		1	2	3	4	5	6	7	8	9	10	Average
Litter		43	57	35	33	40	30	35	38	56	48	41.50
Bare		0	2	0	0	0	9	4	1	4	0	2.00
Native Forbs		10	7	15	27	16	21	18	21	7	8	15.00
Introduced Forbs												
Scientific Name	Common Name											
<i>Cirsium arvense</i>	Canada Thistle	0	0	0	0	0	0	0	0	0	0	0.00
<i>Convolvulus arvensis</i>	Field Bindweed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Medicago sativa</i>	Alfalfa	0	0	0	0	0	0	0	0	0	0	0.00
<i>Melilotus officinalis</i>	Yellow Sweet Clover	0	0	0	0	0	0	0	0	0	0	0.00
Shrubs												
Scientific Name	Common Name											
<i>Rosa arkansana</i>	Prairie Wild Rose	0	0	0	0	0	0	0	0	0	0	0.00
Grass Species												
Scientific Name	Common Name											
<i>Agropyron cristatum</i>	Crested Wheatgrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Agropyron smithii</i>	Western Wheatgrass	0	0	0	0	0	0	0	0	3	2	0.50
<i>Andropogon gerardii</i>	Big Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon hallii</i>	Sand Bluestem	0	0	0	0	0	0	0	0	0	0	0.00
<i>Andropogon scoparius</i>	Little Bluestem	0	0	0	0	6	0	0	0	0	0	0.60
<i>Aristida purpurea var. robusta</i>	Red Three-awn	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua curtipendula</i>	Sideoats Grama	0	0	0	0	0	0	0	0	0	0	0.00
<i>Bouteloua gracilis</i>	Blue Grama	0	0	0	0	0	0	2	0	0	0	0.20
<i>Bromus inermis</i>	Smooth Brome	0	0	0	0	0	5	0	0	0	4	0.90
<i>Calamovilfa longifolia</i>	Prairie Sandreed	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex filifolia</i>	Threadleaf Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Carex heliophila</i>	Sun Sedge	0	0	0	0	0	0	0	0	0	0	0.00
<i>Helictotrichon hookeri</i>	Spike Oat	0	0	0	0	0	0	0	3	0	0	0.30
<i>Koeleria pyramidata</i>	Junegrass	0	0	0	0	0	0	0	0	0	0	0.00
<i>Muhlenbergia cuspidata</i>	Plains Muhly	0	0	0	0	0	0	0	0	0	0	0.00
<i>Poa pratensis</i>	Kentucky Bluegrass	7	15	30	22	13	23	16	21	12	23	18.20
<i>Stipa comata</i>	Needle-and-thread	15	10	20	18	10	12	14	16	18	15	14.80
<i>Stipa spartea</i>	Porcupinegrass	0	0	0	0	15	0	0	0	0	0	1.50
<i>Stipa viridula</i>	Green Needlegrass	25	9	0	0	0	0	11	0	0	0	4.50
SUM		100	100	100	100	100	100	100	100	100	100	100.00

Potential Dakota Skipper Habitat Assessment
Using A Daubenmire Frame For Nectar Stem Counts
At The Falkirk Mining Company

Date: July 11, 2019
 Site: Sec. 36 (T146N, R84W) Ecosite: TLY GPS Point: 47° 25.018', 101° 19.526'

Species		Sample Number									
		1	2	3	4	5	6	7	8	9	10
Scientific Name	Common Name										
<i>Echinacea angustifolia</i>	Purple Coneflower	0	0	0	0	0	0	0	1	0	0
<i>Astragalus adsurgens</i>	Prairie Milkvetch	0	0	0	0	0	0	0	0	0	0
<i>Calylophus serrulatus</i>	Yellow Sundrops	0	0	0	0	0	0	0	0	0	0
<i>Campanula rotundifolia</i>	Bluebell bellflower	0	0	0	0	0	0	0	0	0	0
<i>Cirsium undulatum</i>	Wavyleaf Thistle	0	0	0	0	0	0	0	0	0	0
<i>Dalea candida var. candida</i>	White Prairieclover	0	0	0	0	0	0	0	0	0	0
<i>Erigeron strigosus</i>	Daisy Fleabane	0	0	0	0	0	0	0	0	0	0
<i>Gaillardia aristata</i>	Blanket Flower	0	0	0	0	0	0	0	0	0	0
<i>Ratibida columnifera</i>	Prairie Coneflower	0	0	0	0	0	0	0	0	0	0
<i>Rudbeckia hirta</i>	Black-eyed Susan	0	0	0	0	0	0	0	0	0	0
SUM		0	0	0	0	0	0	0	1	0	0

Discussion/Conclusion

The above information illustrates what was recorded at each of the 30 sites utilizing the Daubenmire frame methodology. Four different ecosite types (Shallow Loamy, Thin Loamy, Thin Sands and Shallow to Gravel) were evaluated across the permit. Each of these has the capability of providing the necessary plant species to sustain the Dakota skipper through its life cycle. This capability is based on the historic climax plant community (HCPC) description within MLRA 53B in North Dakota where the mine is located.

None of the surveyed sites appear to meet requirements from the 2018 USFWS guidance for being considered as potential suitable habitat for Dakota skippers. For that reason, no flowering plant line transects were initiated for this evaluation as it was felt the methodology would not add anything to the interpretation of available habitats not already documented. The vast majority of acreage within native grasslands on the mine site, and McLean County as a whole, has even more invasive species and fewer nectar sources. Very few nectar sources were available during the flight period and the sites were dominated by invasive species. There are also very few warm season grasses, which are essential for potential suitable habitat, left on the landscape within the permit area. The best areas evaluated on the mine had 7.3% - 9.4% little bluestem with sideoats grama of 9.0% and 1.3% respectively on the same sites. Additional to the lack of warm season grasses and nectar sources, large contiguous tracts of potential suitable habitat (which according to the literature are required) are limited in extent on the landscape in this portion of McLean County where the study was conducted.

Within the publication: 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, USFWS, Version 1.1, U.S. Fish & Wildlife Service, Regions 3 and 6, May 2016 the following grazing information is presented: *Beyond a certain level, grazing is likely to adversely affect Dakota skipper populations in proportion to its intensity due to a reduction in nectar resources and other factors. For example, overgrazing may result in an increased coverage of invasive species and a reduced density of nectar plants and larval food plants (Smart et al. 2011; Rigney 2013, p. 143 and 153).* With my extensive experience on North Dakota native grasslands, I believe that undergrazing is much more of a threat to reduce the density of nectar plants and will increase the coverage of invasive species much more rapidly than overgrazing. Sites with moderate to heavy grazing typically have a lower percentage of invasive species and more times than not increased density of nectar plants. This is also seen in the data on the calving pastures that have early intense grazing pressure that keeps the Kentucky bluegrass and other invasive species in check. These sites maintained the highest levels of native species on the mine. On the downside, these areas often have reduced plant vigor levels. All types of grazing intensity have their time and place within an adaptive grazing management plan. Moderate to heavy grazing can get the litter back in contact with the ground and assist in jumpstarting nutrient cycling and maintaining soil infiltration rates and health. Light grazing allows the plant's root system time to maintain vigor and sustainability. One needs to be cognizant of changing season of use and trying to avoid repeated heavy or light grazing over the same ground during the same time period from year to year.

These adaptive grazing practices are not often utilized for a management program within the permit area and McLean County as a whole. Numerous variables dictate the decision making process of how to graze an area from year to year. Many producers are both ranchers and farmers trying to best manage their part of the world. In reality, they are often farmers first and ranchers second. This factor has accelerated the decline in habitat quality following the drought conditions of 1988-1992 which was followed by heavy rains in 1993. The invasive grasses were opportunistic in filling the niches of bare ground that formed during the drought period. Since that time, idling of land and light grazing on many sites has allowed for a steady degradation of ecosites across the landscape in my experience. Excess litter buildup and deteriorating soil structure have contributed to this negative successional downturn. Habitat fragmentation and spraying from adjacent cropland areas have accelerated the state and transition departure away from the HCPC. Many sites have been evaluated off and on over the past 10 years and a noticeable negative trend has been observed. These thin and shallow sites once harbored the final isolated islands of plant diversity on the landscape and now they are even rapidly degrading to the point of blending in with the remaining poor condition ecosites. Timing and intensity of grazing, or the lack of any management, is the primary culprit driving this degradation trend. If evaluated more closely, most areas would likely be a moderate departure from reference condition for rangeland health.

The amount of Kentucky bluegrass varies from section to section but is often the dominant component of the vegetated portion of the frame (that portion which does not

include bare ground and litter coverage). The native forb component that was noted in the data is primarily species that are not flowering during the Dakota skipper flight period. This can be readily seen in the photographs of each site. The forbs observed in the plots usually included Missouri goldenrod, stiff sunflower, and/or heath aster which bloom after the flight period is completed. Other species primarily recorded included western yarrow, silverleaf scurfpea, prairie smoke, green sagewort, and fringed sagewort (actually a shrub that was accidentally included in the forb component but did not impact any decisions or inferences for the project) that provide little to no contribution to the life cycle of the Dakota skipper.

The negative trend in forbs across the landscape is making it more difficult to find the diversity of butterflies and pollinator species seen during the early to middle portion of my 32 years evaluating native grasslands in North Dakota. A change in management of native grasslands is needed to protect and possibly improve what we currently have left. However, based on what I have seen during my career that is highly unlikely to happen. The mentality of this is the way we have always done it and will continue to do so pervade the grazing community. This is despite the ground telling us that change is needed. It is easy to blame other external factors rather than make the necessary adjustments, based on knowledge and sound science, and do what's right for the long-term sustainability of this important resource.

From my perspective and interpretation of available data, the area evaluated does not contain any potential suitable habitat for the Dakota skipper. No further investigations for the Dakota skipper or potential suitable habitats on the Falkirk mine need to be initiated unless additional acreage is added to the permit base or if USFWS guidelines are changed or refined. The data reinforces what was found in 79 FR 63672:63674-63675 which stated "Based on these surveys, the likelihood that significant numbers of undiscovered Dakota skipper populations in North Dakota is low". I believe our data supports this claim for the area evaluated and that even the highest quality habitat on the mine does not cross the threshold of being potential suitable habitat for the Dakota skipper.

United States Department of the Interior



FISH AND WILDLIFE SERVICE

North Dakota Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501



IN REPLY REFER TO:
Revision 42 to NAFK-
8405
Falkirk Mining

July 22, 2022

Ms. Zanna Brinkman
Director, Reclamation Division
North Dakota Public Service Commission
600 East Boulevard, Department 408
Bismarck, North Dakota 58505-0480

Dear Ms. Brinkman:

This letter is in response to the notice of Receipt of Revision Application dated June 1, 2022 for comments regarding the revision of permit NAFK-8405 for the Falkirk Mine located near Underwood, North Dakota.

The Threatened and Endangered Species list for McLean County, North Dakota can be generated by using the IPAC tool from the US Fish & Wildlife Service (FWS). The current listings include: Endangered; Whooping crane, Pallid sturgeon, Threatened; Piping plover and its critical habitat, Rufus red Knot, Northern long-eared bat and Dakota Skipper. The FWS does not concur on "No Effect" determinations for species, but ask that documentation be placed in your administrative record for those species.

New populations of Dakota skippers have been observed in McLean County during the past two flight periods. Information defining suitable habitat for Dakota skippers is included in the 2022 Dakota skipper Survey Protocol. The United States Fish and Wildlife Service (FWS) recommends that habitat surveys be conducted. Areas of suitable habitat then could be surveyed by permitted surveyors for Dakota skipper occupancy, prior to surface disturbance in the areas of concern covered by Revision 42 of Permit NAFK-8405. In past mine permit revisions and during review of recent wildlife management plans the discussion referencing monitoring of suitable Dakota skipper habitat has been emphasized.

The 2020 White Nose Syndrome distribution map now includes most of counties in North Dakota. We encourage that if any tree removal is necessary by the project, that such tree removal occur outside the northern long-eared bat active season. The active season in North Dakota is likely mid-April through mid-October and if tree removal cannot be avoided during that time we encourage that trees not be removed during the maternity season for northern long-eared bats, particularly June and July.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the FWS should be informed so that the above comments can be reconsidered.

The FWS appreciates the opportunity to provide comments to the PSC and Falkirk Mining Company. If you have any questions on these comments, please contact Jerry Reinisch of my staff at 701-425-2133 or me at 701-319-0127

Sincerely,

Drew N. Becker
ND Ecological Services Office Supervisor

cc: Greg Link, North Dakota State Game and Fish Department
Jason Frye, Falkirk Mining Company, North American Coal Corporation