FOREST SERVICE SENSITIVE SPECIES SURVEY REPORT - 2018

DEMICKS LAKE PIPELINE PROJECT - NORTH DAKOTA

ONEOK BAKKEN PIPELINE, LLC

Midwest Natural Resources, Inc.
1032 West 7th St., Suite 150
St. Paul, MN 55102

MNR
MIDWEST NATURAL RESOURCES

This page intentionally left blank

Table of Contents

List of Tables

List of Appendices

Project Overview

ONEOK Bakken Pipeline, L.L.C. (ONEOK) proposes to construct the Demicks Lake Pipeline Project (Project) consisting of approximately 76 miles of 20-inch-diameter new steel pipeline to transport natural gas liquids (NGLs). The Project originates at ONEOK's planned Demicks Lake Natural Gas Processing Plant in McKenzie County, North Dakota and terminates in Richland County, Montana at a planned interconnection with a ONEOK affiliate pipeline. Construction will begin as early as February 2019 and will be completed in approximately 5-6 months. After construction is complete, restoration/reclamation of the right-of-way will continue as necessary. A portion of this proposed project runs through the U.S. Forest Service Little Missouri National Grasslands (LMNG) as illustrated in **Figure A-1 (Appendix A)**.

Midwest Natural Resources, Inc. (MNR) was contracted by Merjent to conduct surveys for Forest Service Sensitive Species (RFSS) associated with the component of the Project that crosses through the LMNG in McKenzie County, North Dakota.

Survey Limits and Existing Data

MNR conducted pedestrian field surveys within the LMNG between June and July 2018. MNR surveyed a 300-foot-wide corridor, generally centered over the proposed centerline, for sensitive plant species, and incidental observations of sensitive wildlife species, with the exception of insects.

MNR, accompanied by Gerald Selby, a qualified Dakota skipper surveyor, documented incidental observations of sensitive insect species during individual surveys for the federally-threatened Dakota skipper between June 27 and July 17, 2018. These surveys were conducted within a 500-meter-wide survey corridor centered over the proposed centerline. The timing of the survey coincided with the flight periods of all three RFSS insect species for the Little Missouri National Grassland (Ottoe skipper, regal fritillary, and tawny crescent).

A summary of the incidental observations of sensitive insects is included below; however, the results of the Dakota skipper individual surveys are detailed in a separate survey report and are not discussed further in this report.

MNR staff evaluated the LMNG Biological Survey Guidelines (2018) document (**Appendix B**) as well as distribution data pertaining to vascular plants. This distribution data consists of county distribution maps prepared by the Biota of North America Program (BONAP). MNR staff additionally evaluated regional herbaria records to determine optimal survey windows for targeted species. The list of RFSS plants for the LMNG is provided in **Table 1**.

Table 1. RFSS plants in the Little Missouri National Grasslands

Scientific Name	Common Name	Documented Habitat in the LMNG
Chenopodium subglabrum	Smooth goosefoot	Sandbars, terraces, & dune complexes along rivers & creeks. Exposed sandy substrates in uplands, blowouts, outcrops, colluvium, etc.
Collinsia parviflora	Blue lips	Woody understories, including green ash/elm draws, Rocky Mountain juniper, mesic shrub communities, & occasional xeric shrub communities.
Cryptantha torreyana	Torrey's cryptantha	Two population sites discovered during 2013 were located along scoria ridgelines, Also reported from dry plains, rock outcrops, escarpments, pine slopes.
Eriogonum cernuum	Nodding buckwheat	Exposed sand substrates w/ low plant cover in grasslands, hillsides, sandstone outcrops.

Scientific Name	Common Name	Documented Habitat in the LMNG
Eriogonum visheri	Dakota buckwheat	Relatively exposed clay/silt substrates with low plant cover such as outwash zones around eroding buttes, saddles, steep convex slopes, erosional breaks on prairie slopes. Occasional populations among dense saltgrass communities.
Escobaria missouriensis	Missouri foxtail cactus	Prairie slopes & plains, stony to loamy to clayey short-grass to mixed-grass prairies. Also reported in woodlands of ponderosa pine or *Quercus* spp.
Leucocrinum montanum	Sand lily	Generally shortgrass communities w/ fine textured substrates but also found in crested wheatgrass communities. Reported from open coniferous woodlands & hillsides, sagebrush scrub, & sandy flats, but common name seems to be a misnomer.
Mentzelia pumila	Dwarf mentzelia	Scoria exposures & colluvium w/low plant cover. Also reported on slopes & sandy plains; occasionally on hard clays & rocky soils.
Phlox alyssifolia	Alyssum-leaved phlox	Sandy or gravelly soil on & around Bullion Butte. Also reported on clay banks & limestone ridges of open prairie.
Pinus flexillis	Limber pine	Semi-arid exposed rocky ridges & foothills in the Limber Pines RNA.
Populus x *acuminata*	Lanceleaf cottonwood	Mesic woody draws, often w/springs/seeps, occasional near springs on open hillsides. Floodplains & stream banks.
Sporobolus airoides	Alkali sacaton	Secondary succession on clay outwash where tolerant of saline conditions, also on dry to moist sandy or gravelly soil.
Townsendia exscapa	Easter daisy	Low to moderate plant cover on dry plains, hillsides, gravelly benches & weathered scoria, but often clay matrix subsoil.
Townsendia hookeri	Hooker's Townsendia	Dry plains & hillsides, often w/ loamy or increased soil development & increased plant cover relative to *T. hookeri*.

According to BONAP, only the Dakota buckwheat, Missouri foxtail cactus, and Hooker's Townsendia have been documented in McKenzie County as of 2013.

The RFSS wildlife list includes seven species of birds, two mammals, three insects, and one species of fish as indicated in **Table 2**.

Table 2. RFSS wildlife in the Little Missouri National Grasslands

Scientific Name	Common Name	Animal Category
Ammodramus bairdii	Baird's sparrow	Bird
Anthus spragueii	Sprague's pipit	Bird
Athene cunicularia	Burrowing owl	Bird
Centrocercus urophasianus	Greater sage-grouse	Bird
Haliaeetus leucocephalus	Bald eagle	Bird
Lanius ludovicianus	Loggerhead shrike	Bird
Numenius americanus	Long-billed curlew	Bird
Cynomys ludovicianus	Black-tailed prairie dog	Mammal

Scientific Name	Common Name	Animal Category
Ovis canadensis	Bighorn sheep	Mammal
Hesperia ottoe	Ottoe skipper	Insect
Speyeria idalia	Regal fritillary	Insect
Phyciodes batesii	Tawny crescent	Insect
Chrosomus (Phoxinus) eos	Red-bellied dace	Fish

Methods

RFSS Plants (Targeted Survey)

Surveys for sensitive plants involved intuitive meander surveys through the environmental survey corridor by teams of two. Each team was led by a field botanist; a brief biography of each botanical survey lead is provided in **Appendix C**. Surveys were conducted entirely on foot, and the rate of progress for each team varied from 0.75 to 2.0 miles per day.

Survey crews targeted likely sensitive plant habitat based on a review of the habitat information provided in **Table 1** along with other resources reviewed prior to survey efforts. Sensitive plants, when found, were documented spatially either as isolated individuals or larger populations that required the delineation of a given population. The latter was done by marking the extent of the population via data points and a population boundary was generated via a desktop delineation using those data points. Spatial data were collected with submeter GPS units (Trimble Geo XT 6000). The number of individuals for each point or polygon was estimated and included in the attribute data. Documentation included completion of the data forms specified in the LMNG Biological Survey Guidelines prepared by the U.S. Forest Service (2018) (**Appendix B**).

RFSS Wildlife (Incidental Observations)

Survey crews were instructed to note any incidental observations of sensitive wildlife during the course of field surveys and document any observations on the wildlife data forms as specified in the LMNG Biological Survey Guidelines (2018) (**Appendix B**).

RFSS Insects (Incidental Observations)

As noted above, incidental observations of sensitive insect species were documented during presence/absence surveys for the federally listed Dakota skipper. Surveys were focused on areas that were identified during habitat mapping surveys as having suitable Dakota skipper habitat and were led by a qualified Dakota skipper surveyor (Gerald Selby) with MNR assisting, utilizing the USFWS 2018 Dakota Skipper (*Hesperia dacotae*) North Dakota Survey Protocol (USFWS, 2018g). Surveys were conducted during the Dakota skipper flight period which coincides with the flight period for the three sensitive insect species for the Little Missouri National Grassland. Incidental observations of sensitive insects were recorded on the wildlife data forms as specified in the LMNG Biological Survey Guidelines (2018) (**Appendix B**).

Results and Discussion

The general project area is located in open, hilly terrain with badlands occurring periodically throughout. Land use is primarily grazed rangeland dominated by crested wheatgrass (*Agropyron cristatum*). Prairie

communities are generally restricted to hillsides and hilltops where cattle activity is limited. These areas are typically vegetated with little bluestem (*Schizachyrium scoparium*) with purple coneflower (*Echineacea angustifolia*), needle-and-thread grass (*Hesperostipa comata*), sideoats grama (*Bouteloua curtipendula*), prairie coneflower (*Ratibida columnifera*), prairie sagewort (*Artemisia frigida*), toothed evening primrose (*Calylophus serrulatus*), harebell (*Campanula rotundifolia*), purple prairie clover (*Dalea purpurea*), prairie ragwort (*Packera plattensis*), and western wheatgrass (*Pascropyrum smithii*) also common. Representative photographs of the general land use are provided in **Appendix D**.

RFSS Plants (Targeted Survey)

Of the 14 vascular plants on the RFSS list, only five (Dakota buckwheat, Missouri foxtail cactus, Sand lily, Easter daisy, and Hooker's Townsendia) have suitable habitat present within the environmental survey corridor (**Table 3**). Of these species, the Missouri foxtail cactus, Easter daisy, and Hooker's Townsendia were documented during survey efforts. Representative photos of the documented RFSS plants are provided in **Appendix D**, with the required U.S. Forest Service data forms in **Appendix E**.

Table 3. RFSS plant habitat suitability within survey corridor

Scientific Name	Common Name	Suitable habitat present within survey corridor on USFS Land
Chenopodium subglabrum	Smooth goosefoot	No
Collinsia parviflora	Blue lips	No
Cryptantha torreyana	Torrey's cryptantha	No
Eriogonum cernuum	Nodding buckwheat	No
Eriogonum visheri	Dakota buckwheat	Yes
Escobaria missouriensis	Missouri foxtail cactus	Yes
Leucocrinum montanum	Sand lily	Yes
Mentzelia pumila	Dwarf mentzelia	No
Phlox alyssifolia	Alyssum-leaved phlox	No
Pinus flexillis	Limber pine	No
Populus x acuminata	Lanceleaf cottonwood	No
Sporobolus airoides	Alkali sacaton	No
Townsendia exscapa	Easter daisy	Yes
Townsendia hookeri	Hooker's Townsendia	Yes

The Missouri foxtail cactus was found frequently throughout the environmental survey corridor within the LMNG. This species was beginning to flower during survey efforts, with most detections relying on vegetative distinctions from the other ball cactus species (*Escobaria vivipara*). Each population/colony is represented by a unique feature identification number. Estimated numbers of individual plants are provided in **Appendix F**, and plant locations are illustrated in the figures provided in **Appendix A**.

The Easter daisy was observed at a single location and only one individual was found. This individual was in fruit at the time of observation. The feature identification number is provided in **Appendix F**, and the location is depicted in **Figure A-11 (Appendix A)**.

Hooker's Townsendia was found at a number of locations throughout the survey area. This species was in the fruiting stage at the time of survey, with the fruits providing beneficial contrast against the surrounding vegetation. Feature identification numbers and population estimates are provided in **Appendix F**, and locations are depicted in the figures provided in **Appendix A**.

RFSS Wildlife (Incidental Observations)

Of the 13 RFSS animals, eight have suitable habitat present within the survey corridor (**Table 4**). Two of the insect species, Ottoe skipper and regal fritillary, were incidentally observed during the course of individual surveys for the Dakota skipper.

Table 4. RFSS animal habitat suitability within survey corridor

Scientific Name	Common Name	Animal Category	Suitable habitat present within survey corridor on USFS Land
Ammodramus bairdii	Baird's sparrow	Bird	Yes
Anthus spragueii	Sprague's pipit	Bird	Yes
Athene cunicularia	Burrowing owl	Bird	No
Centrocercus urophasianus	Greater sage-grouse	Bird	No
Haliaeetus leucocephalus	Bald eagle	Bird	Yes
Lanius ludovicianus	Loggerhead shrike	Bird	Yes
Numenius americanus	Long-billed curlew	Bird	Yes
Cynomys ludovicianus	Black-tailed prairie dog	Mammal	No
Ovis canadensis	Bighorn sheep	Mammal	No[1]
Hesperia ottoe	Ottoe skipper	Insect	Yes
Speyeria idalia	Regal fritillary	Insect	Yes
Phyciodes batesii	Tawny crescent	Insect	Yes
Chrosomus (Phoxinus) eos	Red-bellied dace	Fish	No

[1] The project area is not within the boundary of the primary bighorn sheep range (NDGF 2013). https://gf.nd.gov/gnf/maps/species/bighorn-sheep.pdf.

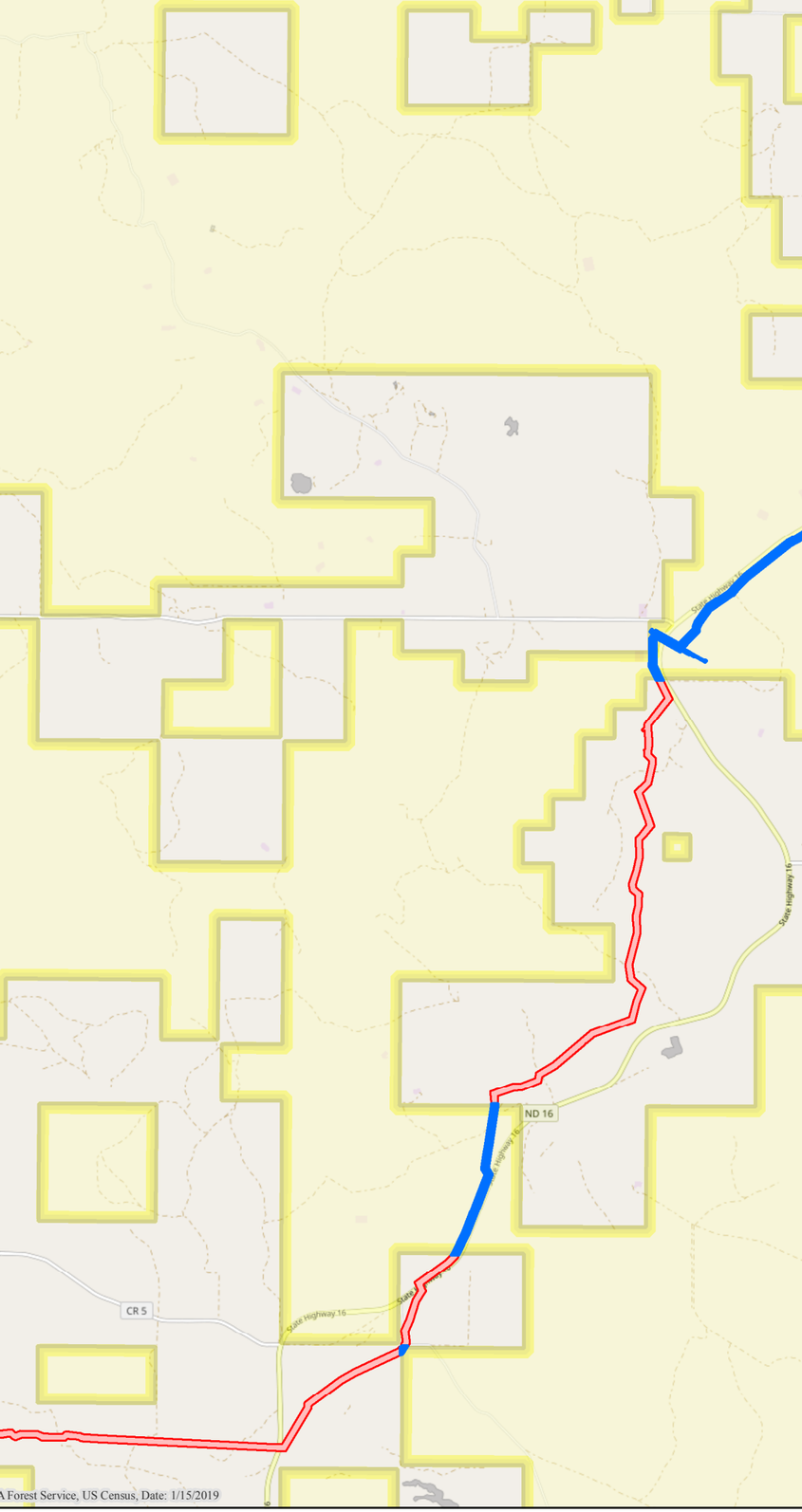
RFSS Insects (Incidental Observations)

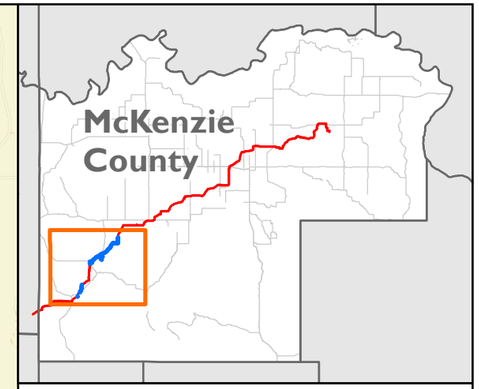
Incidental observations of the two sensitive insect species occurred within prairie habitat patches during individual surveys for the Dakota skipper. A total of 19 regal fritillary individuals were observed at 13 different patches, and total of six Ottoe skipper individuals were observed at five additional habitat patches. These locations are included with the figures displaying RFSS plant observations (**Appendix A**). Representative photos of the documented RFSS insects are provided in **Appendix D**, with required U.S. Forest Service data forms in **Appendix G**.

Appendix A

Project Figures

This page intentionally left blank





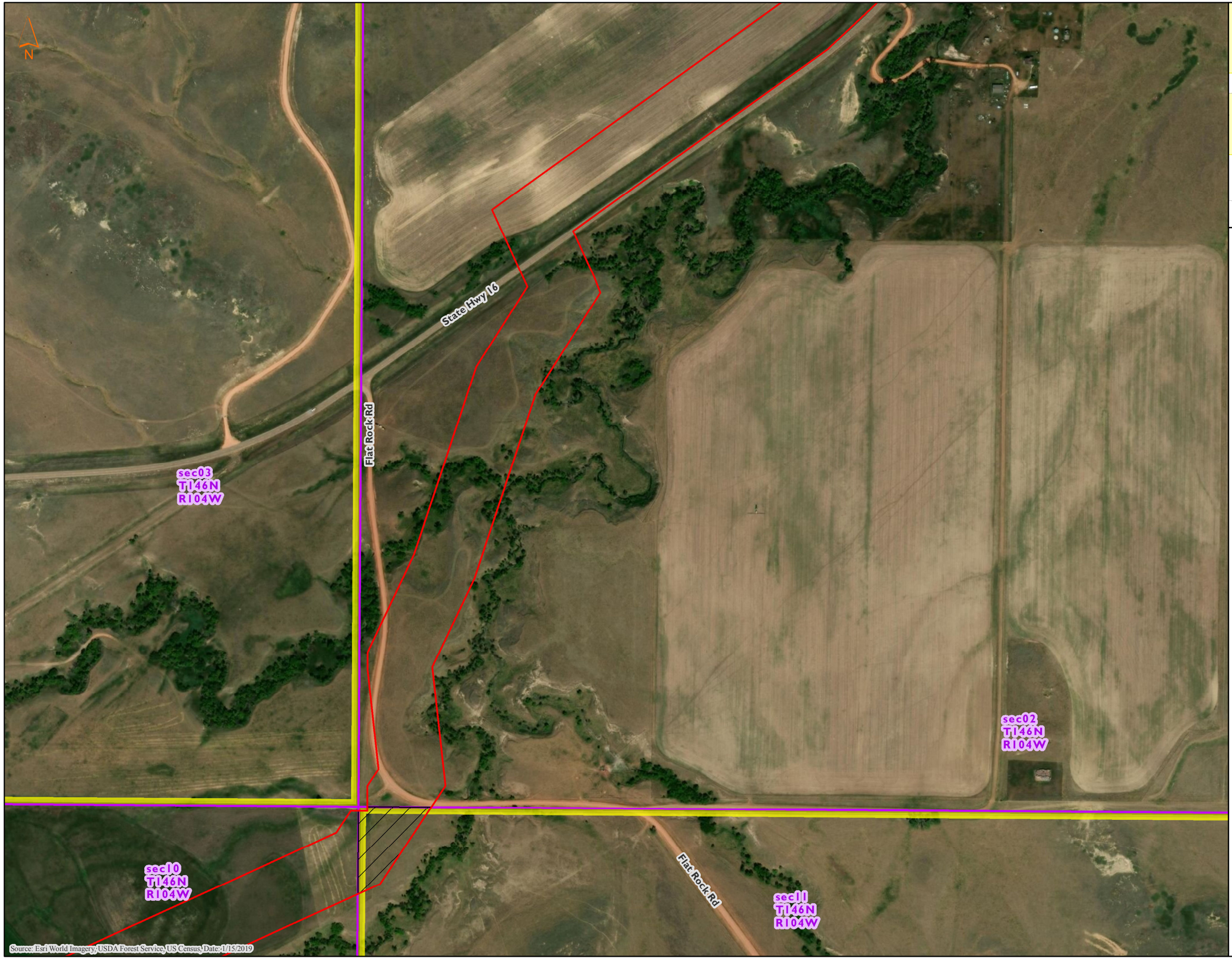
MNR

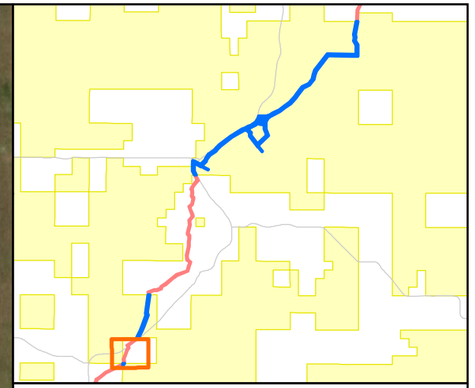
Project Overview on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-1

Area Surveyed (USFS Land)
Survey Corridor
Little Missouri National Grassland

0 1 2
Miles





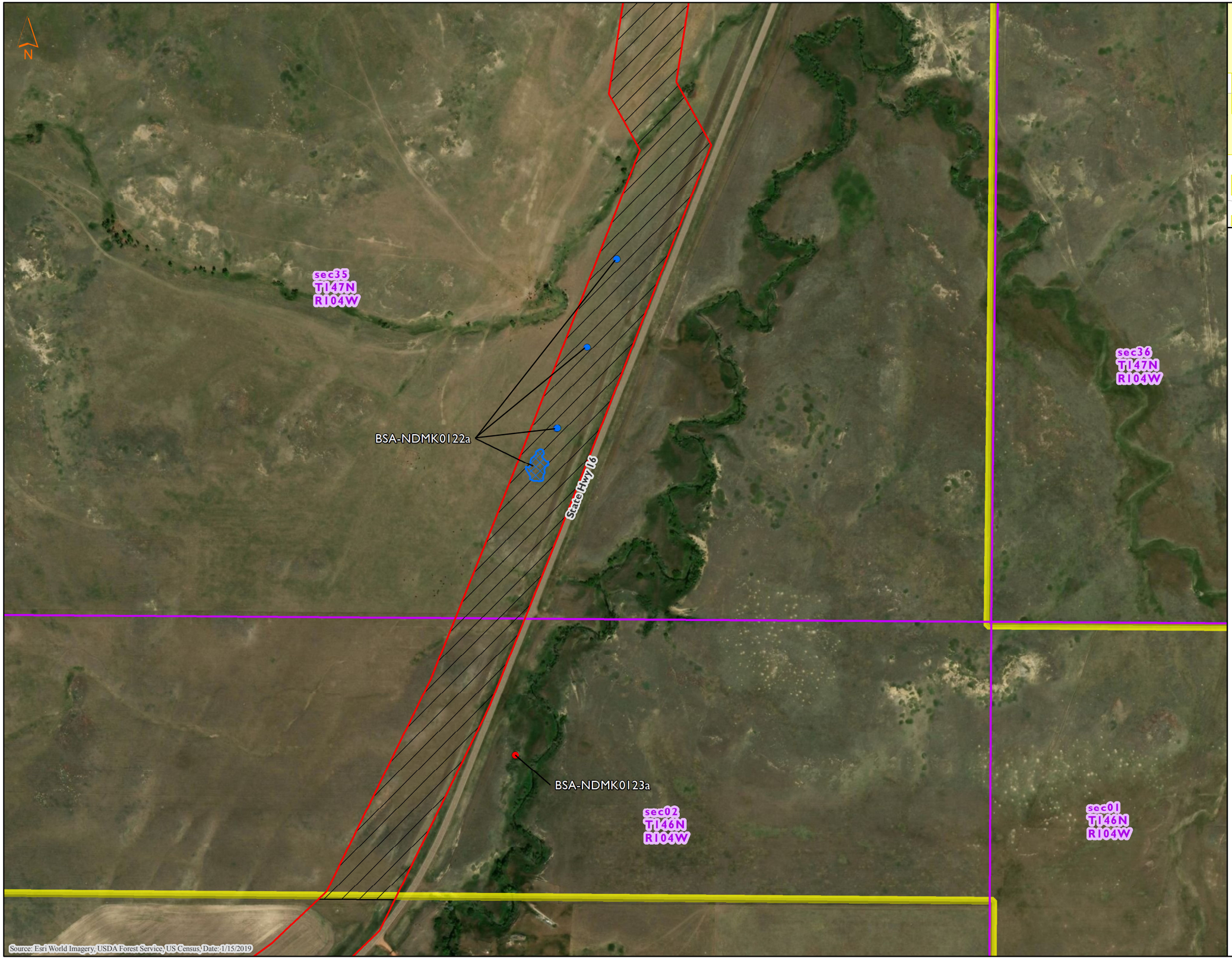
MNR

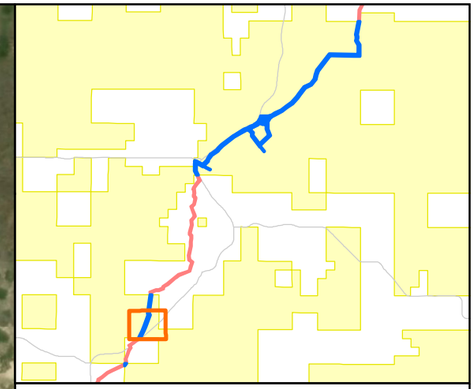
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-2

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





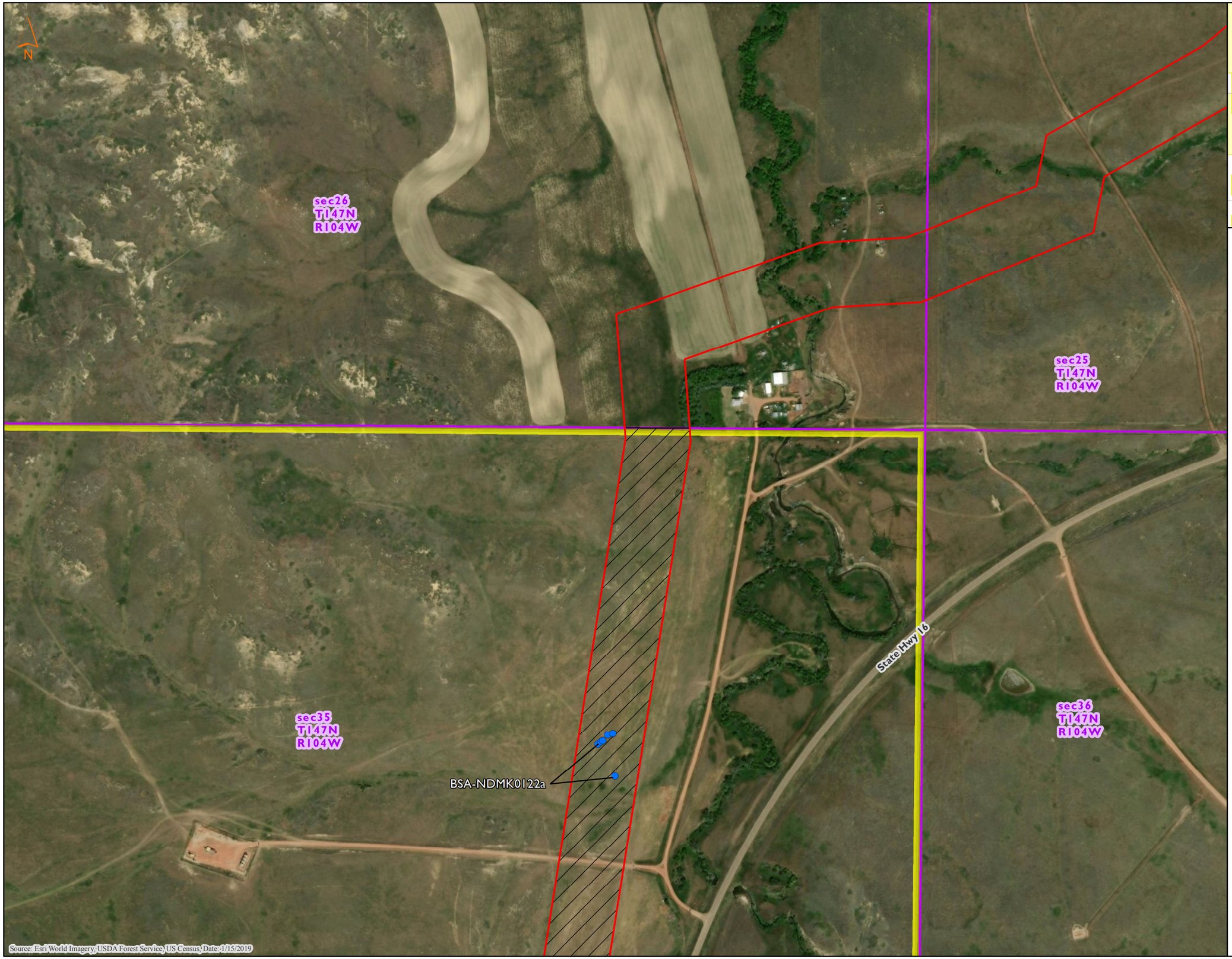
MNR

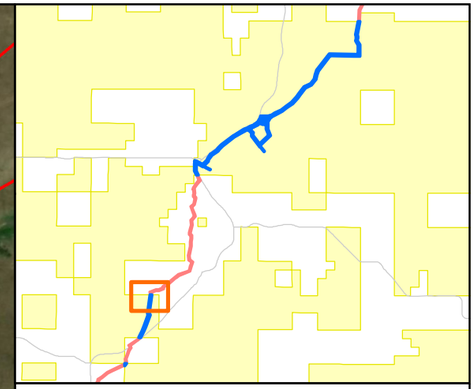
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-3

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





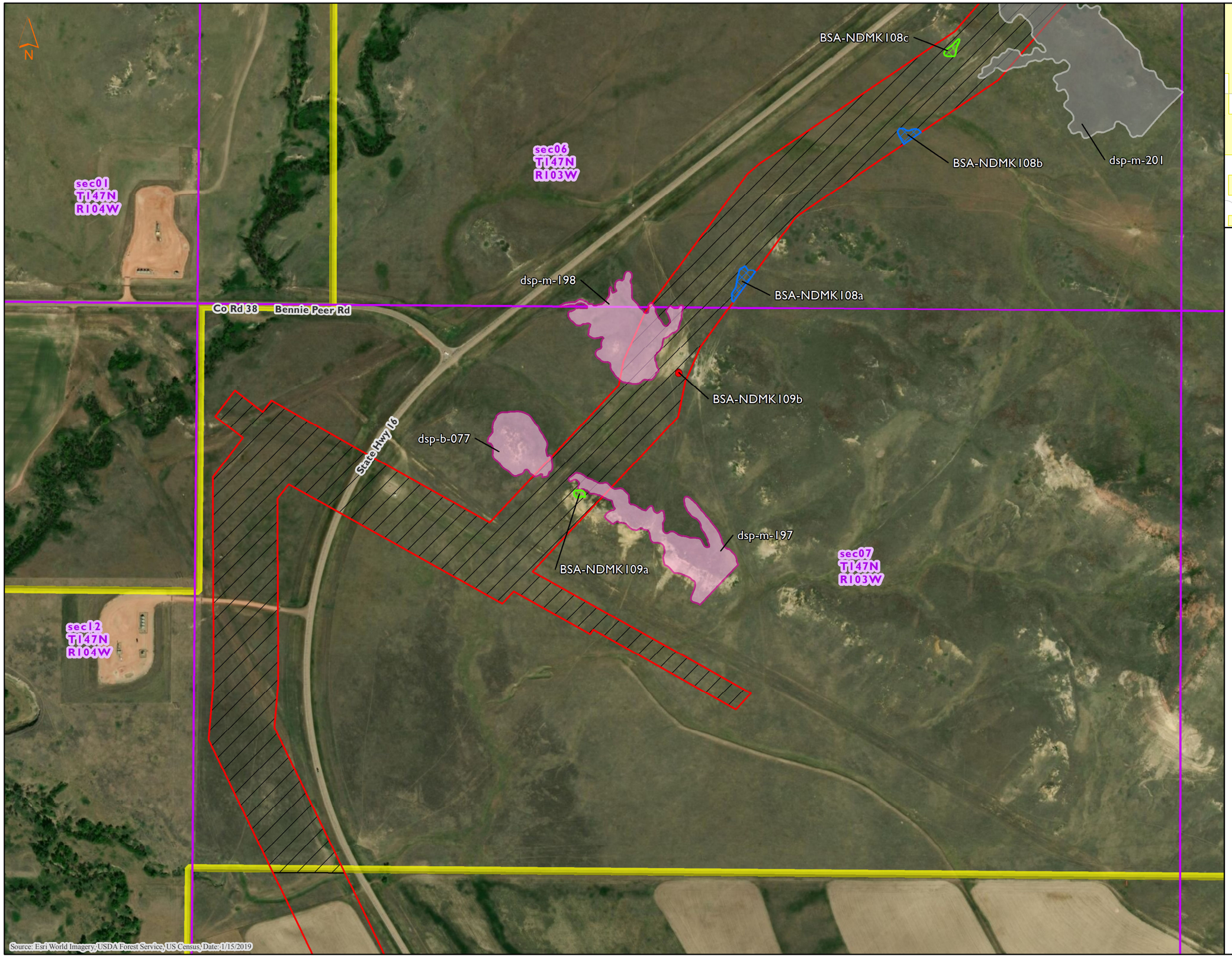
MNR

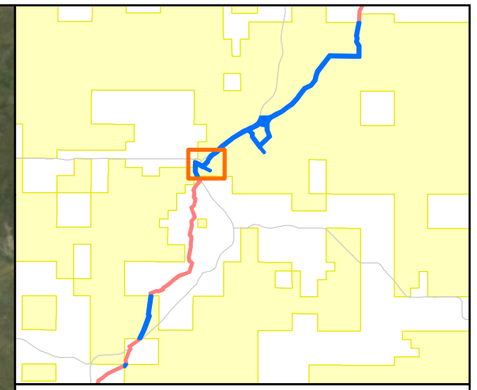
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-4

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





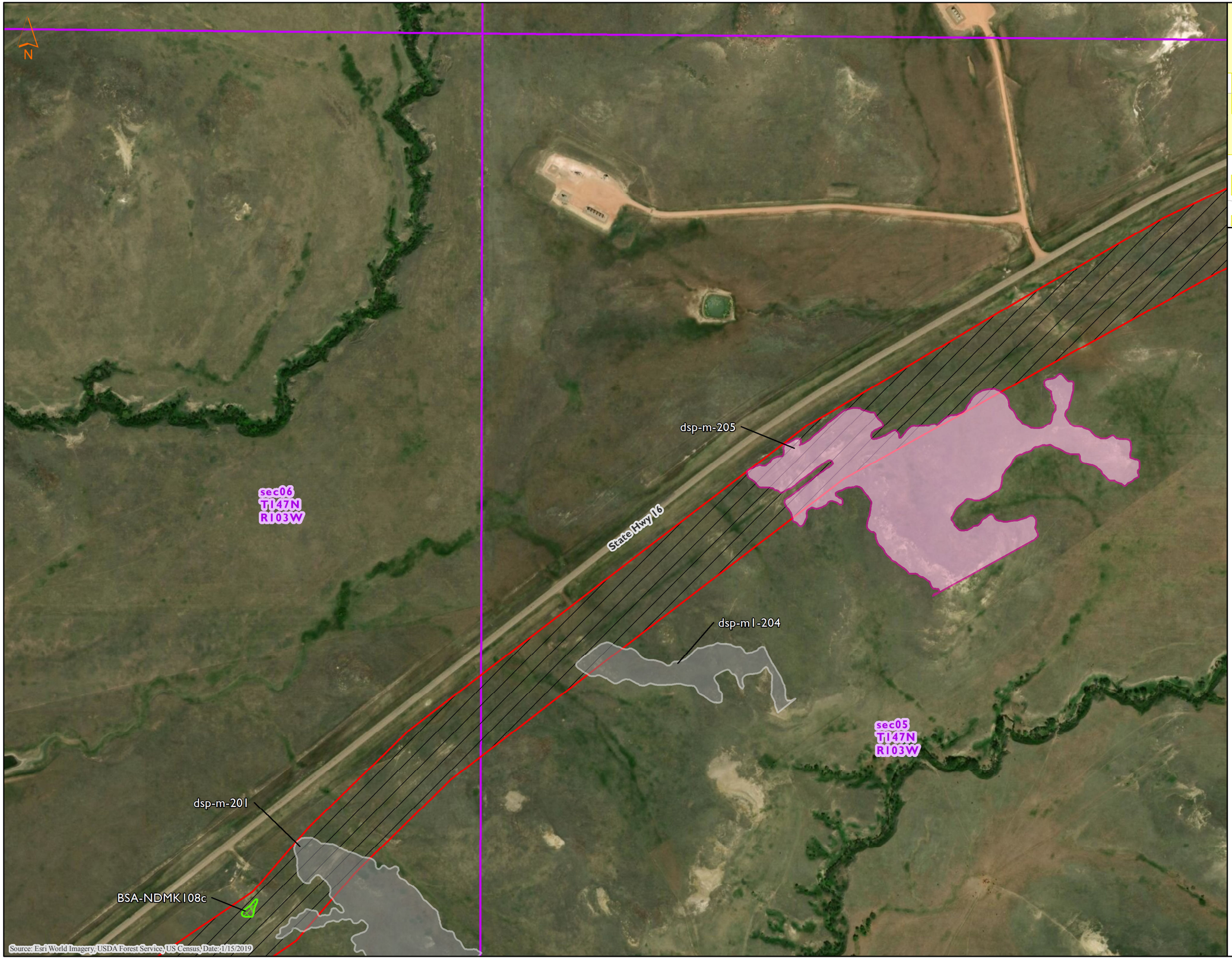
MNR

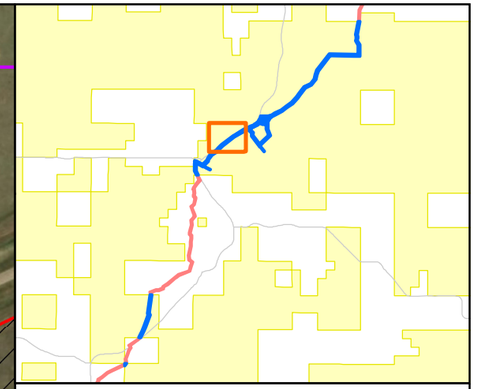
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-5

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





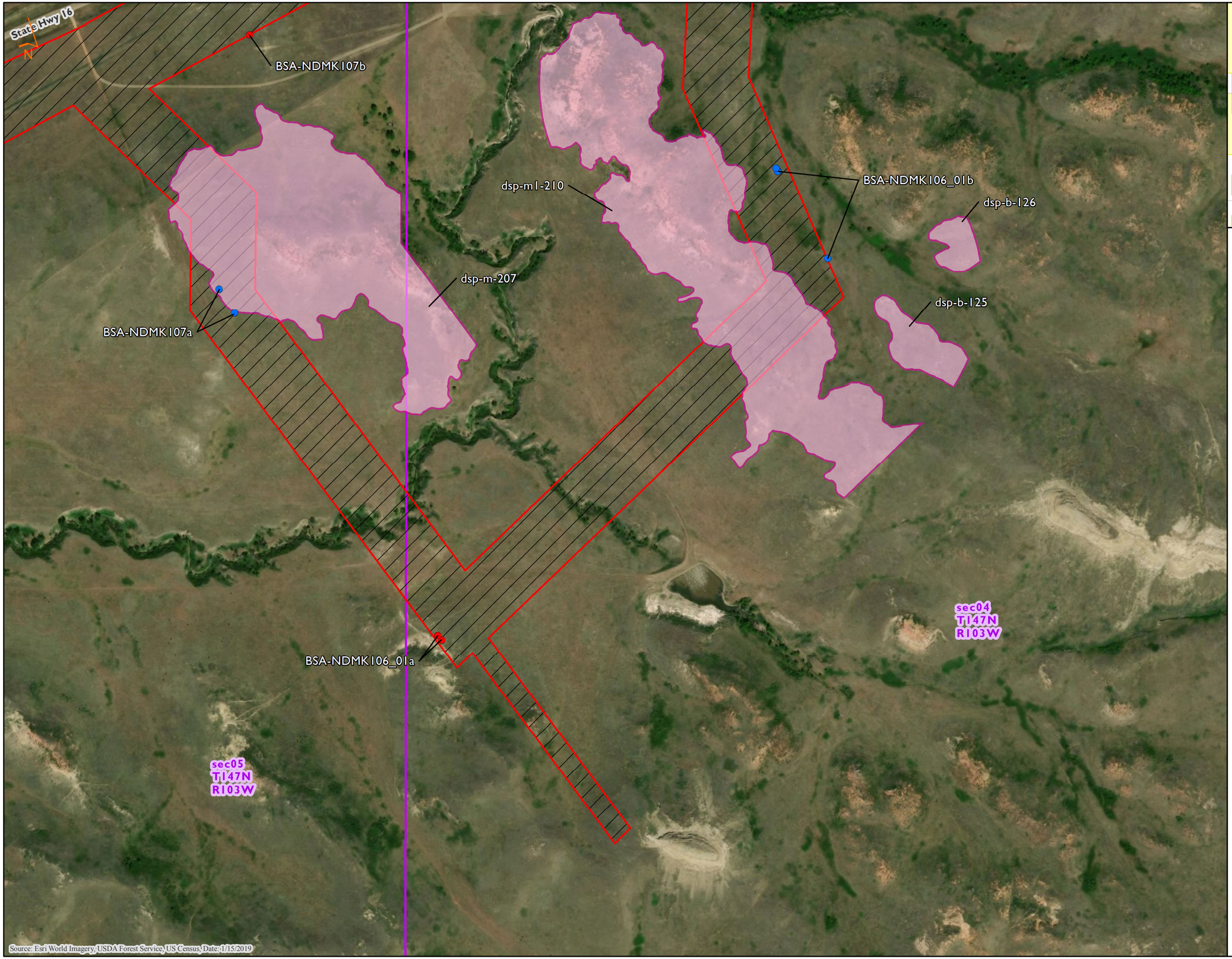
MNR

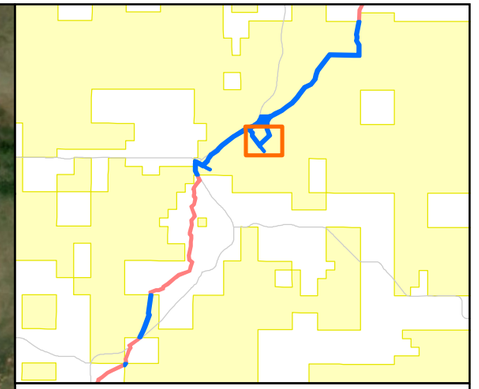
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-6

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





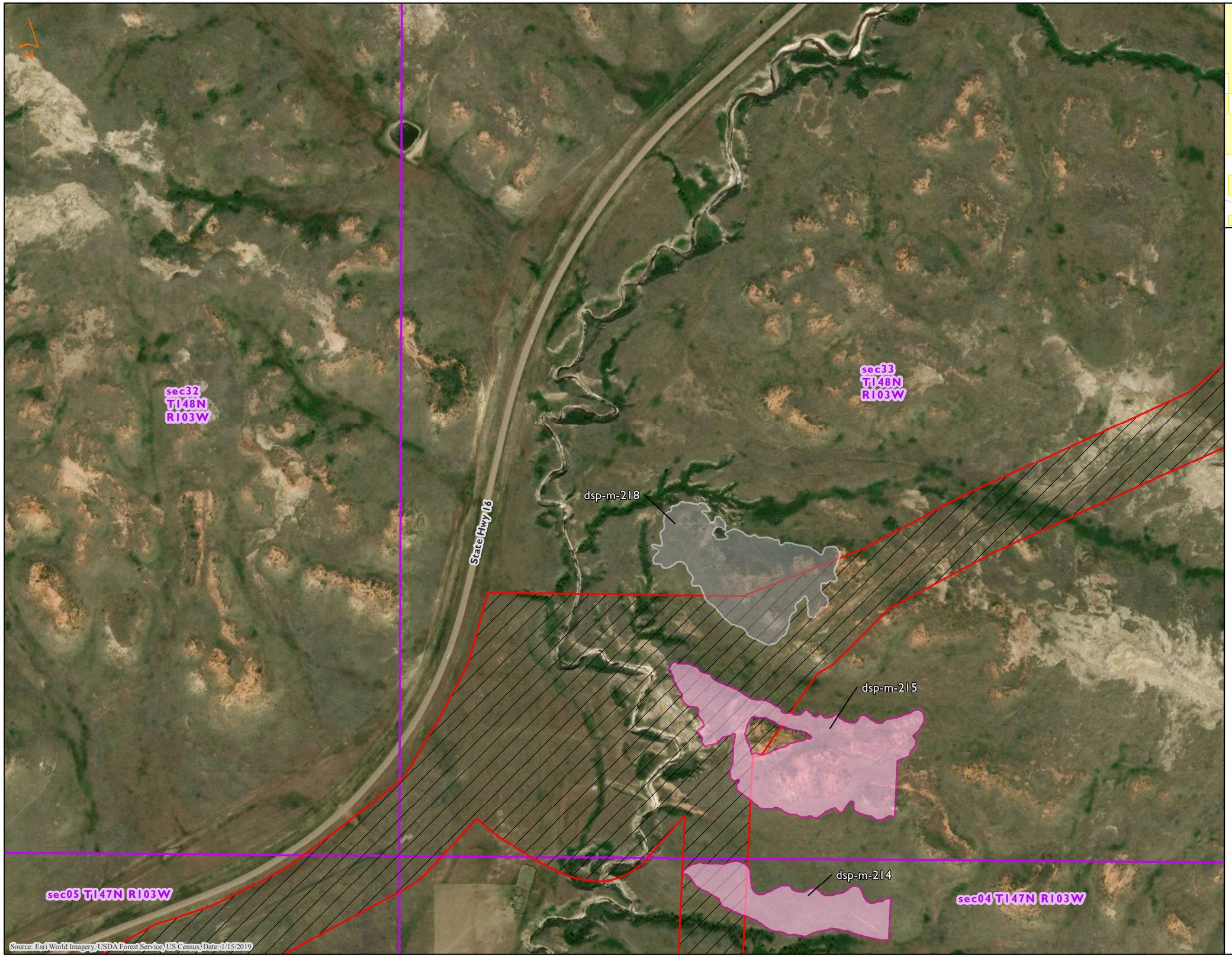
MNR

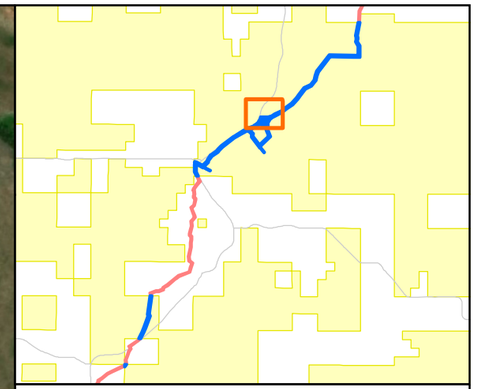
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-7

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





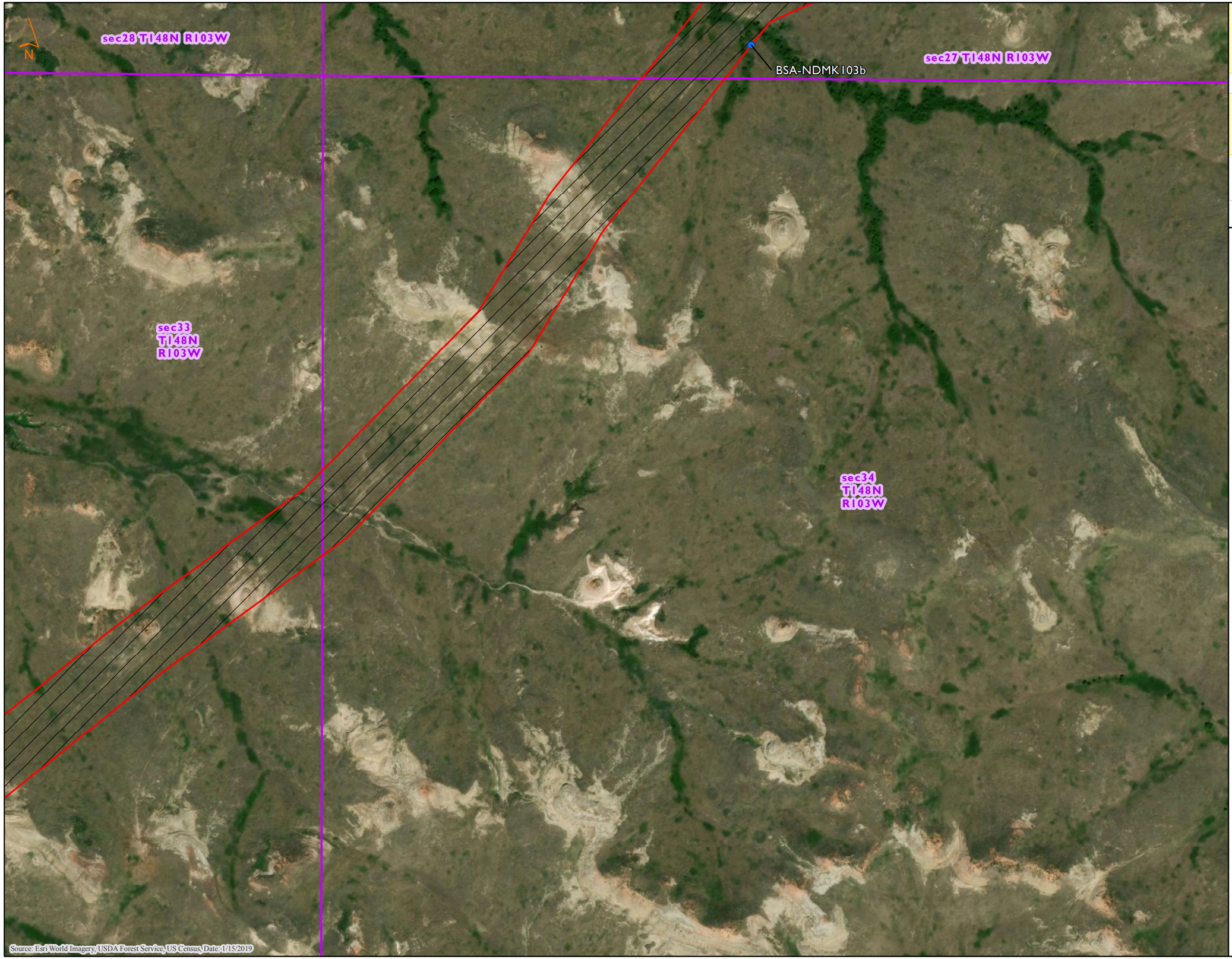
MNR

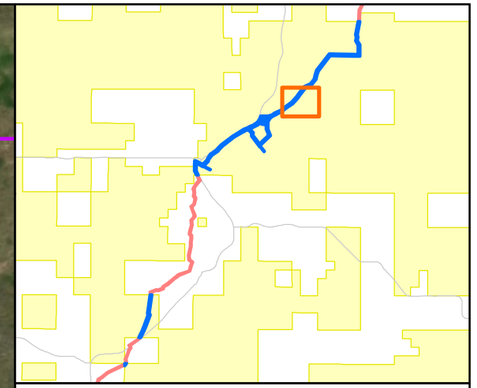
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-8

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





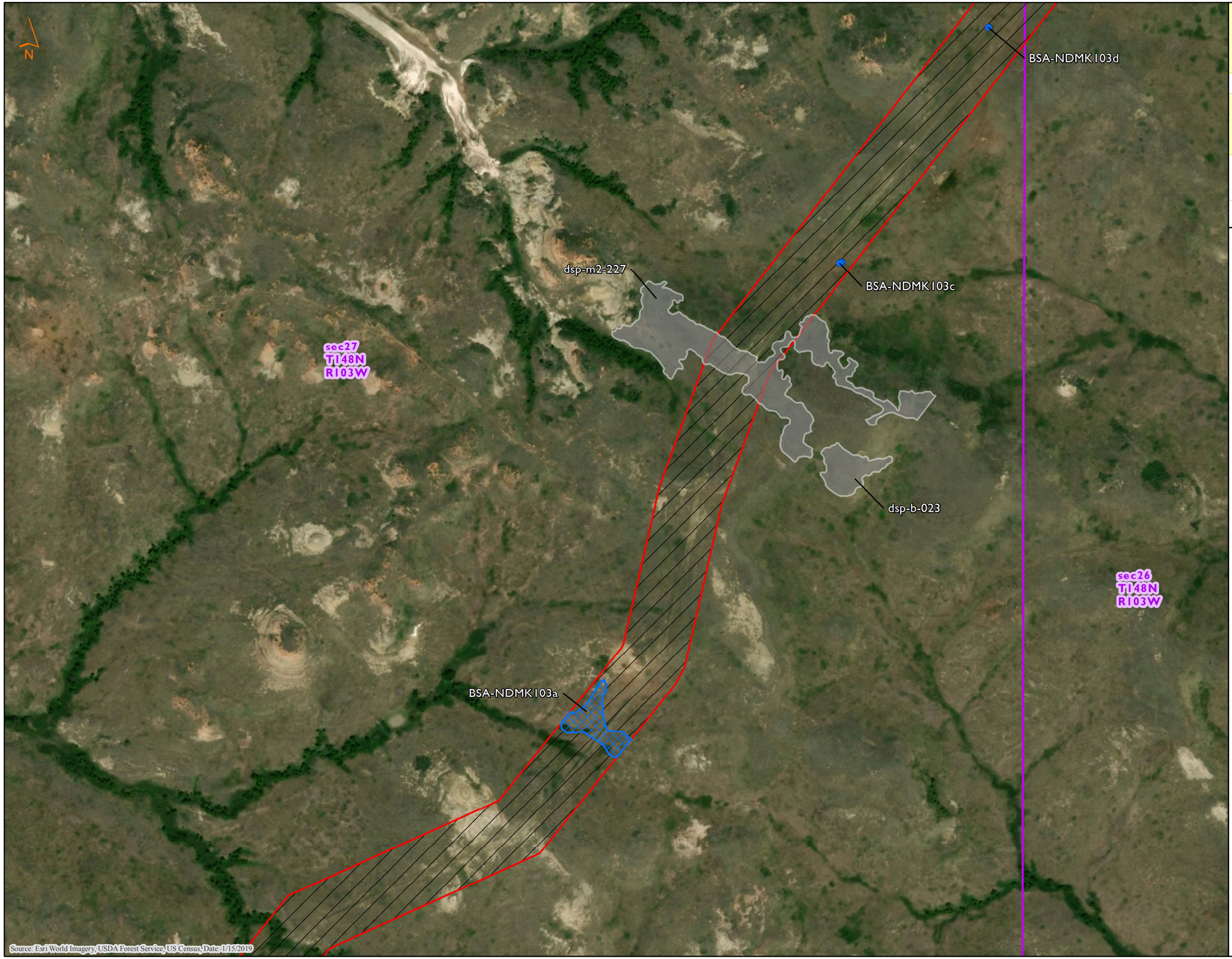
MNR

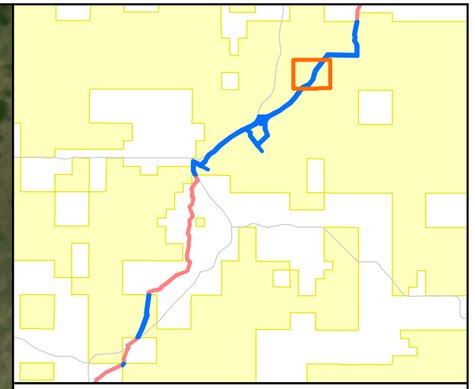
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-9

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





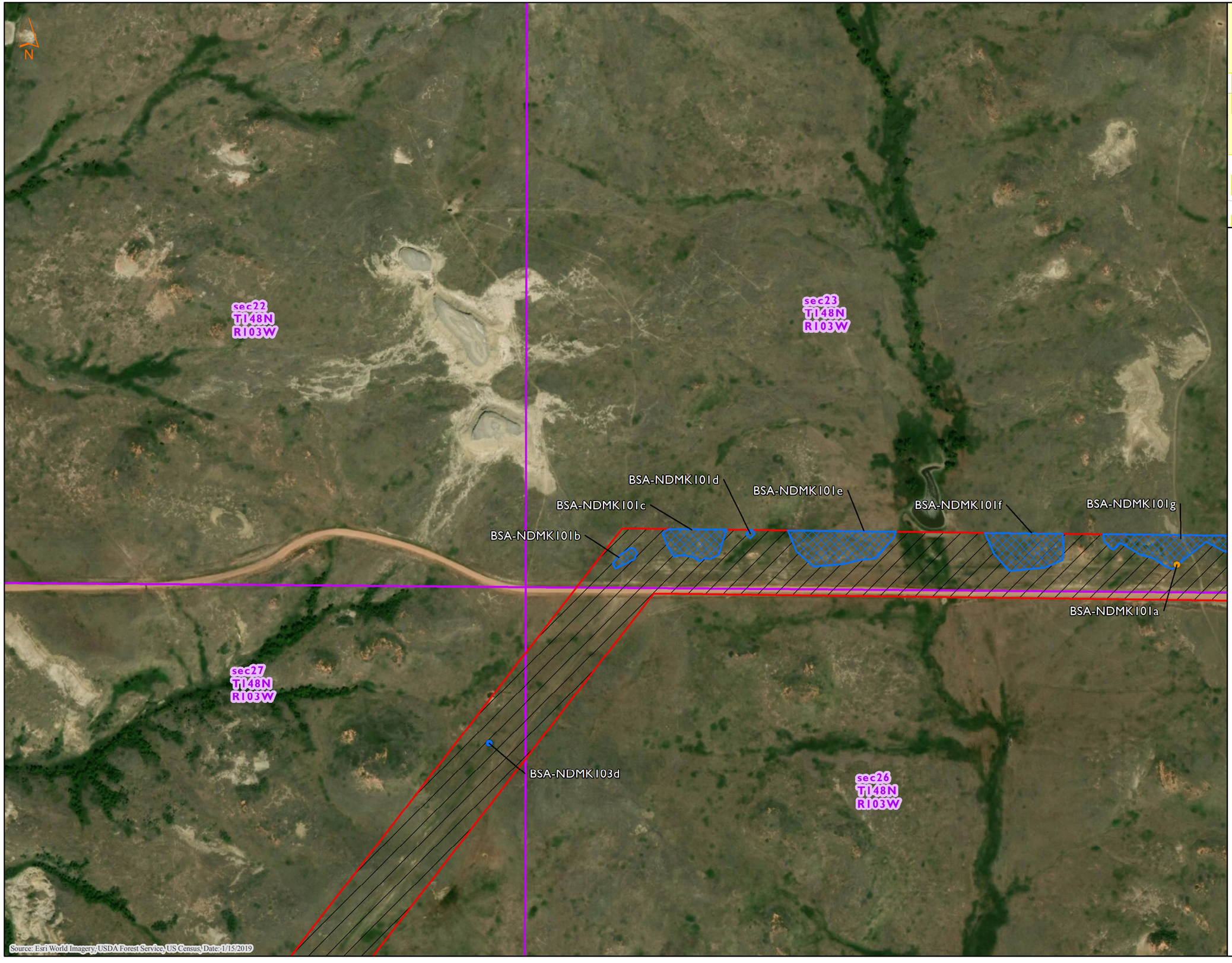
MNR

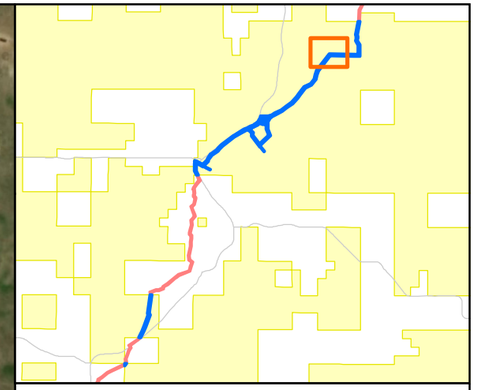
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-10

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





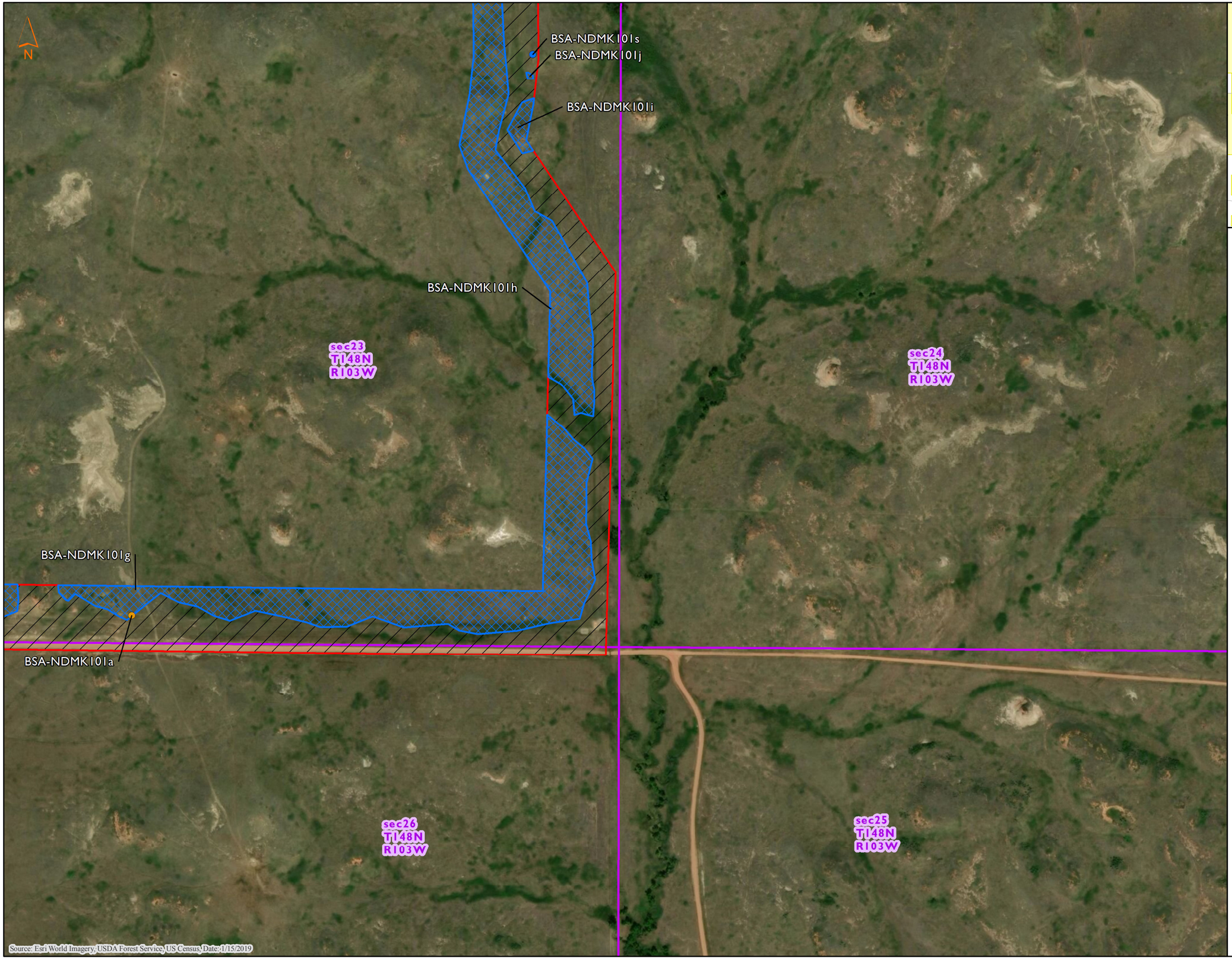
MNR

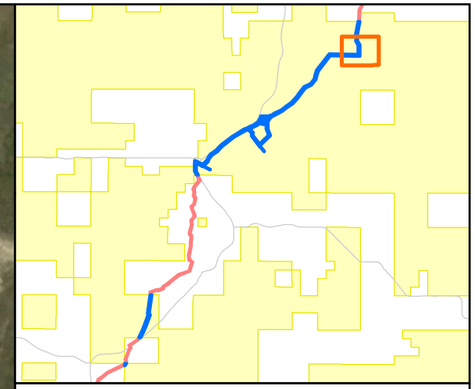
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-11

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





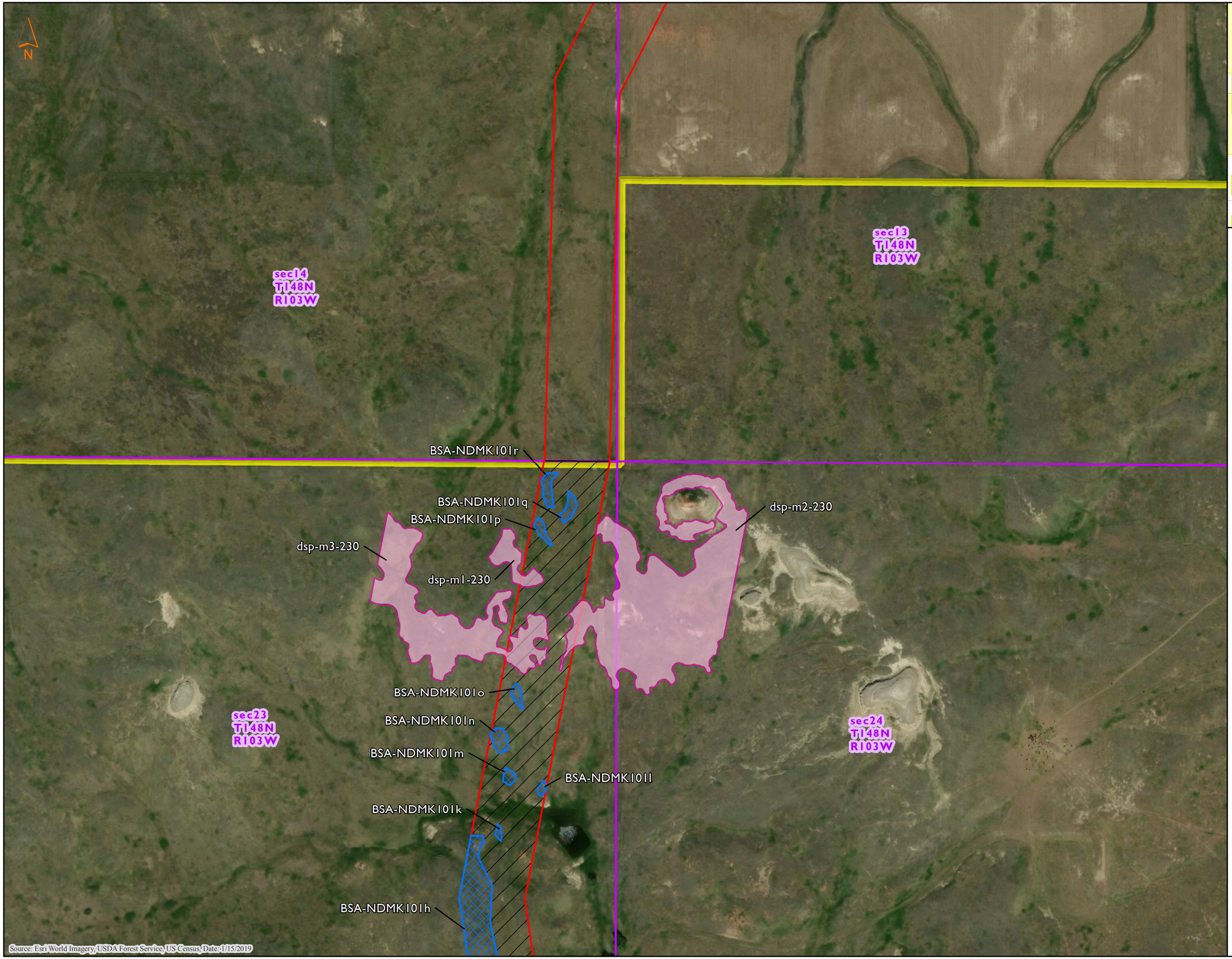
MNR

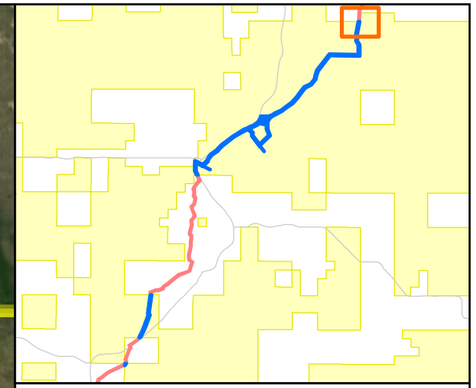
RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-12

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet





MNR

RFSS Observations on USFS Land
Demicks Lake Pipeline Project
ONEOK Bakken Pipeline, L.L.C.
McKenzie County, North Dakota

Figure A-13

- *Escobaria missouriensis*
- *Townsendia exscapa*
- *Townsendia hookeri*
- *Escobaria missouriensis*
- *Townsendia hookeri*
- *Hesperia ottoe*
- *Speyeria idalia*
- Area Surveyed (USFS Land)
- Little Missouri National Grassland Boundary
- PLSS Section
- Survey Corridor

0 400 800
Feet

This page intentionally left blank

Appendix B

LMNG Biological Survey Guidelines

Biological Survey Guidelines

Little Missouri National Grassland

McKenzie Ranger District &
Medora Ranger District,
Dakota Prairie Grasslands,
U.S. Forest Service

2018

Table of Contents

Tables

General Introduction

Information listed below is for the Little Missouri National Grassland (LMNG), which includes the McKenzie Ranger District and the Medora Ranger District. For survey protocols on other grasslands within the Dakota Prairie Grasslands (DPG) please contact Meghan Dinkins (Contacts list on page 1). Furthermore, please refer to the excel spreadsheets sent with this letter: "DPG TES Plant Survey Form" and "DPG Wildlife Survey Field Form" in concert with this letter for information on how to collect data on DPG; these sheets are formatted for printing on 8 ½ by 11 inch paper.

Survey and Biological Evaluation Protocols apply to LMNG as a whole. **Notify DPG staff prior to conducting surveys on the LMNG. A survey report must be submitted to the DPG for all surveys conducted on the LMNG by December 15th of the survey year.**

By early May, updated GIS shapefiles of known sensitive species locations will be distributed by email. If you do not receive the updated GIS information, please contact DPG staff. Digital survey data for the DPG are updated annually. Prior to beginning surveys for a new proposed project, contractors may consider contacting district botanists and wildlife biologists to determine whether additional data may be available for the project area.

Information about ESA listed species sightings and locations must be turned in as soon as possible after sighting; this information can be transferred through a brief e-mail or phone message to at least one person at the district office and Meghan Dinkins.

Important Contacts

Note: all phone numbers are land lines.

McKenzie Ranger District, Watford City ND

- Laurie Gawin, Botanist: (701)842-8516; lgawin@fs.fed.us
- Sarah Wold, Wildlife Technician: (701)842-8500; sarahwold@fs.fed.us

Medora Ranger District, Dickinson ND

- Jack Dahl, Botanist: (701)227-7832; jdahl@fs.fed.us
- J.J. Nelson, Wildlife Biologist: (701)227-7848; josiahnelson@fs.fed.us
- Arden Warm, Supervisory Wildlife Biologist: (701)227-7815; awarm@fs.fed.us

Dakota Prairie Grasslands Supervisor's Office, Bismarck ND

- Meghan Dinkins, Biology Program Manager; Zone Sheyenne/Grand River Biologist: (701)989-7320; meghanfdinkins@fs.fed.us
- Phil Sjursen, GIS Coordinator: (701)989-7324; psjursen@fs.fed.us

US Fish and Wildlife Service Contacts, Bismarck, ND

- North Dakota Ecological Services Supervisor, (701)355-8503; kevin_shelley@fws.gov

Rules & Regulations

All activities on National Forest System (NFS) lands are required to conform to the Federal Code of Regulations and applicable laws. It is the responsibility of surveyors to be aware of any special orders in effect for the DPG, or individual Ranger Districts. Contact the local Ranger Station for information on special orders, or to obtain any required permits.

Off-road permits and collection permits, if traveling off-road or collecting materials, must be retained at all times while on NFS lands.

Any collections of sensitive or watch plant species must be approved by a FS permit. 36CFR261.9(d) prohibits "removing any plant that is classified as a threatened, endangered, sensitive, rare, or unique species"; with a fine in ND of $100. Details of collection will be outlined in the permit that can be obtained at a local FS office. If there is a question about possible identification of a sensitive species, surveyor should contact the local FS Botanist.

Collection of any plant species for personal use (not for resale) and not covered under 36CFR261.9(d) also requires a FS permit. A Forest Products Free Use Permit to collect plant specimens for personal use or species identification can be obtained at no charge from a local FS office.

Survey Report Requirements

Notify DPG staff prior to conducting surveys on the LMNG. Survey reports are required for all surveys conducted on the LMNG by December 15th of the survey year even if a project does not move forward and a biological evaluation is no longer required. Reports should be submitted electronically and should include the following information:

1. Survey dates
2. Locations (latitude and longitude; legal designations) and GPS/GIS files
3. Project description
4. Survey area descriptions (ecological sites, plant communities, terrain, etc.)
5. Species inventoried
6. Photographs of the survey area, notable plant species, and wildlife (if feasible)
7. Copies of field data sheets

Biological Evaluation Requirements

Referenced from Forest Service Manual (FSM) 2672.4.

Note: For the purposes of this document, biological evaluations are not the same as biological assessments. Biological assessments need to be done if the project has potential impacts on Endangered Species Act (ESA) listed species. Per current communication from the ND USFWS Ecological Services office, Biological Assessments should only include information about ESA listed species. For more information, please see Threatened & Endangered Species section later in this document.

Biological Evaluations

Review all FS planned, funded, executed, or permitted programs and activities for possible effects on endangered, threatened, proposed, or sensitive species. The biological evaluation is the means of conducting the review and of documenting the findings.

Biological evaluations are needed for new projects, or project additions but are not needed for existing developments, infrastructure, and/or maintenance activities. Surveys may also be exempted for proposed projects that have been covered by previous surveys within the last 3-5 years. Sensitive plant surveys may be exempted from proposed projects that have been covered by previous surveys within the **last 3-5 years**; projects proposed in areas with a low potential for occurrence of any sensitive plant species; projects that would result in a low degree of disturbance, or potential to appreciably affect current conditions. Any waivers of surveys must be approved by the appropriate FS specialist.

Objectives of the Biological Evaluation and Biological Assessment

1. To ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or contribute to animal species or trends toward Federal listing of any species.

2. To comply with requirements of the Endangered Species Act that actions of Federal agencies not jeopardize or adversely modify critical habitat of federally listed species.

3. To provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision making process.

Minimum Requirements for Biological Evaluation

Please include the following in the biological evaluations:

1) An identification of all listed, proposed, and sensitive species known or expected to be in the project area or that the project potentially affects. Contact the USFWS as part of the informal consultation process for a list of endangered, threatened, or proposed species that may be present in the project area. An identification and description of all occupied and unoccupied habitat recognized as essential for listed or proposed species recovery, or to meet Forest Service objectives for sensitive species.

2) An analysis of effects of the proposed action on species, their occupied habitat, or on any unoccupied habitat required for recovery.

3) A discussion of cumulative effects resulting from the planned project in relationship to existing conditions and other related projects.

   A cumulative effects analysis is used to determine the temporal and spatial extent to which the proposed project's direct/indirect effects contribute to other effects on the species in question, whether habitat or population. If there are no direct or indirect effects to the species or habitat, then there would be no contribution to cumulative effects and an analysis is not necessary. Conversely, it is incorrect to necessarily conclude that the individual project "would not result in cumulative effects due to its small size of a few acres", or that when viewed on its own the project would have negligible impacts on the landscape. An analysis of the cumulative effects must be addressed with respect to past, present, and reasonably foreseeable future effects whenever there are any direct/indirect effects to sensitive plant species or native plant resources. For plant species, a one-half mile radius around the project site should be used as a Cumulative Effects analysis area unless a more logical and defendable area can be identified. For wildlife sensitive species, the Cumulative Effects analysis area

would differ depending on the species life histories for example, bighorn sheep could encompass a larger area (100+'s of acres) than a Baird's sparrow (10+'s of acres).

Items to think about (not exhaustive):

a) Species being analyzed: population and potential habitat being impacted;

b) Number of discrete disturbances over the past number of years;

c) Total acres of disturbance, such as roads, and pads;

d) Other management activities such as cattle grazing, recreational activities, oil and gas, etc.;

e) Activities on adjacent private and state lands should be calculated in as well.

4) A **determination** of no impact, may impact, will impact, or beneficial impact (see below) on the species with the process and rationale for determination. These are documented in the environmental analysis document for the public.

Effects to sensitive plant and wildlife species fall into the following categories. Region 1 direction is to specifically use the language to make a determination. Please adhere to these.

a) **No Impact**: A determination of "No Impact" for sensitive species occurs when a project or activity will have no environmental effects on habitat, individuals, a population or a species. If any effects are listed for a sensitive species, then a "No Impact" conclusion is not appropriate.

b) **May Impact:** Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Cause a Loss of Viability To the Population or Species:

Impacts to individuals or habitat of sensitive species should be given careful consideration. Loss of populations or meta-populations is often the basis for eventual species extinction. Rationale should be provided regarding **why** the effects would not contribute to federal listing or cause a loss of viability to the population or species.

c) **Will Impact**: Individuals Or Habitat With A Consequence That The Action Will Contribute To A Trend Towards Federal Listing Or Cause a Loss of Viability To the Population or Species:

Loss of individuals or habitat can be considered significant when the potential effect may contribute to a trend toward federal listing. The loss of individuals is significant when there are few populations and/or few individuals within populations. For these situations, any effects to the species may lead to a loss of viability and contribute towards federal listing.

Projects or activities that adversely affect many individuals of a species with limited population numbers, or even a few individuals with a limited number of small populations should probably receive this conclusion.

d) **Beneficial Impact**: Projects or activities that are designed or happen to benefit sensitive species should receive this conclusion.

5) Recommendations for removing, avoiding, or compensating for any adverse effects.

Design Criteria/Mitigation Measures: The report should include suggested design criteria or mitigation measures, to alleviate adverse effects and avoid unnecessary disturbances to sensitive plant

species, native plant communities, and wildlife species or habitat. Examples include recommendations for avoiding impacts to certain plant communities or species, or incorporating the control of invasive species within the scope of project development and design. Be as specific as possible with design criteria. Identifying adverse effects in the analysis but concluding that no mitigation measures are necessary is not logical. For example, if herbicide treatments or infested soil containment are warranted, specify where they should be conducted. Rational for invasive species treatments decreases when areas surrounding the project area are increasingly dominated by invasive species. For instance, it would not be very effective to pre-treat a well site for crested wheatgrass if the surrounding area is overwhelmingly dominated by the same species with a certainty of re-invading the site.

6) A reference of any informal consultation with the USFWS as well as a list of contacts, contributors, sources of data, and literature references used in developing the biological evaluation.

A suggested procedure for determining when a project-level field survey for endangered, threatened, or sensitive species is necessary is outlined in Appendix A.

Botany Surveys

General Information

See Table 1 in Appendix B for a list of sensitive plant species that occur on the LMNG. The sensitive plant survey season for the LMNG begins on May 15[1] and extends through September 15, weather and growth conditions permitting. Plant surveys must be conducted at the appropriate period(s) to identify sensitive and watch plant species with potential to occur in the survey area, as well as to accurately describe the vegetation community. When populations of sensitive species are found, consultants must contact and coordinate with District botanists within seven days. See the protocol below for details.

Contractor Qualifications

a) A degree in Botany or Plant Ecology, or thoroughly demonstrated botanical experience and knowledge to accurately inventory and document plant species and vegetation conditions.

b) Demonstrated skill in plant identification, use of plant taxonomic keys, and rare plant surveys. Knowledge of flora and plant habitat of the northern Great Plains.

c) Ability to analyze effects of a proposed project on botanical resources through knowledge of ecological theory and plant community dynamics in response to disturbance.

d) Ability to prepare technical reports and apply FS procedures and directives in preparation of Biological Evaluations (BE).

[1] On the LMNG, two sensitive *Townsendia* species are commonly found in the Charlson area where oil, gas and other related projects are commonly proposed. Flowering for these species typically begins in mid spring before this date. While surveys can be conducted for these species in vegetative form during the official survey season, the most effective time to locate and identify populations of these plants begins prior to 15 May. To the extent that other populations of these species are known and therefore likely in a proposed project area, surveys may be conducted for them prior to 15 May. However, if contractors choose to conduct field work in late April or early May for these particular species, surveys will also need to be conducted later in the growing season for other sensitive plant species in the proposed project areas.

e) Ability to apply Standards and Guidelines identified in the DPG Land and Resource Management Plan (2001) to proposed projects.

Survey Protocol

Sensitive plant species surveys must be conducted in a manner that provides a high probability of locating any sensitive plants that may be present. Survey botanist must obtain an accurate map of the site and proposed areas of disturbance from the permit applicant, and the *field site must be accurately marked or flagged prior to the survey*. All habitats likely to be disturbed by the proposed project must be surveyed.

The following guidelines must be followed when conducting plant surveys on the LMNG:

a) Plant surveys must be conducted when sensitive species are most identifiable, such as during periods of flowering or in phenological stages that facilitate their discovery. Survey dates of **May 15 through September 15** span a period of active growth or identifiable litter for most sensitive plant species on the LMNG. These dates encompass the acceptable survey season unless otherwise specified by FS District staff botanists. Compromises inevitably occur because there are 14 sensitive plant species on the LMNG, all with different periods of growth and flowering. Sensitive plant surveys must be delayed or discontinued during adverse weather conditions such as drought, delayed spring growth, or plant-killing frost. When these situations occur, reasonable effort must be given to revisiting sites at a more appropriate time. If in doubt, contact the District botanist.

   If potential occurrences of a sensitive species are noted, but cannot be ascertained due to the growth stage, it may be necessary for the contractor to revisit the site during another season, or perhaps the following year, to verify/identify the species. Exceptions may occur if the proposed development is relocated to avoid the suspected population. In such cases, Forest Service (FS) District botanist(s) must be notified of the suspected occurrence and the actions taken to avoid them.

   When a sensitive plant species is discovered within the area that would be adversely affected by the project, surveyor needs to contact the FS **within seven days**. This provides DPG district botanists the opportunity to verify species' occurrence in a timely manner. If the occurrence is not reported within seven days, it may result in delaying concurrence of the survey and biological evaluation until the next year's survey season.

   When a sensitive plant population is identified within the area that would be directly disturbed by the proposed project, it is the contractor's responsibility to find acceptable alternatives to the project by coordinating adjustments with FS staff and company representatives.

b) Developments, such as roadways, pipelines, and utility lines will be surveyed at a minimum distance of 125 ft. on each side of the centerline of disturbance. However, survey widths can be decreased to 50 ft. on either side of electric lines, fiber optic cables, or other utilities that are plowed into place with low degrees of disturbance if the entire route is accurately and clearly flagged prior to the survey. If the route is not marked the survey corridor will remain at 250 ft. A minimum of 10 acres will be surveyed around well sites where one bore hole is anticipated, but the survey area should be increased for sites where multiple bore holes and larger well pads are expected. **The total area of survey is referenced as the *project area***.

c) A *Site and Setting Field Form* and *Plant Survey Form* (see excel spreadsheets for "TES Plant Survey Field Form-2018", and "DPG Sensitive Plant Field Form-2018") will be completed for

every proposed project for which a field survey is conducted. For each site, record latitude and longitude in degrees, minutes, and seconds, in NAD83 datum.

Provide detailed descriptions of, or graphically identify, plant communities (Ecological Sites) within the surveyed area. In addition, map, or describe, areas of suitable habitat for the 14 Sensitive species.

Plant communities dominated by invasive plants within the project area also must be graphically delineated. Further, plant communities dominated by native species, with consistent inclusions of invasive species must be described, including the extent and location delineated on site maps.

d) Watch species have the potential to occur on the LMNG. These species are not currently documented and/or have not been substantiated on either district. Survey botanists should familiarize themselves with characteristics of the twenty-four watch species, and document any occurrences in the same manner as sensitive plant species. Effects analyses on watch plant species habitat are not required within the BE. However, when populations of watch plants are discovered, complete an effects analysis for any found within the surveyed area.

   If a watch plant species is discovered within the area that would be adversely affected by the project, the surveyor will contact the FS **within seven days**. If the occurrence is not reported within seven days, it may result in delaying concurrence of the survey and BE until the next year's survey season. Please do not collect these species without DPG approval.

e) Contractor must complete a *Sensitive/Watch Plant Population Survey Form* whenever a sensitive or watch plant species is discovered. Copies of the completed form must be submitted to the FS Botanist within **seven days**. Topographic maps or aerial photographs delineating the plant population should be included. Photographs, and any additional notes on the occurrence, must be included. See the Survey GIS and GPS Protocols section below for more details regarding ArcMap GIS shape files. See Table 2 in Appendix B for a list of codes for completing the Sensitive/Watch Plant Population Survey Form.

Wildlife Surveys

Consult the USFWS Information for Planning and Consultation (IPaC) tool for listed species, migratory birds, and wetlands within the National Wetlands Inventory within the project/analysis area. This tool is available online at https://ecos.fws.gov/ipac.

Gaining access to the North Dakota Game and Fish GIS hub will provide a key piece of information to bighorn sheep lambing concerns. The layer of interest, in particular, is the one where an approximate line of sight zone is drawn around bighorn sheep lambing areas. Of note: the zone around Mikes Creek Area does not currently have any bighorn sheep within the polygon. The area is a future desired reintroduction site for the agency. Contact NDGF in Bismarck for access to the site.

Also, available as a guide to species occurrences, golden eagle nest sites, grouse leks, and known or historical locations for other raptors (e.g. prairie falcons and ferruginous hawks), are GIS layers that can be obtained from the DPG Supervisor's Office in Bismarck or contact Meghan Dinkins (see the Contacts list on page 1).

Wildlife Surveyor Contractor Qualifications

Surveys should be conducted by qualified individuals with a combination of education, training, and/or experience in conducting surveys of wildlife and habitats. More specialized experience is needed for Northern Long-Eared Bat and Dakota skipper surveyors; please see Dakota skipper (*Hesperia dacotae*) and Northern Long-eared Bat (*Myotis septentrionalis*) sections for more information.

General Survey Guidelines

Surveys should evaluate habitat potential for Forest Service designated sensitive species, raptor species (see Raptors section below), threatened/endangered species, and migratory birds. The scale of potential project impacts, as well as the ecology of various wildlife species must be considered when determining buffer distances for wildlife surveys. Assessments of species occurrence should also consider survey timing in relation to migratory species as well as survey effort in relation to occurrence of more cryptic wildlife species. The DPG provides and encourages use of a wildlife survey form (in printable Excel format).

Observations of Forest Service designated sensitive species, raptor species (including GPS locations of any active or unoccupied nests), threatened/endangered species, and migratory birds must be recorded and submitted in a survey report to the DPG by December 15th of the survey year. Further, the DPG has developed a list of wildlife watch species that are of interest on the LMNG (see Appendix C, Table 4). Please include any observations of wildlife watch species as well as dates and GPS locations in survey reports.

Threatened & Endangered Species

Consult the USFWS Information for Planning and Consultation (IPaC) tool for listed species within the project/analysis area. This tool is available online at https://ecos.fws.gov/ipac.

Under section 7(a)(2) of the ESA, federal agencies or their designated non-federal representatives must consult with FWS on any action that may affect any species listed as threatened or endangered or its critical habitat. For more information on ESA consultation, please see: https://www.fws.gov/midwest/endangered/section7/pdf/BAGuidance.pdf.

Part of consulting with the USFWS is writing a Biological Assessment. General information about writing a Biological Assessment may be seen at: https://www.fws.gov/midwest/endangered/section7/pdf/BAGuidance.pdf.

For permit and authorization requirements related to listed species, see: http://www.fws.gov/Midwest/endangered/permits/index.html

Dakota Skipper (*Hesperia dacotae*)

General Information

Dakota skipper was listed under the Endangered Species Act (ESA) as "Threatened" in October, 2014. As of March, 2018, McKenzie County is the only county on the Little Missouri National Grassland with Dakota skipper sightings. Counties that are associated with Dakota skipper can be found at: https://www.fws.gov/midwest/endangered/insects/dask/pdf/CntyOccurrencesDASKNov2017.pdf

Additionally, Dakota Skipper Critical Habitat occurs on the McKenzie Ranger District. For information about Dakota skipper critical habitat, please see:

https://www.federalregister.gov/articles/2015/10/01/2015-24184/endangered-and-threatened-wildlife-and-plants-designation-of-critical-habitat-for-the-dakota-skipper. and https://www.fws.gov/midwest/endangered/insects/dask/faqfinalchsept2015.html.

When working in areas associated with critical habitat, it is very important to determine whether your project will have an influence on the Primary Constituent Elements of the Dakota Skipper Critical Habitat; these can be found on pages 59275-59276 of the first link above.

Please refer to the following for information on Consultation requirements for Dakota skipper: https://www.fws.gov/midwest/endangered/insects/dask/pdf/DakotaSkipperS7GuidanceV1.1.pdf

Dakota Skipper Analysis

Reconnaissance of an action area before the flight season could identify whether or not the area contains Dakota skipper habitat. Reconnaissance should consist of a combination of Desktop GIS analysis verified by on-the-ground observation. An **initial desktop survey** should be conducted to assess and map the extent of the proposed project disturbance, and to assess and map the habitat potential for Dakota skipper. Depending on the results of the desktop survey, a **qualitative and/or quantitative** survey may be required. Results of subsequent vegetation surveys conducted onsite need to be submitted in report form to the DPG upon survey completion and should also be included in an appendix to subsequent biological evaluations/assessments.

The process put forth in this document for the analysis of potential project impacts to Dakota skipper involves two distinct components: habitat assessment and occurrence surveys. A procedure is presented in Appendix F to help inform the Dakota skipper analysis process. The purpose of this procedure is to gather sufficient information to determine potential impacts and to better predict skipper occurrence prior to USFWS consultation and to prepare for Dakota skipper presence/absence surveys, if suitable habitat is found. The intent is to increase confidence in determinations and to provide better evidence/support for USFWS consultations. The action unit needs to give enough information to determine whether or not the habitat could contain Dakota skipper. Furthermore, if suitable habitat exists, Dakota skipper occurrence surveys must be done to determine presence or absence. This data will also aid in siting decisions to avoid or minimize risk. Project areas must be preview well before the flight period to delineate Dakota skipper survey areas.

For both Dakota skipper habitat assessments and Dakota skipper occurrence surveys, the surveyors must obtain an accurate map of the site with proposed areas of disturbance from the permit applicant, and the field site must be accurately marked or flagged prior to the survey. All potential Dakota skipper habitat likely to be disturbed by the proposed project must be systematically surveyed and results must be presented, including GIS polygons of surveyed areas, to indicate the quality of the habitat. General descriptions such as “area does not contain Dakota skipper or habitat” without reasoning could postpone a project and slow consultation with the USFWS.

Dakota Skipper Habitat Assessment

Dakota skipper habitat often occurs in a patchy arrangement in native grassland communities due to underlying site characteristics, prior or current land uses and other factors. The species is not likely to be present in cropped areas, previously cropped areas, non-native haylands, pastures or grasslands 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 species. See Appendix E. for a description of Dakota skipper habitat, key habitat characteristics, and lists of requisite plant species.

All potential Dakota skipper habitat patches need to be identified within 1 km (0.62 mile) buffer around (or from centerline of linear features) the impacted area. Notes about the landscape beyond the 1 km buffer should also be presented (rangeland, row crop agriculture, badlands, water, disturbed areas, shelterbelts, if suitable habitat is beyond the 1 km boundary, etc.); this general landscape context can be obtained from general GIS data and line of sight observations. Analyzing surrounding areas ensures that the direct and indirect effects of project activities can be thoroughly assessed. If survey permissions cannot be obtained for neighboring areas, the use of general GIS data and line of sight observations for potential prairie habitat and unsuitable habitat will have to be done.

When assessing potential Dakota skipper habitat, it is also important to look at the landscape context and how the native prairie habitats may be connected by "dispersal habitat" that the skippers may fly over to get to higher quality native prairie patches. According to the Federal Register, dispersal habitat consists of "undeveloped open areas dominated by perennial grassland with limited or no barriers to dispersal including tree or shrub cover less than 25 percent of the area and no row crops such as corn, beans, potatoes, or sunflowers."

Habitat Assessment Contractor Qualifications

Refer to Contractor Qualifications for botany surveys.

Desktop Analysis

Previous Dakota skipper Habitat and Occurrence Surveys: It is recommended that the North Dakota Field Office of the USFWS (NDFO, 701-250-4402) and DPG (see Forest Service Contacts) be contacted for further assistance. The USFWS and USFS will give the most current information available concerning whether there is data available from previous surveys that may have occurred within or near the action area and may help identify if additional Dakota skipper surveys are necessary. Please give plenty of turn-around time for contacting the USFS and the USFWS regarding Dakota skipper surveys. USFS will likely have information regarding surveys on USFS lands, USFWS may have survey information for neighboring areas that may be applicable.

Dakota skipper GIS Tools: DPG has a GIS tool to help identify Dakota skipper habitat. This GIS tool is just a general screen that should be used in addition to ground truthing, to get a general idea of what areas may be more likely to contain Dakota skipper habitat; the GIS tool is available upon request from DPG. There are also other GIS tools available that a contractor may use that may be more recent or detailed, with proper reasoning and explanation, these models may be used. GIS tools are a desktop screening tool, each area will also be field-verified with different levels of survey requirements (qualitative, quantitative), depending upon habitat suitability as determined in the field. In areas where desktop and/or field verification suggest that possible habitat is present, field survey requirements will be more comprehensive (quantitative).

Broken Lands Layer, Aerial Imagery, Tree/Shrub Layers: Dakota skipper not likely to be present in broken lands (i.e. cropped areas, previously cropped areas, previously dug up areas), or in areas where trees or shrubs predominate (greater than 50% total plant cover). There is a broken lands GIS layer for DPG, however, they should ground truthed.

Ecological Site: See Glossary of Terms section**.** Some information about soils can be extrapolated from the Ecological Site Descriptions. Past Dakota skipper observations appear to be correlated with areas that are characterized by loamy and sandy soils. Ecological site mapping or information may not be fine scale enough or mapped properly to give a definitive answer about habitat characteristics.

Dakota Skipper Habitat Field Survey

Qualitative Survey

- Note: A quantitative survey may be conducted in lieu of a qualitative survey. Qualitative surveys are intended to be ocular estimates that verify results from the desktop screening approach or, alternatively, reveal the need for follow-up quantitative surveys. They also provide basic ecological information about the area. Data to be collected during the qualitative surveys include the following: Requisite plant species are noted in Appendix E, Table 7. At a minimum, one requisite grass species and one requisite forb species need to be present to meet Dakota skipper habitat requirements.
- Ocular estimates of percent plant cover (see Glossary of Terms section) and percent cover of each requisite plant species (Appendix E).
- Use Landscape Appearance Protocol in to estimate general cattle forage utilization. Forms and instructions for this protocol (ND-CPA-415) can be found at: https://efotg.sc.egov.usda.gov/references/public/ND/forms.pdf
- General description of topography
- Photographic documentation of the project area (landscape setting, dominant vegetation components)
- General observations about non-native invasive plants (percentage of invasive plant cover), site condition, and other disturbances seen in the survey area.

Quantitative Survey

The purpose of a quantitative survey is to evaluate habitat quality in relation to Dakota skipper life history characteristics and vegetation requirements. A quantitative survey must be conducted if potential Dakota skipper habitat is present within the analysis area.

- Timing: Recommended May 15th through July 19th (ideally in late June based on forb abundance)
- Area to be characterized
    - Project Area: directly disturbed and adjacent habitats (1 kilometer [0.62 mile] buffer)
    - Survey locations should be placed to characterize the whole project area
- Survey Method: Point intercept
    - Sampling should focus on dominant/representative ecological sites within the project area
    - Minimum of one randomly located 75 meter transect per 5 acres of each ecological site sampled.
    - Measurements taken at 1 meter increments
    - More transects may be needed as appropriate to best represent vegetation heterogeneity

- Use Landscape Appearance Protocol to estimate general cattle forage utilization. This work may done in tandem with the point intercept survey. Forms and instructions for this protocol (ND-CPA-415) can be found at: https://efotg.sc.egov.usda.gov/references/public/ND/forms.pdf
- Record
    - General description of topography
    - General observations about non-native plants, site condition, and other disturbances seen in the survey area.
    - Photographic documentation of the project area and of each transect.
    - The vegetation cover of the project area should also be documented with high quality digital photos.
    - GPS transect locations
- Data analysis and presentation
    - Percent cover by native grass species, native forb species, woody plants, invasive species, and Type B Habitat requisite species; percent cover of each species
    - Requisite plant species are noted in Appendix E, Table 7. At a minimum, one requisite grass species and one requisite forb species need to be present to meet Dakota skipper habitat requirements.
    - Dominance: mean cover of Type B Habitat requisite species vs other species
        - Requisite dominance occurs under the following conditions:
            - Mean cover by a single Type B Habitat requisite species exceeds 50%
            - >50% of the dominant species are Type B Habitat requisite species
        - Use the 50/20 rule to identify dominant species
            - Rank species from most to least abundant
            - Select species from the ranked list until cumulative cover >50%
            - Select species with cover >20%
            - Count dominant Type B Habitat requisite species, dominant other species
            - If dominant requisite species exceeds 50%, then the dominance by Type B Habitat requisite species has been achieved, and if the habitat contains one of the requisite grass species and one of the requisite forb species (Appendix E, Table 7), the site contains potential Dakota skipper habitat.
    - Cattle Utilization Results from Landscape Appearance method.

- Provide maps depicting the location and extent of Dakota skipper habitat and non-habitat. Provide the GIS data that could be used to identify the location and extent of Dakota skipper habitat.

Dakota Skipper Occurrence Surveys

If features of Dakota skipper habitat are present in at least part of the action area, and the habitat with Dakota skipper features cannot be avoided by 1 km (0.62 miles), a presence/absence survey must be conducted (see Contractor Qualifications section below).

Surveys should be conducted during the flight period and limited to habitat patches that contain features or conditions typical of Dakota skipper habitat. To ensure that the results are robust to support reliable conclusions with regard to the Dakota skipper's presence at a site, we recommend coordinating with the North Dakota Field Office of the USFWS and USFS.

Contractor Qualifications

The reliability of a proper Dakota skipper survey depends on the abilities and expertise of the observer. The species is not readily identified in the field without very specialized training and experience; the species is very hard to tell apart from some other skipper species in western North Dakota. In order to determine whether or not Dakota skipper, therefore, are present in an area, the assistance of individuals who have 10 (a)(1) (A) permits to carry out scientifically credible surveys must be secured. Advanced planning is required to obtain the services of a permitted Dakota skipper surveyor. Without a survey by a 10(a) (1) (A) Dakota skipper permitted individual, the USFWS will not be able to support a presumption of Dakota skipper absence.

A list of persons who have obtained Dakota skipper 10(a)(1)(A) permits and who have agreed to allow the Service to release their contact information may be obtained from the USFWS; if a contractor cannot get ahold of the USFWS, please contact USFS (see Important Contacts section). As of March 2018, about 6 people have a Dakota skipper 10(a)(1)(A) permit. If the services of a Dakota skipper qualified surveyor cannot be obtained after contacting surveyors, please contact Meghan Dinkins.

It is important to keep clear lines of communication between the permitted butterfly surveyor, the DPG, and USFWS about the most recent Dakota skipper survey protocols. A 2017 draft Dakota skipper protocol is currently available (see Appendix G). If there are questions regarding Dakota skipper protocol, contact Meghan Dinkins. Contractors must ensure they are using the most recent USFWS Dakota skipper protocol.

Frequently the USFS gets phone calls if contractors can have one of their experienced entomologists get their own 10(a)(1)(A) permit. Obtaining a permit is a difficult process that takes multiple years of training and going through a slow paperwork process. Applying for a permit is not a guarantee that the person will get a permit or get the permit in a timely manner. Permitted individuals must have a demonstrated ability to complete surveys for Dakota skippers or similar species and prepare technical reports based on those surveys; and, previous experience surveying for and identifying Dakota skippers and other butterflies with similar appearance. Since Dakota skipper are so uncommon and there are so few permitted surveyors, it is difficult to gain experience with the species. If a person does not have Dakota skipper experience, USFWS might make exceptions for persons with prior experience with similar species and/or extensive experience with other rare butterfly species.

Occurrence Survey Methods

Guidelines for Dakota skipper survey protocol on based on current best judgement of DPG personnel, however, what is presented here should not supersede if an updated USFWS Dakota skipper survey protocol becomes available.

The survey timing relative to the Dakota skipper flight period is very important for the survey's reliability. Dakota skipper surveys must be conducted between June 12th and July 19th, however this is not the only consideration for timing of Dakota skipper surveys; the appropriate weather conditions, phenological indicators and the patterns for Dakota skipper emergence and die-off in the region must be considered. To ensure that surveys are conducted during the species' flight period, noting phenological indicators is important predicting the proper times to survey and to note in survey reports to indicate that the surveys are being conducted at appropriate times. Dakota skipper surveys should not be conducted concurrently with any other focused survey, such as plant surveys, bird surveys, etc. It is appropriate, however, to note phenological indicators observed during the Dakota skipper survey.

In survey areas where Dakota skipper has never been recorded, surveys should be continued at least until Dakota skipper is identified or the area has been surveyed enough according to USFWS to have the skipper be considered absent. Historically, this has been at least three surveys during the flight period with some number of days between each survey go-over. Please use the most current USFWS guidelines for the appropriate amount of time between survey days (See Appendix G).

Survey routes, the rate of survey, appropriate time of day for survey, and weather conditions appropriate for survey should be determined by the most recent Dakota skipper survey protocol. The landscape context beyond the 1 km buffer should also be considered (rangeland, row crop agriculture, badlands, water, disturbed areas, shelterbelts, if suitable habitat is beyond the 1 km boundary, etc.); this general landscape context can be obtained from general GIS data and line of sight observations.

Identification of Dakota skippers must be assured by netting and release, close-up (perched) examination, or photo-documentation. When taking photos, to the extent feasible, take ample photos from both the dorsal and ventral perspective.

Survey Reporting

If a Dakota skipper is observed, the McKenzie District Wildlife Technician (Sarah Wold); McKenzie District Botanist, (Laurie Gawin); and the DPG biology program manager (Meghan Dinkins) must be contacted within one day of the observation through phone message or simple e-mail with location information (see Important Contacts section).

Submit reports in electronic format (Microsoft Word and/or searchable .pdf, electronic format via email/flash drive) and include a summary of the survey in the appendices of any Biological Assessment.

Data to Collect and report

- An introduction summarizing the purpose of this project
- A description of the survey areas, methods, and techniques used
- Summary of the season's survey findings
- For every site, the following information must be included:
    - Record the route surveyed (GPS track log, provide GPS track log to USFS), number of surveyors (non-permitted surveyors should be within distance of permitted surveyors),

weather conditions (temperature, cloud cover, and wind speed), and observations about habitat conditions, threats, or management (try to keep this quantitative). Weather data should be recorded at beginning and end of survey, and at times Dakota skipper is observed.

- Record and list the location (GPS coordinates and projection) and date/time of any Dakota skipper observed.
- Record the numbers of other butterfly/skipper/skipperling species observed in each survey area; information is useful in evaluating survey results. Keep in mind there are other USFS sensitive lepidopterans other than Dakota skipper.
- To the extent feasible, record the sex and condition of each Dakota skipper observed.
- Handling affects the behavior of some butterflies after their release so information with respect to the post-release behavior of any Dakota skippers that are captured and released. The behavior of each captured and released butterfly will be noted and reported as follows:
    - Flew to and perched on herbaceous vegetation, low shrubs, or to out-of-sight location in herbaceous vegetation (e.g., into plant litter or duff layer or into bases of grasses);
    - Flew into tall shrubs or trees and out-of-sight;
    - Flew away – did not see butterfly perch or fly into vegetation; or,
    - Post-release behavior unknown.

- An appendix containing a copy of field notes
- Also in the appendix, current 10(a)(l)(A) permit of surveyors (please exclude detailed personal information from resumes and permits for security purposes)
- Photographs of habitat during surveys as well as photographs of Dakota skippers and other sensitive species encountered. Photograph files must be sent to the USFS at the highest resolution.
- Provide maps depicting the location and extent of Dakota skipper habitat at the survey site.
- Provide the electronic GIS data that could be used to identify the location and extent of the Dakota Skipper survey area, and survey routes. Include coordinate system, projection and datum with all GIS data. To facilitate annual updating of the Forest Service listed lepidopteran GIS shapefiles and Dakota skipper data points, please ensure that Dakota skipper requisite flora area and skipper siting data are described in the report in a format that can be easily matched to its location (unique IDs) on associated maps and shapefiles.

Northern Long-eared Bat (*Myotis septentrionalis*)

General Information

The Northern long-eared bat (NLEB) is federally listed as a threatened species under the Endangered Species Act as of April 2, 2015, due to population decline from white-nose syndrome (WNS). More information can be found at: http://www.fws.gov/midwest/endangered/mammals/nleb/.

The U.S. Fish and Wildlife Service has published a final 4(d) rule for areas within, and outside of, the known WNS range. As of February 2018, the Little Missouri National Grassland is outside of the WNS areas and have not had known occurrences of WNS. White-nose syndrome has been known, however, to spread quickly across vast geographic distances (900 km/year), and Minnesota, Manitoba, eastern ND, and South Dakota are in the WNS range. Further, the badlands region of North Dakota which includes the DPG offers the only known *natural* bat (any species) hibernacula in the state. Therefore, the LMNG is at risk for WNS invasion. Please refer to the above website when planning projects.

Currently, there are no known hibernacula on the DPG for NLEB. However, due to the inaccessibility and obscurity of potential hibernacula in the badlands, hibernacula are not easily identifiable. The NLEB are not known to migrate long-distances, typically less than 100 miles. Therefore, occurrences of NLEB in summer months suggest the possibility of hibernacula on the DPG.

There are no *recorded* maternity roosts on the LMNG. However, occurrence records, including captures of three post-lactating females on the LMNG, indicates that maternity colonies are present during the summer months. For more information on the locations of this capture data, or if you are interested in doing capture or acoustical bat surveys, please contact J.J. Nelson, Sarah Wold, Arden Warm, or Meghan Dinkins. See contacts list on page 1.

If any activities that potentially impact NLEB or NLEB habitat (tree cutting, bridge work, and large culvert work, etc.) are scheduled between April 1st and October 31st, please contact DPG wildlife biologists to determine if the activity might impact NLEB. Any tree cutting must have DPG approval, regardless of time of year. In the absence of data for bats, in areas with suitable habitat characteristics, communication with the USFWS may be necessary.

If there is reason to suspect there could be NLEBs in the area and an activity may have possible impacts to them, a letter describing the situation must be submitted to the USFWS; the USFWS must be given 30 days to reply to the letter. If USFWS does not reply within the 30-day timeframe, a decision document can be signed by USFS in terms of NLEB. Please refer to the NLEB 4d rule for more information: http://www.fws.gov/Midwest/endangered/mammals/nleb/pdf/FRnlebFinal4dRule14Jan2016.pdf.

If a USFWS consultation is being done in the area for another species (such as, Dakota skipper) the bat analysis will be done in a separate section of the consultation from other species.

Contractor Qualifications

Habitat Assessments

Habitat assessments should be done by individuals with a natural resources or related degree. Additional work experience or training, especially related to bat ecology and survey methodology, is preferred.

Acoustic Surveys

Acoustic surveys must be carried out by an individual(s) with sufficient experience conducting such acoustic surveys. Specialized experience is required for interpreting results from automated classifiers of species identification, or manual identification of species identification from echolocation calls.

Mist Net Surveys

Any survey that includes the physical capture of bats (i.e. mist netting) must be carried out by a qualified biologist. A qualified biologist is an individual that has obtained a USFWS Recovery Permit (Federal Fish and Wildlife Permit) for NLEB relevant to the state/region in which the survey is to be conducted and has been authorized by the appropriate state agency to net and handle NLEB. Several USFWS offices maintain lists of qualified bat surveyors, and if working in one of those states with authorizations in lieu of a Recovery Permits, the individual will either need to be on that list or submit qualifications to receive USFWS approval prior to conducting any field work.

A qualified biologist(s) must (1) select/approve mist-net set-ups in areas that are most suitable for capturing Northern long-eared bats, (2) be physically present at each mist-net site throughout the survey period, and (3) confirm all bat species identifications. This biologist may oversee other biological technicians and manage mist-net set-ups in close proximity to one another as long as the net-check timing (i.e., every 10 minutes) can be maintained while walking between nets.

Survey Methods

For general survey methods and guidelines, the recommends following the Range-wide Indian Bat Summer Survey Guidelines for conducting NLEB surveys: https://www.fws.gov/Midwest/endangered/mammals/inba/surveys/pdf/2017INBASummerSurveyGuidelines9May2017.pdf

To minimize potential for disease transmission, any equipment that comes in contact with bats should be kept clean and disinfected, following approved protocols; this is particularly a concern relative to white-nose syndrome (WNS). Disinfection of equipment to avoid disease transmission (e.g., WNS) is required; protocols are posted at http://www.whitenosesyndrome.org/. Federal and state permits may also have specific equipment restrictions and disinfection requirements.

If unusual bat (all species) morbidity or mortality is encountered during surveys, notify FS wildlife biologists as soon as possible. Please review and follow the USGS National Wildlife Health Center Bat White-Nose Syndrome (WNS)/*Pd* Surveillance Submission Guidelines for submission of carcasses to aid in national WNS surveillance efforts: https://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/NWHC%20Winter%202017-2018%20Bat%20submission%20Guidelines.pdf

Survey Reporting

A report must be submitted to the DPG upon survey completion for all acoustic or mist net surveys conducted on FS land no later than December 15th of the survey year. If NLEB are physically observed during surveys, please notify FS wildlife biologists (email/phone call) during the next working day. For physical captures under USFWS permits, refer to permit requirements for reporting NLEB occurrences.

Submit reports in electronic format (Microsoft Word and/or searchable .pdf, electronic format via email/flash drive) and include a summary of the survey in the appendices of any biological evaluations. Include the following in survey reports:

1) An introduction summarizing the purpose of this project

2) A description of the survey areas, methods, and techniques used

3) Survey dates

4) Site locations (latitude and longitude; GPS/GIS files)

5) Summary of the survey findings including numbers of bats captured or acoustically documented (all species)

6) An appendix containing a copy of field notes

7) For mist net surveys: in the appendix, the current USFWS permit of surveyors (please exclude detailed personal information from resumes and permits for security purposes) or other documentation of USFWS approval.

8) For every site, the following information must be included:

   a) Date(s) of survey

   b) Weather Conditions during survey

   c) Photographs of habitat during surveys as well as photographs of any bats species captured. An effort should be made to document distinguishing characteristics used for species identification in photographs. Photograph files must be sent to the USFS at the highest resolution.

Forest Service Sensitive Species

See Appendix C, Table 3 for a list of Forest Service designated species that occur on the LMNG.

Raptors

General Information

Raptors are protected under the Migratory Bird Treaty Act (16 U.S.C. 702-712) and are often sensitive to human disturbance. Presence of nests or species occurrences for any raptor species encountered during surveys should be reported and impacts to nesting sites from project activities must be addressed. Bald and Golden eagles are also given further protections under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). Therefore, nests and winter roosts for select raptor species are afforded special protections (not comprehensive) in the DPG Land and Resource Management Plan (LRMP; link below). See Appendix D (Table 5) for a comprehensive list of raptor species that occur on the LMNG, as well as associated minimum distances and timing limitations (species specific) for activities that may result in disturbances to select raptors (Table 6). To assess potential impacts to raptors for biological evaluations, it is only required to determine if known nests or potential nesting habitat occurs within a minimum distance of the project area. If a historic nest is located within the minimum distance or an undocumented nest is discovered during an initial survey, subsequent nest surveys may be required to determine the status of the nest if project activities are expected to occur during the nesting season and during the same year project activities are to be conducted. The responsible party for conducting nest surveys will be determined on an individual case basis in coordination with the DPG. Either ground-based or aerial surveys may be used. Ground-based surveys are conducted at ground level by traversing through an area to observe potential nesting habitat or by visiting pre-identified points to assess the presence of raptors or nesting sites through direct observation. Contact DPG biologists for any questions regarding impacts/mitigation for raptor species not specifically addressed in the LRMP.

Land and Resource Management Plan for the Dakota Prairie Grasslands:

https://www.fs.usda.gov/detailfull/dpg/landmanagement/?cid=stelprdb5340280&width=full

Survey Methods

Note: The following survey protocol is specific to cliff, tree, or high structure nesting raptor species. For ferruginous hawk (which may nest at ground level) and burrowing owl surveys, apply the same general methodology.

CAUTION: Several raptor species are sensitive to human disturbance. Care must be taken to not disturb nesting raptors to prevent site abandonment and nest failure. Disturbance of Bald or Golden Eagles that results in nest failure or site abandonment constitutes take and is prohibited under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Ground Surveys

Inventory potential habitat by slowly walking and observing all potential nesting substrate. Establish observation posts during initial surveys of potential or known nest sites. Observation posts should provide unobstructed view of the nest or area being surveyed and be sufficiently far enough from away to effectively observe adult raptor (if present) behavior without causing disturbance. Observation posts should preferably be in front of, and below the nest site when allowed by terrain to reduce stress and disturbance risk if an incubating adult may be present. The distance of an observation post to the nest site should range from 300-700 meters (~0.2-0.4 miles) and be no more than 1600 meters away (~1 mile).

Dates for conducting surveys should be sensitive to local nesting chronologies for the raptor species being surveyed. Surveys should also be conducted during weather conditions that are favorable for observation from long distances. Periods of heavy rain, snow, high winds, or severe cold weather should be avoided. At least two observation periods lasting at least four hours and 30 days apart are required to designate a nest as unoccupied. Observers should focus on known historic nests while also searching for undocumented or new nest sites.

Observation periods should be a minimum of 4 hours, or until presence is confirmed, or adult behavior indicates presence of eggs or young, or observation indicates the observer may be causing a disturbance. Observation periods may be longer as needed to determine nesting chronologies. Ideally, observation periods should begin during morning hours around dawn or shortly after. However, observers should be conscious of the angle of the sun in relation to observation posts and the nest site. Some nest sites may be better observed later in the day. Local observation conditions should be considered prior to establishing observation periods.

The following data should be recorded for each site visit:

- Date
- Location (latitude, longitude) of nest site and nest ID (if designated in USFS GIS data)
- Location of observation post and distance from nest site
- Description of nest
- Weather conditions
- Time and duration of survey

- Time of specific observations
- Species observed and notes on behavior
- Approximate nest chronology (if determined)
- Photographs of nest site and birds (if feasible)

If a nest is determined to be active, please notify DPG district biologists within 7 days. All survey data should be included in a survey report and submitted to the DPG upon by December 15th of the survey year. Survey data should also subsequently be included in an appendix in the project biological evaluation.

Aerial Surveys

Refer to the USFWS Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations for aerial survey guidelines: https://www.fws.gov/southwest/es/oklahoma/documents/te_species/wind%20power/usfws_interim_goea_monitoring_protocol_10march2010.pdf

Migratory Birds

Executive Order (E.O.) 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds" (January 10, 2001) pertains to promoting the conservation of migratory bird populations. A Memorandum of Understanding to carry out the mandate of the E.O. was signed by the U.S. Forest Service and the U.S. Fish and Wildlife Service on December 8, 2008. To carry out this mandate, the U.S. Fish and Wildlife Service published "Birds of Conservation Concern 2008," which recommends that its lists be consulted in accordance with E.O. 13186.

Birds of Conservation Concern 2008:

https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf

Survey GIS and GPS Protocols

GIS Shapefiles and GPS Files for All Surveys

1) Data from biological surveys done on USFS lands must be shared with the USFS. Contractors must submit spatial data (GIS shapefiles/feature layers; GPS point data) for **all** areas surveyed during the field season by December 15 of that year, **even for alternatives/projects not brought forward.**

2) Shapefiles/feature layers and any GPS point data need to be submitted (in NAD83 datum) **with the biological evaluation** for the biological evaluation to be accepted.

3) Ensure files names easily reference back to the project surveyed

4) Submit files via email or flash drive with the biological evaluation.

Sensitive Plants

Where more than one or a few plants occur within a population, please use a polygon to GPS the extent of the population, noting the estimated number of individuals within the area. As field GPS units are not adequate to consistently relocate or differentiate a specific plant from an adjacent plant located 10 or even

30 ft. away, note that it is not necessary to GPS each sensitive plant in a small area and record the lat/long for each. If LMNG staff monitor any of the populations, we will use polygons with estimates of population size. Individual plants or new polygons should be delineated only when they are appreciably distant from other plants or subpopulations. Professional judgment is key here. Examples on the ground that merit separate spatial data include: excessive distance, crossing prominent landforms, or changes in aspect, slope, or topographic position.

To facilitate annual updating of FS sensitive plant GIS shapefiles, please ensure that each sensitive plant population described on a sensitive plant form can be easily matched to its location on associated maps and shapefiles. Use the “Local ID” field on the sensitive plant form to provide a unique ID for each population in the survey (for example, TOHO A, TOHO B, etc.), and use the same ID on maps and shapefiles.

Wildlife

All ESA listed, Forest Service Sensitive, Raptors, and Wildlife Watch Species seen during the survey need to be recorded using GPS. Any species, other than sensitive, threatened and endangered species, can be off set points just to show what was in area of the time of the survey. Any sensitive, threatened and endangered species seen during the survey need to have exact locations marked to show what habitat areas they were seen in. This is to facilitate updating of the Forest Service wildlife GIS shapefiles. Please ensure that every survey can be easily matched to its associated maps and shapefiles.

Glossary of Terms

Project Area: The area associated with a project wherein direct changes to the environment will result from the action.

Analysis Area: One or more capability areas combined for the purpose of analysis in formulating alternatives and establishing various impacts and effects. This area is often larger than the project area.

Biological Evaluation: A documented Forest Service review of Forest Service programs or activities in sufficient detail to determine how an action or proposed action may affect any threatened, endangered, proposed, or sensitive species.

Biological Assessment: Information prepared by or under the direction of the Federal agency concerning listed and proposed species and designated or proposed critical habitat that may be present in the action area and the evaluation of potential effects of the action on such species and habitat (50 CFR 402.02). A biological assessment is prepared for "major construction activities" considered to be Federal actions.

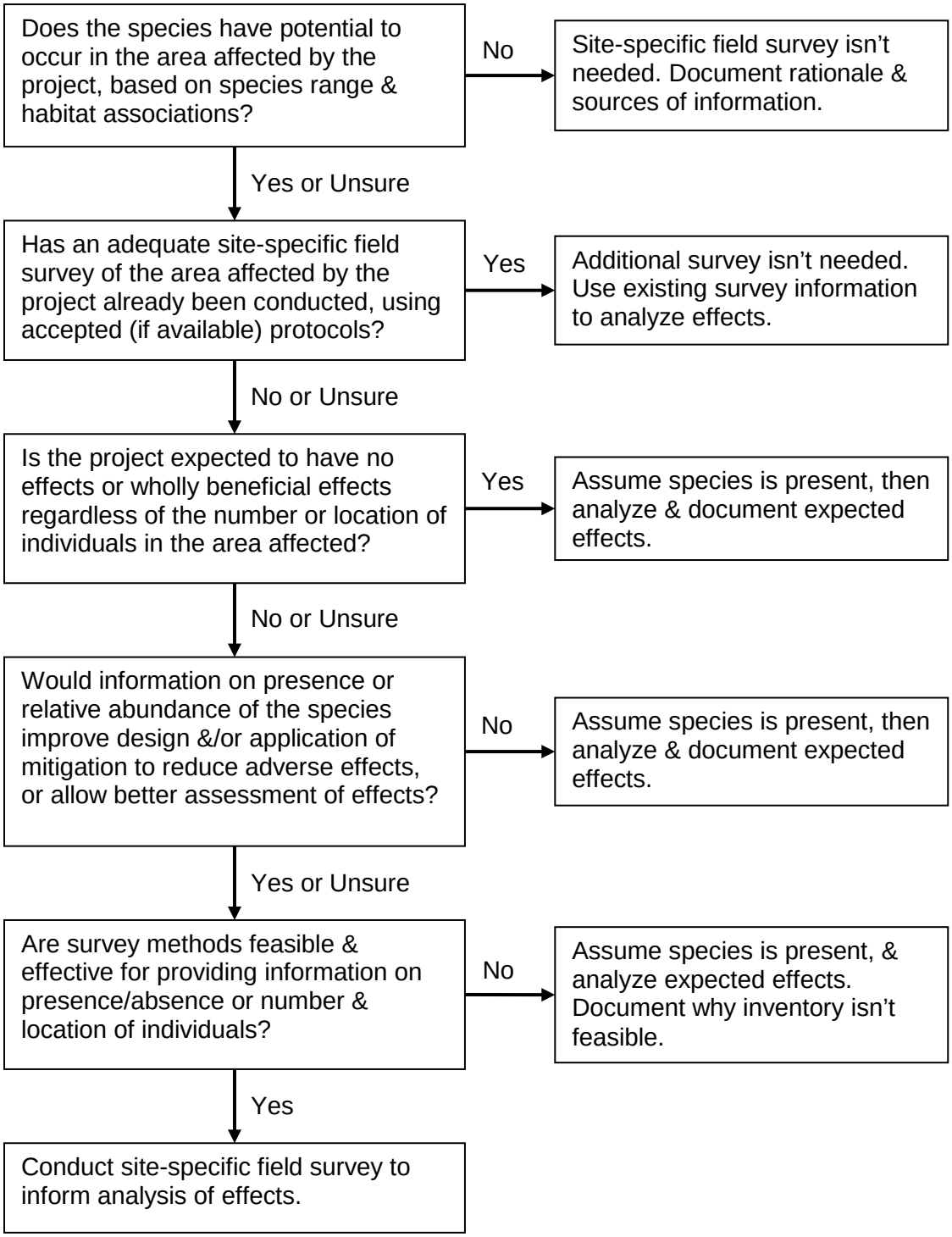
Ecological Site: A distinctive kind of land with specific soil and physical characteristics that differ from other kinds of land in its ability to produce a distinctive kind and amount of vegetation and its ability to respond similarly to management actions and natural disturbances.

Foliar Cover: The percentage of ground covered by the vertical projection of the aerial portion of plants. Small openings in the canopy and intraspecific overlap are excluded. Foliar cover is always less than canopy cover.

Landscape Appearance Method: Used to assess utilization by cattle. This method involves taking an ocular estimate of forage utilization which is based on the general appearance of the rangeland. Utilization levels are then determined by comparing observations with written descriptions of utilization classes.

Ocular Cover: A visual estimate of a plant species' percent cover in an area.

Appendix A. Procedure to Determine When Project-Level Field Survey for Endangered, Threatened, Proposed, or Sensitive Species is Necessary



Appendix B. Sensitive Plant Species List and Survey Codes

Table 1.Sensitive Plant Species and Habitat Information of the Little Missouri National Grassland

NRCS Code	Scientific Name	Common Name	Ranking	Documented Habitat on the LMNG
CHSU2	*Chenopodium subglabrum*	Smooth goosefoot	G2G4/S1	Sandbars, terraces, & dune complexes along rivers & creeks. Exposed sandy substrates in uplands, blowouts, outcrops, colluvium, etc.
COPA3	*Collinsia parviflora*	Blue lips	G5/S2	Woody understories, including green ash/elm draws, Rocky Mountain juniper, mesic shrub communities, & occasional xeric shrub communities.
CRTO4	*Cryptantha torreyana*	Torrey's cryptantha	G5/S1	Two population sites discovered during 2013 were located along scoria ridgelines, Also reported from dry plains, rock outcrops, escarpments, pine slopes.
ERCE2	*Eriogonum cernuum*	Nodding buckwheat	G5/S1	Exposed sand substrates w/ low plant cover in grasslands, hillsides, sandstone outcrops.
ERVI14	*Eriogonum visheri*	Dakota buckwheat	G3/S2S3	Relatively exposed clay/silt substrates with low plant cover such as outwash zones around eroding buttes, saddles, steep convex slopes, erosional breaks on prairie slopes. Occasional populations among dense saltgrass communities.
ESMI3	*Escobaria missouriensis*	Missouri foxtail cactus	G5/SNR	Prairie slopes & plains, stony to loamy to clayey short-grass to mixed-grass prairies. Also reported in woodlands of ponderosa pine or *Quercus* spp.
LEMO4	*Leucocrinum montanum*	Sand lily	G5/S2	Generally shortgrass communities w/ fine textured substrates but also found in crested wheatgrass communities. Reported from open coniferous woodlands & hillsides, sagebrush scrub, & sandy flats, but common name seems to be a misnomer.
MEPU3	*Mentzelia pumila*	Dwarf mentzelia	G4/S1	Scoria exposures & colluvium w/low plant cover. Also reported on slopes & sandy plains; occasionally on hard clays & rocky soils.
PHAL3	*Phlox alyssifolia*	Alyssum-leaved phlox	G5/S1S2	Sandy or gravelly soil on & around Bullion Butte. Also reported on clay banks & limestone ridges of open prairie.
PIFL2	*Pinus flexillis*	Limber pine	G5/S1	Semi-arid exposed rocky ridges & foothills in the Limber Pines RNA, likely of native-American origin.
POAC5	*Populus x acuminate*	Lanceleaf cottonwood	HYB/S2	Mesic woody draws, often w/springs/seeps, occasional near springs on open hillsides. Floodplains & stream banks.
SPAI	*Sporobolus airoides*	Alkali sacaton	G5/S2	Secondary succession on clay outwash where tolerant of saline conditions, also on dry to moist sandy or gravelly soil.
TOHO	*Townsendia hookeri*	Hooker's Townsendia	G5/S1	Low to moderate plant cover on dry plains, hillsides, gravelly benches & weathered scoria, but often clay matrix subsoil.
TOEX2	*Townsendia exscapa*	Easter daisy	G5/SNR	Dry plains & hillsides, often w/ loamy or increased soil development & increased plant cover relative to *T. hookeri*.

Table 2. Codes for Sensitive/Watch Plant Population Survey Form

Light Exposure Code	Name	Description
SUN	Full Sun	Full Sun characterizes the predominant light exposure condition across the EO (element occurrence).
PSH	Partial Shade	Partial Shade characterizes the predominant light exposure condition across the EO.
FSH	Full Shade	Full Shade characterizes the predominant light exposure condition across the EO.
Slope Position Code	**Name**	**Description**
BS	Backslope	The steepest portion of the slope where material is generally in transit.
FS	Footslope	The lower portion of the slope where material is generally re-deposited.
SH	Shoulder	The upper slope where material generally moves through creep processes.
SU	Summit	The uppermost slope.
TS	Toeslope	The lowermost slope position where material moves generally through alluvial processes.
Soil Moisture Code	**Name**	**Meaning**
D	Dry	No moisture observed, at the wilting point (>15 bars of tension, realizing that various perennials, shrubs, trees & other native vegetation have wilting points up to 66 bars of tension).
M	Moist	Moisture state is between the wilting point & field capacity.
W	Wet	The moisture state is at field capacity or wetter.
Soil Texture Code	**Name**	**Description**
C	Clay	A term used in the U.S. & by the International Society of Soil Science for a rock or mineral particle in the soil, having a diameter less than 0.002 mm (2 microns)
CL	Clay Loam	A soil containing 27-40% clay, 20-45% sand, & the remainder silt.
L	Loam	A rich, permeable soil composed of a friable mixture of relatively equal & moderate proportions of clay, silt, & sand particles, & usually containing organic matter
S	Sand	A term used in the U.S. for a rock or mineral particle in the soil, having a diameter in the range of 0.05-2 mm.
SI	Silt	A rock or mineral particle in the soil, having a diameter in the range of 0.002-0.05 mm.
SIL	Silt Loam	A soil containing 50-88% silt, 0-27% clay, & 0-50% sand; e.g. one with at least 50% silt & 12-27% clay, or one with 50-88% silt & less than 12% clay.
SL	Sandy Loam	A soil containing 43-85% sand, 0-50% silt, & 0-20% clay, or containing at least 52% sand & no more than 20% clay & having the percentage of silt plus twice the percentage of clay exceeding 30, or containing 43-52% sand, less than 50% silt, & less than 7% clay.
GR	Gravel	Rock fragments between 2 & 75 mm in diameter.

Appendix C. Forest Service Sensitive and Wildlife Watch Species of Interest

Table 3. Forest Service Sensitive Species for the Little Missouri National Grassland.

Birds	**Species Name**
Baird's sparrow	*Ammodramus bairdii*
Bald eagle	*Haliaeetus leucocephalus*
Burrowing owl	*Athene cunicularia*
Greater sage-grouse	*Centrocercus urophasianus*
Loggerhead shrike	*Lanius ludovicianus*
Long-billed curlew	*Numenius americanus*
Sprague's pipit	*Anthus spragueii*
Mammals	
Black-tailed prairie dog	*Cynomys ludovicianus*
Bighorn sheep	*Ovis canadensis*
Insects	
Ottoe skipper	*Hesperia ottoe*
Regal fritillary	*Speyeria idalia*
Tawny crescent	*Phyciodes batessi*
Fish	
Red-bellied dace	*Chrosomus (Phoxinus) eos*

Table 4. Wildlife watch species of interest for the Little Missouri National Grassland.

Amphibians	***Species***
Great Plains Toad	*Bufo cognatus*
Northern Leopard Frog	*Rana pipiens*
Plains Spadefoot	*Spea bombifrons*
Birds	***Species***
American Bittern	*Botaurus lentiginosus*
Black-billed Cuckoo	*Coccyzus erythropthalmus*
Brewer's Sparrow	*Spizella breweri*
Chestnut-collared Longspur	*Calcarius ornatus*
Dickcissel	*Spiza americana*
Grasshopper Sparrow	*Ammodramus savannarum*
Lark Bunting	*Calamospiza melanocorys*
McCown's Longspur	*Calcarius mccownii*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Sage Thrasher	*Oreoscoptes montanus*
Insects	***Species***
Monarch Butterfly	*Danaus plexippus*
Mammals	***Species***
Hispid Pocket Mouse	*Chaetodipus hispidus*
Merriam’s Shrew	*Sorex merriami*
Sagebrush Vole	*Lemmiscus curtatus*
Swift Fox	*Vulpes velox*
Reptiles	***Species***
Plains Hog-nosed Snake	*Heterodon nasicus*
Sagebrush Lizard	*Sceloporus graciosus*
Short-horned Lizard	*Phrynosoma hernandesi*
Smooth Green Snake	*Opheodrys vernalis*

Appendix D. Raptors and Disturbance Mitigation Criteria

Table 5. Raptor species potentially occurring on the Little Missouri National Grassland.

Common Name	Species
American Kestrel	*Falco sparverius*
Bald Eagle	*Haliaeetus leucocephalus*
Burrowing Owl	*Athene cunicularia*
Cooper's Hawk	*Accipiter cooperii*
Eastern Screech-Owl	*Megascops asio*
Ferruginous Hawk	*Buteo regalis*
Golden Eagle	*Aquila chrysaetos*
Great Horned Owl	*Bubo virginianus*
Gyrfalcon	*Falco rusticolus*
Long-eared owl	*Asio otus*
Merlin	*Falco columbarius*
Northern Goshawk	*Accipiter gentilis*
Northern Harrier	*Circus hudsonius*
Northern Saw-whet	*Aegolius acadicus*
Peregrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*
Red-tailed Hawk	*Buteo jamaicensis*
Rough-legged Hawk	*Buteo lagopus*
Short-eared Owl	*Asio flammeus*
Snowy Owl	*Bubo scandiacus*
Swainson's Hawk	*Buteo swainsoni*

Table 6. Disturbance mitigation criteria for select raptor species.

Species	Feature	Minimum Distance from Disturbance (Miles)	Timing Limitation
Bald Eagle (*Haliaeetus leucocephalus*)	Nest	1.00	2/1 to 7/31
Bald Eagle (*Haliaeetus leucocephalus*)	Winter Roost	1.00	11/15 to 3/1
Golden Eagle (*Aquila chrysaetos*)	Nest	0.50	2/1 to 7/31
Peregrine Falcon (*Falco peregrinus anatum*)	Nest	1.00	2/1 to 7/31
Prairie Falcon (*Falco mexicanus*)	Nest	0.25	4/1 to 7/31
Merlin (*Falco columbarius*)	Nest	0.50	4/1 to 8/15
Ferruginous Hawk (*Buteo regalis*)	Nest	0.50	3/1 to 7/31
Burrowing Owl (*Athene cunicularia*)	Nest	0.25	4/15 to 8/31

Appendix E. Dakota skipper Habitat Description and Requisite Plant Species for Type B Habitat [2]

Habitat Description

In western North Dakota, Dakota skippers inhabit a variant of 'Type B' habitats on rolling terrain over gravelly glacial moraine dominated by most commonly by little bluestem (*Schizachyrium scoparium*), as well as big bluestem, needlegrasses, or porcupine grasses (*Hesperostipa spp.*) (Royer et al. 2008). Western wheatgrass (*Pascopyrum smithii*) is also typical of a variant of 'Type B' habitat in western North Dakota (Royer et al. 2014).These habitats are often invaded by Kentucky bluegrass (*Poa pratensis*) (Royer and Marrone 1992). Dakota skipper habitats support a high diversity of native forbs, including: purple coneflower (*Echinacea angustifolia*), bluebell bellflower (*Campanula rotundifolia*), white prairie clover (*Dalea candida*), upright prairie coneflower (*Ratibida columnifera*), fleabane *(Erigeron* spp.), blanket flower (*Gaillardia* spp., including specifically common gaillardia, *G. aristata*), black-eyed Susan (*Rudbeckia hirta*), yellow sun drops (*Calylophus serrulatus*), prairie milkvetch (*Astragalus adsurgens*). These habitats also typically contain prairie lily, and in some areas, mountain death camas (Royer and Marrone 1992).

Other notable forbs associated with Dakota skipper include: purple prairie clover (*Dalea purpurea*), prairie groundsel (*Packera plattensis*), groundplum milkvetch (*Astragalus crassicarpus*), eastern pasqueflower (*Pulsatilla patens*), old man's whiskers (prairie smoke, *Geum triflorum*), western silver aster (*Symphyotrichum sericeum*), dotted blazing star (*Liatris punctata*), tall blazing star (*L. aspera*), meadow zizia (heartleaf golden alexanders; *Zizia aptera*), prairie sagewort (*Artemisia frigida*), and leadplant (*Amorpha canescens*).

References Cited

Royer, R. A., and G. M. Marrone 1992. Conservation status of the Dakota skipper (Hesperia dacotae) in North and South Dakota. Unpublished report, US Fish and Wildlife Service, Denver, CO. 15.

Royer, R. A., R. A. McKenney, and W. E. Newton. 2008. A characterization of non-biotic environmental features of prairies hosting the Dakota skipper (Hesperia dacotae, Hesperiidae) across its remaining U.S. range. Journal of the Lepidopterists Society 62:1-17.

Royer, R. A., M. R. Royer, and E. A. Royer. 2014. Dakota skipper field survey and habitat assessment at twelve North Dakota sites during the 2014 season. A final report submitted to Twin Cities Field Office, U.S. Fish and Wildlife Service, Bloomington, MN. Minot State University, Minot, ND. 53 p.

[2] The following was adapted from information found in the USFWS Guidance for Interagency Cooperation under Section 7(a)(2) of the Endangered Species Act for the Dakota skipper, Dakota skipper Critical Habitat, and Poweshiek Skipperling Critical Habitat:
https://www.fws.gov/midwest/endangered/insects/dask/pdf/DakotaSkipperS7GuidanceV1.1.pdf

Habitat Characteristics & Plant Species

1) General Habitat Characteristics:

   a) High quality dry-mesic remnant untilled prairie on rolling terrain

   b) Gravelly glacial soil (loamy sands; sandy loams)

   c) Dominated by native grasses and flowering forbs

   d) Minimal tree or shrub cover (<5%)

2) Requisite Plants—Native grasses and native flowering forbs for larval and adult food and shelter, specifically:

   a) One or more of the following native grasses to provide larval food and shelter: little bluestem (*Schizachyrium scoparium*), Prairie dropseed (*Sporobolus heterolepis*)

   b) One or more of the following forbs in bloom to provide nectar and water sources during the flight period: Purple coneflower *(Echinacea angustifolia),* bluebell bellflower*(Campanula rotundifolia),* white prairie clover (*Dalea candida),* upright prairie coneflower *(Ratibida columnifera),*fleabane *(Erigeron* spp.), blanket flower *(Gaillardia* spp., including common gaillardia *G. aristata*), black-eyed Susan *(Rudbeckia hirta),* yellow sun drops *(Calylophus serrulatus),* prairie milkvetch *(Astragalus adsurgens).*

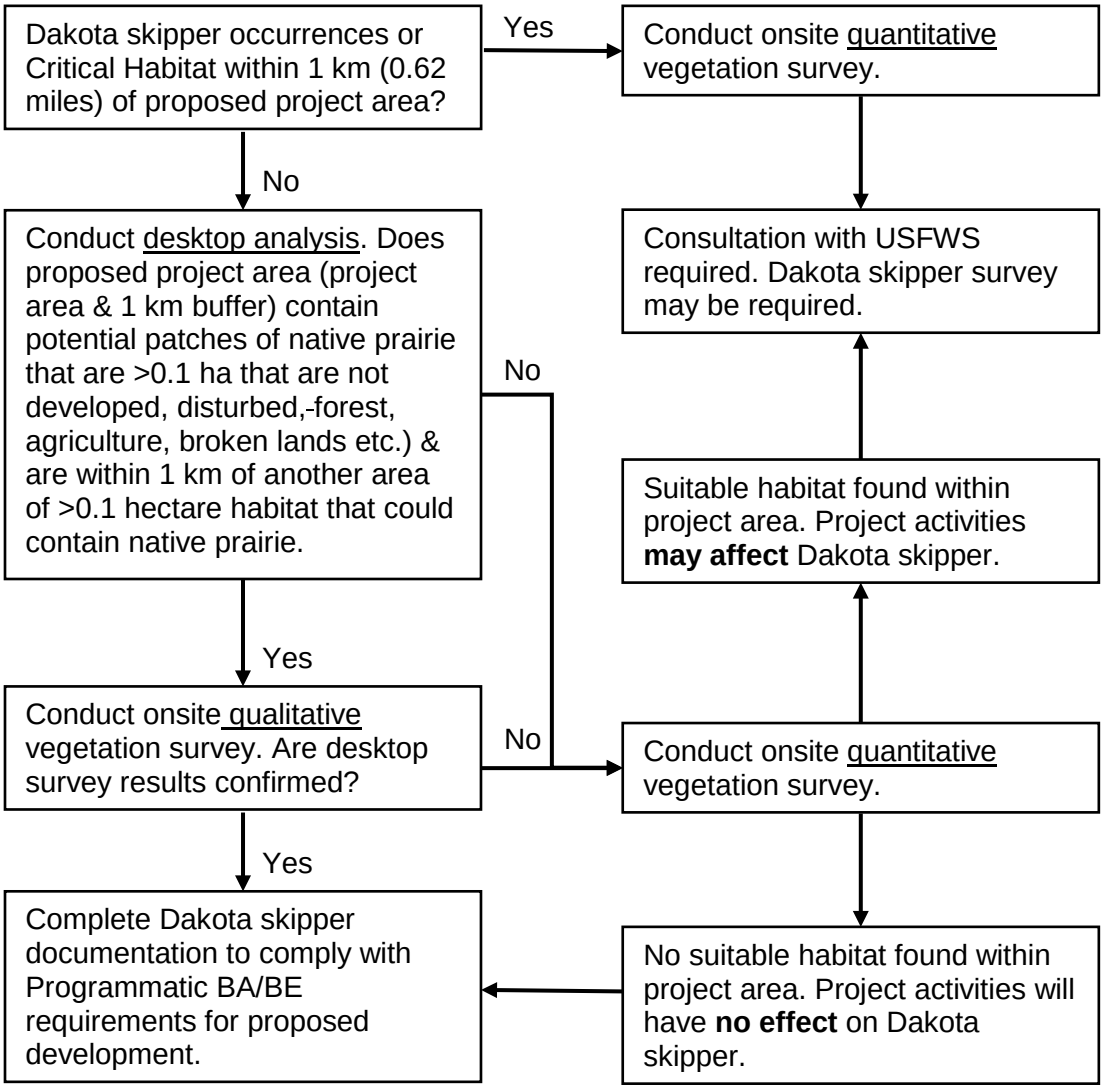
Table 7. Plant species common to Type B Dakota skipper habitat including requisite plant species.

Key Plant Species	Common Name	Forb or Grass
Amorpha canescens	Leadplant	Forb
Andropogon gerardii	Big bluestem	Grass
Artemisia frigida	Prairie sagewort	Forb
*Astragalus adsurgens**	prairie milkvetch	Forb
Astragalus crassicarpus	Groundplum milkvetch	Forb
Bouteloua curtipendula	Sideoats grama	Grass
*Calylophus serrulatus**	Yellow sundrops	Forb
*Campanula rotundifolia**	Bluebell bellflower	Forb
*Dalea candida**	White prairie clover	Forb
Dalea purpurea	Purple prairie clover	Forb
*Echinacea angustifolia**	Purple coneflower	Forb
*Erigeron spp.**	Fleabane	Forb
*Gaillardia aristata**	Common gaillardia/blanketflower	Forb
Geum triflorum	Old man's whiskers/prairie smoke	Forb
Hesperostipa comata	Needle-and-thread grass	Grass
Hesperostipa spartea	Porcupine grasses	Grass
Liatris aspera	Tall blazing star	Forb
Liatris punctata	Dotted blazing star	Forb
*Lilium philadelphicum**	Prairie Lily/Wood Lily	Forb
Packera plattensis	Prairie groundsel	Forb
Pascopyrum smithii	Western wheatgrass	Grass
Pulsatilla patens	Eastern pasqueflower	Forb
*Ratibida columnifera**	Upright prairie coneflower	Forb

Key Plant Species	Common Name	Forb or Grass
*Rudbeckia hirta**	Black-eyed susan	Forb
*Schizachyrium scoparium**	Little bluestem	Grass
Sorghastrum nutans	Indiangrass	Grass
*Sporobolus heterolepis**	Prairie dropseed	Grass
Symphyotrichum sericeum	Western silver aster	Forb
Zizia aptera	Meadow zizia/heartleaf golden alexanders	Forb
Requisite plant species (*) must include at least one grass species (Little bluestem and/or Prairie dropseed) in addition to one or more forb species to meet Dakota skipper habitat requirements.		

Appendix F. Dakota skipper Habitat Assessment Procedure

Note: A quantitative survey may be conducted in lieu of a qualitative survey.



Appendix G. DRAFT Dakota Skipper (*Hesperia dacotae*) Survey Protocol

DRAFT
Dakota Skipper (*Hesperia dacotae*) Survey Protocol
North Dakota
June 2017

Dakota Skipper (*Hesperia dakotae*) U.S. Fish and Wildlife Photo

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region
North Dakota Ecological Services Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501
NDFieldOffice@FWS.Gov
Office: 701-250-4402
Fax: 701-355-8513

Dakota Skipper Survey Protocol

Site Evaluation Procedures for Dakota Skipper Presence

Background & Purpose

This protocol is intended for surveys whose objective is to determine whether the Dakota skipper (*Hesperia dacotae*) may inhabit a specified area, especially where surveys for the species have not been performed. Habitat occupancy determinations made using data from surveys that follow this protocol will inform interagency cooperation between U.S. Fish and Wildlife Service (Service) and other federal agencies pursuant to section 7 of the Endangered Species Act. Data from this protocol will also aid non-federal decision-makers in developing biological/legal risk profiles, including siting decisions to avoid or minimize risk. This survey protocol is not intended for use in monitoring the species' abundance.

The following information is intended to be used to decide when, where, and how to conduct surveys for the Dakota skipper and how to report survey results to the Service. For additional information on Dakota skipper ecology and threats to its continued existence contact the U.S. Fish and Wildlife Service North Dakota Ecological Services Field Office (North Dakota Field Office) or visit the following website – http://www.fws.gov/midwest/endangered/insects/dask/index.html.

Range of Dakota Skipper

The Dakota skipper inhabits patches of remnant native prairie in north-central United States and southern Canada. In the United States, the species occurs in Minnesota, North Dakota, and South Dakota. The species appears to now be extirpated from Illinois and Iowa. Table 1 depicts the historical and current occurrence of the species within North Dakota.

Recommended Steps in the Survey Decision

Step 1: Desktop Review and Site Assessment

To determine whether a survey for Dakota skipper may be warranted, first delineate the area that would be affected, directly or indirectly, by the proposed or ongoing action – referred to as the *action area*.[1] If the action area is in one of the counties listed in Table 1 and encompasses native grassland containing the vegetative features indicative of Dakota skipper habitat (see U.S. Fish and Wildlife Service 2016, pp. 10-13), we recommend you call the North Dakota Field Office (NDFO, 701-250-4402) for further assistance. Representatives from the NDFO can tell you whether data are available from previous surveys that may have occurred within or near the action area. In these cases, prior survey results may be sufficient for determining Dakota skipper presence in the action area. Maps depicting locations of occupied Dakota skipper sites as well as previous survey locations can be made available through a formal data sharing agreement.

[1] Action area is defined as all areas that may be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. It encompasses the geographic extent of environmental changes (i.e., the physical, chemical and biotic effects) that will result directly and indirectly from the action. Action area is typically larger than the area directly affected by of the action.

U.S. Fish and Wildlife Service
Dakota Skipper Survey Protocol
June 2017

Table 1. Counties in which Dakota skipper may be present. The following counties contain sites where the Dakota skipper has been recorded and where the species may still be present based on the best available information.

North Dakota County	Species Status
Barnes	Possibly Extirpated
Bottineau	Extirpated
Burke	Unknown
Dunn	Present
Eddy	Unknown
Griggs	Possibly Extirpated
McHenry	Present
McKenzie	Present
McLean	Unknown
Mountrail	Present
Oliver	Extirpated
Ransom	Present
Richland	Extirpated
Rolette	Present
Sargent	Unknown
Stutsman	Unknown
Ward	Present
Wells	Present

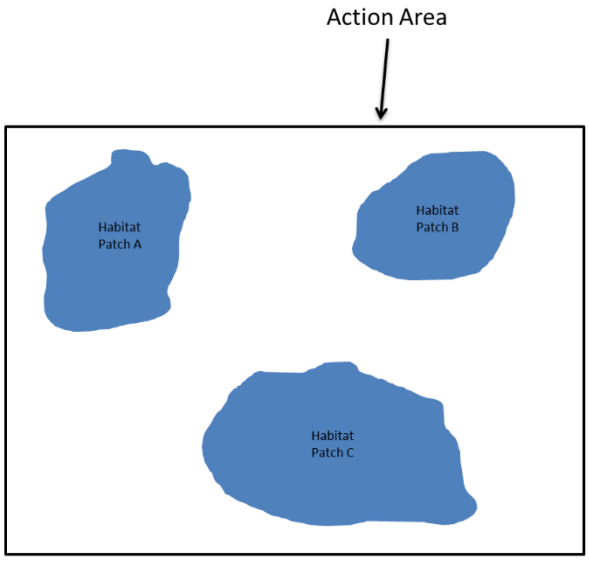


Figure 1. Schematic of an action area that contains patches with features of Dakota skipper habitat that would warrant surveys for the Dakota skipper. Reconnaissance of an action area before the flight season could identify parts of the area where surveys would not be necessary. Habitat patches, as shown above, would be synonymous with *survey area* as used in the text.

U.S. Fish and Wildlife Service
Dakota Skipper Survey Protocol
June 2017

Step 2: Vegetation Inventory and Description

The species is 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 species. Please refer to the Service's Dakota Skipper section 7 guidelines for a complete description of the two type of suitable Dakota skipper habitat present in North Dakota (U.S. Fish and Widlife Service 2016) and contact the NDFO (701-250-4402) to determine the most appropriate vegetative survey method.

Step 3: Occupancy Surveys

Reconnaissance of the action area to delineate habitat patches for survey should be done in advance of implementing the flight period surveys for the species. Dakota skipper habitat often occurs in a patchy arrangement in native grassland communities due to underlying site characteristics, prior or current land uses and other factors. Persons with proven expertise in prairie ecology and Dakota skipper life history should preview survey sites before the flight period to delineate survey areas. Surveys should be conducted during the flight period and limited to habitat patches that contain features or conditions typical of Dakota skipper habitat. To ensure that the results are robust to support reliable conclusions with regard to the Dakota skipper's presence at a site, we recommend that you also coordinate with the NDFO to complete this step.

Minimum Qualifications for Surveyors

The species is not readily identified in the field without specialized training and experience. Therefore, agencies and organizations who want to determine whether or not Dakota Skippers are present in an area must secure the assistance of individuals who are legally authorized and/or qualified to carry out scientifically credible surveys. To meet the minimum qualifications for the target species, individuals must meet the following criteria:

1. Demonstrated ability to complete surveys for Dakota skippers or similar species and prepare technical reports based on those surveys; and,
2. Previous experience surveying for and identifying Dakota skippers and other butterflies with similar appearance. Exceptions may be made for persons with prior experience with similar species and/or extensive experience with other butterfly species – e.g., extensive experience conducting surveys for rare butterfly species outside the range of the two target species.

Persons who may attempt to capture Dakota skippers during surveys need to obtain a permit from the Service (see, http://www.fws.gov/endangered/permits/how-to-apply.html). To obtain a permit please contact the Service's Endangered Species Permit Coordinators in the Midwest and Mountain-Prairie regional offices or download the permit application form at http://www.fws.gov/forms/3-200-55.pdf. A list of persons who have obtained such permits and who have agreed to allow the Service to release their contact information may be obtained from the NDFO (701-250-4402).

Occupancy Survey Guidelines

The reliability of surveys for Dakota skipper depends on several factors, including: the abilities and expertise of the observer; survey timing relative to the species' flight period; time of day; weather

conditions; and the species' density. The initiation and duration of the adult flight period varies each year depending on annual variations in weather (Dearborn and Westwood 2014).

We recommend that surveys adhere to the following guidelines to ensure that results will be useful for determining whether Dakota skippers may be present in the survey area.

Timing & Number of Surveys

Timing is a critical component of surveys for the Dakota skipper; multiple surveys are necessary to determine the species' status at a site. The start of the flight period "varies considerably" among years (Rigney 2013, p. 138; Dearborn and Westwood 2014), but typically begins in late June or early July. It occurs only once per year and may last 13-19 days or less at any given site (e.g., Rigney 2013, p. 138).

- To ensure that surveys are conducted during the species' flight period. See the section **Phenological Indicators**, below for further information that may be useful to ensure that surveys are conducted at appropriate times.
- *In survey areas where Dakota skipper has never been recorded*, continue surveys at least until (1) Dakota skipper is identified or (2) until at least three surveys of the entire survey area have been conducted during the flight period. Repeat surveys must be separated by at least two non-survey days[2] unless doing so may move subsequent surveys outside of the peak flight period or prolonged unfavorable weather conditions would preclude three surveys at a location during the flight period. The likelihood of detecting Dakota skippers is low early and late in the flight period and may be highest during an approximately five-day period when the male flight overlaps with the peak of the female flight (Rigney 2013, p. 140).
- Surveys should be conducted between 1000 and 1730 hours (10:00 am – 5:30 pm) and will not be conducted when the following weather conditions exist:
    - Fog, drizzle, or rain;
    - Sustained or gusting winds that average greater than 30 kilometers (19 miles) per hour measured over a 30 second period at a height of 1.2-1.8 meters (4-6 feet) above ground level (Beaufort Scale of 5 or greater);
    - Temperature in the shade at ground level is less than 21^0 C (70^0 F) when cloud cover is less than 50 percent, or less than 30^0 C (86^0 F) when cloud cover is 50 percent or more.

[2] The requirement to separate survey days is warranted to increase detection rates. Given the short nature of the Dakota skipper flight period, surveys will not be rejected when they are not separated by two non-survey days **if** justification is given; surveys are conducted at a different time of day during each of the three visits; and all surveys are conducted under optimal weather conditions.

U.S. Fish and Wildlife Service
Dakota Skipper Survey Protocol
June 2017

Phenological Indicators

Phenological indicators may be useful to determine when to conduct surveys and, in retrospect, whether previous surveys were appropriately timed for Dakota skipper. Rigney (2013, p. 140), for example, found the emergence of three different skipper species at Manitoba, Canada study sites preceded that of Dakota skipper, which in turn preceded that of two additional skipper species – in the following order: European skipper (*Thymelicus lineola*), long dash (*Polites mystic*), tawny-edged skipper *(P. themistocles),* Peck's skipper (*P. peckius*), Dakota Skipper, silver-spotted skipper (*Epargyreus clarus*) and dun skipper (*Euphyes vestris*). She found that Peck's skipper, which is similar in appearance to Dakota skipper, emerged "immediately before and at the same time as Dakota Skipper" and that dun skipper emerged "near the end of the Dakota Skipper flight period" (Rigney 2013, p. 141). She also found that the peak of the flight period for wood nymph (*Cercyonis pegala*), a conspicuous species in many Dakota skipper habitats, corresponded to the emergence of Dakota skippers. In addition to butterfly indicators, she found that where Dakota skipper co-occurred with porcupinegrass (*Heterostipa spartea*), its "seeds are very conspicuous with a darkened inflorescence" a few days prior to the Dakota skipper emergence. She wrote that at "the start of the Dakota Skipper flight period the fruits will start to be released when brushed, clinging especially to butterfly nets and clothing" (Rigney 2013, p. 142).

Survey Routes and Survey Area

- Surveys should be conducted by qualified surveyors walking along routes through the survey area. Establish enough routes to ensure the survey covers all of the survey area and assume a maximum detection distance of no more than five meters on each side of the route. The survey may be terminated in a given habitat patch and in all patches of suitable habitat within 0.5km of the occupied site once the species has been confirmed.

- Survey routes should be roughly parallel to each other, spaced approximately 10 meters apart, and within five meters of survey area boundaries to ensure adequate coverage of all Dakota skipper habitat.

- Adjustments to the survey area boundaries may be made during the survey if areas that do not contain Dakota skipper habitat are encountered. These areas should be mapped and described in the final survey report.

Identification of Dakota Skippers

- Identification of Dakota skippers must be assured by netting and release, close-up (perched) examination, or photo-documentation.

- Persons not qualified to conduct typical surveys for Dakota skipper may attempt to document the species' presence with photography without a permit. Surveys sufficient to support a presumption of absence, however, should follow the normal protocol. To ensure that species identity may be confirmed, ample photos should be taken from both the dorsal and ventral perspective (Rigney 2013, p. 141). Negative surveys conducted by persons who do not meet the minimum qualifications for surveyors, described above, will not be considered to be conclusive evidence of absence by the Service.

U.S. Fish and Wildlife Service
Dakota Skipper Survey Protocol
June 2017

General Guidelines

- Do not conduct Dakota skipper surveys concurrently with any other focused survey, such as plant surveys, bird surveys, etc.
- Conduct surveys at an average rate of 2-7 acres (1-3 hectares) per hour.[3]

Data to Collect

- Record the location (GPS coordinates and projection) and time of any Dakota skipper observed.
- Record the numbers of other butterfly species observed in each survey area. Data regarding the identity and numbers of other butterfly species present during surveys should be collected because it may be useful in evaluating survey results. Rigney (2013, p. 142), for example, indicated that the ratio of Dakota skippers to long dash, tawny-edged skippers, Peck's skippers, and European skipper may be indicative of habitat quality for Dakota skipper in her study sites.
- Record the route surveyed (GPS track log), number of surveyors, weather conditions (temperature, cloud cover, and wind speed), and observations about habitat conditions, threats, or management. To the extent feasible, record the sex and condition of each Dakota skipper observed.
- Handling affects the behavior of some butterflies after their release (Mallet et al. 1987, p. 328). Therefore, we are seeking information with respect to the post-release behavior of any Dakota skippers that are captured and released. The behavior of each captured and released butterfly will be noted and reported annually as follows:
    - Flew to and perched on herbaceous vegetation, low shrubs, or to out-of-sight location in herbaceous vegetation (e.g., into plant litter or duff layer or into bases of grasses);
    - Flew into tall shrubs or trees and out-of-sight;
    - Flew away – did not see butterfly perch or fly into vegetation; or,
    - Post-release behavior unknown.
- If a permit is conducted under the authority of an endangered species permit issued by the Service, ensure that any additional information is collected and reported to the appropriate location per the conditions of the permit.

Reporting Results

Provide in survey reports – or under separate cover to the North Dakota Field Office:

[3] This is based on the 35 m/minute survey pace and the assumption that five meters are effectively surveyed on either side of the observer, as reported by Royer and Royer (2012).

- Geographic coordinates of any Dakota skipper observed and a map depicting the survey area(s), and survey route(s).
- Provide maps depicting the location and extent of Dakota skipper habitat at the survey site. If possible, also provide the associated GIS data that could be used to identify the location and extent of Dakota skipper habitat, the survey area, and survey routes
    - Include coordinate system, projection and datum with all GIS data.
- For each survey include weather conditions: wind speed (or Beaufort Scale), air temperature, cloud cover, and the time at beginning and end of each survey route.

Survey Outcome

If surveys are completed for a specific project and result in three consecutive negative surveys, during a single flight period, the NORTH DAKOTA FIELD OFFICE will review survey reports and issue concurrence for the project to proceed within the surveyed area. If construction is not completed by the following flight period addition Dakota skipper surveys are recommended.

If a Dakota skipper is found during a survey, the NORTH DAKOTA FIELD OFFICE will assume the site is occupied for a minimum of three years. Additional surveys before the three year minimum occupancy period are not necessary; additional negative surveys during this time will not supersede the occupied status. After three years additional Dakota skipper surveys are recommend to review the occupancy status. A flowchart describing this process is included in Appendix A.

Literature Cited

Dearborn, K. and R. Westwood. 2014. Predicting adult emergence of Dakota skipper and Poweshiek skipperling (Lepidoptera: Hesperiidae) in Canada. Journal of Insect Conservation **18**:875-884.

Mallet, James, and Michael C. Singer. "Individual selection, kin selection, and the shifting balance in the evolution of warning colours: the evidence from butterflies." Biological Journal of the Linnean Society 32, no. 4 (1987): 337-50.

Rigney, C. L. 2013. Habitat characterization and biology of the threatened Dakota skipper (*Hesperia dacotae*) in Manitoba. Masters of Science. The University of Winnipeg, Winnipeg, Manitoba, Canada. 259 p.

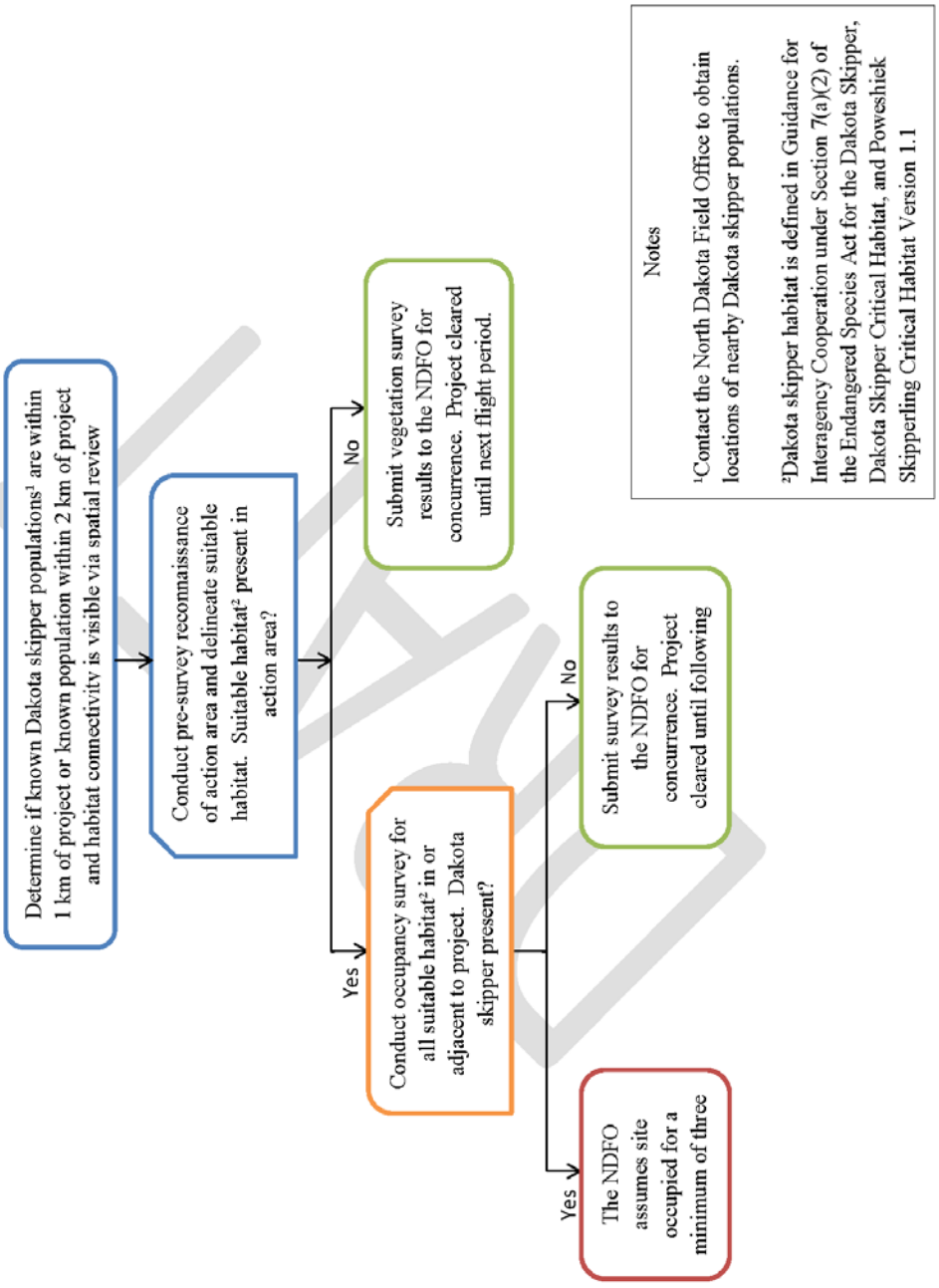
Royer, R. A. and M. R. Royer. 2012. Dakota Skipper and Poweshiek Skipperling Field Survey and Habitat Assessment at Twenty-Nine North Dakota Sites During the 2012 Season. Division of Science, Minot State University, Minot, ND. 1- 26 p.

U.S. Fish and Wildlife Service. 2016. Guidance for Interagency Cooperation under Section 7(a)(2) of the Endangered Species Act for the Dakota skipper, Dakota skipper critical habitat, and Poweshiek Skipperling Critical Habitat, Version 1.1, May 2016: USFWS Regions 3 and 6. Bloomington, MN and Denver, CO. 32pp.

APPENDICES

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A
Dakota skipper Decision Tree



Appendix C

Biographies of Botanical Survey Leads

Scott Milburn, M.S.

Scott Milburn is a Senior Botanist at Midwest Natural Resources. He has a B.S. in Botany from Iowa State University and an M.S in Biological Sciences from the University of Mississippi. He has been working professionally as a field botanist since 2000. In that time he has conducted numerous rare plant surveys in the Chequamegon-Nicollet, Chippewa, DeSoto, and Superior National Forests, surveying over 25,000 acres. Finds have included a wide range of Regional Forester Sensitive Species (RFSS) plants from such cryptic groups as *Botrychium* or difficult groups like graminoids to Forest Service records for several state-protected species that were added to the RFSS list as a result.

Otto Gockman, B.S.

Otto Gockman is a Senior Botanist at Midwest Natural Resources. He has a B.S. in Natural Sciences from the University of Puget Sound. He has been working professionally as a field botanist since 2005. In that time he has conducted numerous rare plant surveys in the Chequamegon-Nicollet, Chippewa, DeSoto, and Superior National Forests, surveying over 35,000 acres. Finds have included numerous Regional Forester Sensitive Species (RFSS) vascular plants and RFSS lichens. He has also documented several state record vascular plants in Minnesota (*Rhynchospora capitellata* and *Botrychium crenulatum*) as well as 47 state record lichens in Minnesota.

Jake Walden, B.S.

Jake Walden is a Botanist at Midwest Natural Resources. He has a B.S. in Fisheries, Wildlife, and Conservation Biology and a minor in Plant Biology from the University of Minnesota. He has conducted a wide range of plant surveys for the U.S. Fish and Wildlife Service and worked to monitor and restore native prairie. He has documented numerous populations of Minnesota state-listed plants.

Appendix D

Representative Photographs

Dry hillside prairie dominated by little bluestem.

Flat, open rangeland dominated by western wheatgrass.

Escobaria missouriensis (in flower)

Escobaria missouriensis (vegetative)

Townsendia exscapa

Townsendia hookeri

Hesperia ottoe

Speyeria idalia

Appendix E

U.S. Forest Service Data Forms (Plants)

DPG TES Plant Survey Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information

1) Survey ID:		2) Survey Name:		
3) Survey Status:		4) Source of Work:	Contract	
5a) Survey Type:	Focused (Intuitive Controlled	Survey Agency:		
5b) Survey Type:		Target Focus:	TES	
5c) Survey Type:		Survey Purpose:	Other	
		Project Type:	Oil and Gas	

6) Survey Focus:	Terrestrial	Riparian	Aquatic	Features
	Yes			

7) Estimate of Survey Area Size (Acres):			
Spatial Feature	Polygon		
If Point, Buffer distance from pt center:		Unit of Meas	
If Line, Buffer distance from line center:		Unit of Meas	

10) Survey Parameters:

Environmental Survey Corridor - proposed Demicks Lake Pipeline project.

11) Survey Comments:

Survey Visits

12) Visit Date:	13) Examiner			
June 5-9, 2018	Last Name 1	Milburn	First Name 1	Scott
June 5-9, 2018	Last Name 2	Gockman	First Name 2	Otto
June 5-19, 2018	Last Name 3	Walden	First Name 3	Jake
6/5/18-7/19/18	Last Name 4	Cress	First Name 4	Robert
	Last Name 5		First Name 5	

Target Species

List all targeted species (R1 Sensitive List)

14) NRCS Code	15) Scientific Name	16) Suitable Hab	17) Plant Found	FS Site ID's for EO's
CHSU2	*Chenopodium subglabrum*	No	No	
COPA3	*Collinsia parviflora*	No	No	
CRTO4	*Cryptantha torreyana*	No	No	
ERCE2	*Eriogonum cernuum*	No	No	
ERVI14	*Eriogonum visheri*	Yes	No	
ESMI3	*Escobaria missouriensis*	Yes	Yes	
LEMO4	*Leucocrinum montanum*	Yes	No	
MEPU3	*Mentzelia pumila*	No	No	
PHAL3	*Phlox alyssifolia*	No	No	
PIFL2	*Pinus flexillis*	No	No	
POAC5	*Populus x acuminata*	No	No	
SPAI	*Sporobolus airoides*	No	No	
TOEX2	*Townsendia exscapa*	Yes	Yes	
TOHO	*Townsendia hookeri*	Yes	Yes	

List all targeted species (R1 Watch List)

Target Species Continued

NRCS Code	15) Scientific Name	16) Suit Hab	17) Plant Found	FS Site ID's for EO's
AGEX	*Agrostis exarata*			
ASAU4	*Astragalus australis (Astragalus aboriginum)*			
ASDR3	*Astragalus drummondii*			
ASVE5	*Astragalus vexilliflexus*			
BRCA5	*Bromus carinatus*			
CASCS8	*Carex scirpoidea (Carex scirpiformi)*			
CASI12	*Carex siccata (Carex feonea)*			
CLCOT	*Clematis columbiana var. tenuiloba (Clematis tenuiloba)*			
EPPY4	*Epilobium pygmaeum (Boisduvalia glabella)*			
ERDI4	*Erigeron divergens*			
ERRA2	*Erigeron radicatus*			
FRPU2	*Fritillaria pudica*			
MYAPM	*Myosurus apetalus var. montanus*			
OELA	*Oenothera laciniata*			
ORLUM	*Orobanche. ludoviciana, ssp. multiflora*			
OXSE	*Oxytropis sericea*			
PHPA29	*Phemeranthus parviflorus (Talinum parviflorum)*			
PODI	*Potamogeton diversifolius*			
PODI2	*Potentilla diversifolia*			
POJA2	*Populus x jackii*			
RACA4	*Ranunculus cardiophyllus*			
ROCA	*Rorippa calycina*			
SITR3	*Sibbaldiopsis tridentata (Potentilla tridentata)*			
SMEC	*Smilax ecirrhata*			

Existing Dominant Vegetation: (Enter NRCS plant code)

Upper Level		Middle Level		Lower Level		Est %
Dom	CoDom	Dom	CoDom	Dom	CoDom	Of Area
					Total	0

Ecological Site Name:	Est %
Total	0

List all other species found during survey

18) Species list completeness: Selected

19) Cover Method: CVRPCT

20) General Comments:

Species list compiled from prairie habitat data collected during surveys.

Species List of Surveyed Area

21) NRCS Code:	22) Scientific Name	23) Life Form	24) EcoSiteName	25) % Cov	non native (*Est extent only for non-native & nox)	*Est Acres Extent
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*					
ARFR4	*Artemisia frigida Willd.*					
ASLAR	*Astragalus adsurgens Pall.*					
ASCR2	*Astragalus crassicarpus Nutt.*					
BOCU	*Bouteloua curtipendula (Michx.) Torr.*					
CASE12	*Calylophus australis Towner & P.H. Raven*					
CARO2	*Campanula alaskana (A. Gray) W. Wight ex J.P. Anderson*					
DACA7	*Dalea candida Michx. ex Willd.*					
DAPU5	*Dalea purpurea Vent.*					
ECAN2	*Echinacea angustifolia DC.*					
ERIGE2	*Erigeron L.*					
GETR	*Geum triflorum Pursh*					
HECO26	*Hesperostipa comata (Trin. & Rupr.) Barkworth*					
HECU9	*Stipa curtiseta (Hitchc.) Barkworth*					
LIPU	*Liatris punctata Hook.*					
LIPH	*Lilium philadelphicum L.*					
PAPL12	*Senecio plattensis Nutt.*					
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*					
RACO3	*Lepachys columnifera (Nutt.) J.F. Macbr.*					
SCSC	*Schizachyrium scoparium (Michx.) Nash*					
SYSE2	*Aster sericeus Vent.*					
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*					
LICO3	*Cathartolinum compactum (A. Nelson) Small*					
ARFR4	*Artemisia frigida Willd.*					
PLAR3	*Plantago aristata Michx. var. nuttallii (Rapin) Morris*					
AGCR	*Agropyron cristatum (L.) Gaertn.*					
OPFR	*Cactus fragilis Nutt.*					
ANOC2	*Androsace arizonica (A. Gray) Derganc*					
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*					
TAOF	*Taraxacum officinale F.H. Wigg.*					
TRRE3	*Trifolium repens L. var. atropurpureum hort.*					
LEDE	*Lepidium densiflorum Schrad. var. densiflorum*					
CAFI	*Carex elyniformis A.E. Porsild*					
KOMA	*Koeleria albescens auct.*					
PHHO	*Phlox hoodii Richardson*					
TEAC	*Tetraneuris acaulis (Pursh) Greene*					
ARCA13	*Artemisia cana Pursh*					
SYOC	*Symphoricarpos occidentalis Hook.*					

Species List of Surveyed Area Continued

21) NRCS Code:	22) Scientific Name	23) Life Form	24) EcoSiteName	25) % Cov	non native	*Est Acres Extent
				*Est extent only for non-native & nox		

Species List of Surveyed Area Continued

				*Est extent only for non-native & nox		
21) NRCS Code:	22) Scientific Name	23) Life Form	24) EcoSiteName	25) % Cov	non native	*Est Acres Extent

Species List of Surveyed Area Continued

21) NRCS Code:	22) Scientific Name	23) Life Form	24) EcoSiteName	25) % Cov	non native	*Est Acres Extent
				*Est extent only for non-native & nox		

Species List of Surveyed Area Continued

				**Est extent only for non-native & nox*		
21) NRCS Code:	22) Scientific Name	23) Life Form	24) EcoSiteName	25) % Cov	non native	*Est Acres Extent

Location Information

26) State:	27) County:	28) Region:	29) Forest:	30) District:
ND	McKenzie			

35) Legal Description: Principle Meridian:

Township	Range	Section	Qsec	QQSec	QQQSec	QQQQSec

GPS Info

37) GPS Model Used:	GeoXT 6000
Survey Datum:	WGS84
GPS Filename:	
Differentially Corrected?	Yes

- Lat/Longs in item 36 are not necessary if provide GPS file or GIS feature (incorporate survey id on spatial feature)

36) Lat / Long for point feature:

Buffer Distance: Report on first page

	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000

36a) Lat / Long for two point line transect:

Buffer Distance: Report on first page

Begin	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000
End				
Latitude				0.000000000
Longitude				0.000000000

Preferred minimum average number of positions for each GPS point: (1 position/sec) 30-60

Preferred distance between positions/vertices for gps line or polygon: 5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

38) General Directions to Survey Area:

Sketch of Survey Area

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK101a		2) Date	6/7/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
TOEX2	Easter daisy	*Townsendia exscapa*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Point		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Walden	First Name 1	Jake
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	1
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
		100		
33) Population Comments				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E3013F	Partial Shade

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			SCSC
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments

53) Habitat Description

Hillside with patchy Schizachyrium scoparium and abundant forbs. Near population of Escobaria missouriensis. General land use is rangeland.

54) Dominant Process

55) Process Comment

56) Community Quality	Medium	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			

59) Disturbance/Threats Comments

Non-Natives (Invasives) Present (yes or no)

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment

61) Current Land Use Comment

Rangeland.

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
ASLAR	*Astragalus adsurgens Pall.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
HECU9	*Stipa curtiseta (Hitchc.) Barkworth*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
RACO3	*Lepachys columnifera (Nutt.) J.F. Macbr.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	37	7.83	47.618841667
Longitude	103	46	1.16	-103.766988889

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK101b-BSA-NDMK101s		2) Date	6/8/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Walden	First Name 1	Jake
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	1654
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Estimate		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
95	5			
33) Population Comments				
Population mapped as series of polygons over approx. 1.9 miles.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E3013F	Partial Shade

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			SCSC
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Hills dominated by little bluestem, native forbs			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Medium	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			
NRCS Code	Common Name	Status	Scientific
60) Non-Native Comment			
61) Current Land Use Comment			

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
ASLAR	*Astragalus adsurgens Pall.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
GETR	*Geum triflorum Pursh*			
HECU9	*Stipa curtiseta (Hitchc.) Barkworth*			
LIPU	*Liatris punctata Hook.*			
LIPH	*Lilium philadelphicum L.*			
PAPL12	*Senecio plattensis Nutt.*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
RACO3	*Lepachys columnifera (Nutt.) J.F. Macbr.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	37	25.72	47.623811111
Longitude	103	45	34.51	-103.759586111

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK103a, BSA-NDMK103b		2) Date	6/10/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	149
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Estimate		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
50	25	25		
33) Population Comments				
Population includes point occurrence approx. 0.3 mile southwest of polygon.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E0701F	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			AGCR
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Occurring in rangeland dominated by Agropyron cristatum and Pascopyrum smithii.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment
61) Current Land Use Comment
Rangeland.

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
LEDE	*Lepidium densiflorum Schrad. var. densiflorum*			
OPFR	*Cactus fragilis Nutt.*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
AGCR	*Agropyron cristatum (L.) Gaertn.*			
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
GETR	*Geum triflorum Pursh*			
HECO26	*Hesperostipa comata (Trin. & Rupr.) Barkworth*			
LIPU	*Liatris punctata Hook.*			
PAPL12	*Senecio plattensis Nutt.*			
RACO3	*Lepachys columnifera (Nutt.) J.F. Macbr.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	36	27.7	47.607694444
Longitude	103	47	14.04	-103.787233333

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK103c, BSA-NDMK103d		2) Date	6/10/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	12
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
95	5			
33) Population Comments				
Population documented at 4 point locations up to 0.25 mile apart.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM
		Flat (No Aspect)		

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E1355D	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			PASM
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Rangeland dominated by wheatgrasses.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			
NRCS Code	Common Name	Status	Scientific
60) Non-Native Comment			
61) Current Land Use Comment			

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
ASLAR	*Astragalus adsurgens Pall.*			
ASCR2	*Astragalus crassicarpus Nutt.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
CARO2	*Campanula alaskana (A. Gray) W. Wight ex J.P. Anderson*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
LIPU	*Liatris punctata Hook.*			
PAPL12	*Senecio plattensis Nutt.*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	36	48.84	47.613566667
Longitude	103	46	57.58	-103.782661111

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK106_01a, BSA-NDMK107b		2) Date	6/9/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
TOHO	Hooker's Townsendia	*Townsendia hookeri*		*Sensitive - R1 2011 - G5/S1*
Spatial Feature Type		Point		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	4
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
50	25	25		
33) Population Comments				
Population represented by 3 point locations up to 0.55 mile apart.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM
		West		

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E3013F	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			SCSC
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
On a dry, west-facing slope.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Medium	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment
61) Current Land Use Comment
Rangeland.

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
ECAN2	*Echinacea angustifolia DC.*			
Antennaria	*#N/A*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
CAFI	*Carex elyniformis A.E. Porsild*			
PHHO	*Phlox hoodii Richardson*			
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
CARO2	*Campanula alaskana (A. Gray) W. Wight ex J.P. Anderson*			
DAPU5	*Dalea purpurea Vent.*			
ERIGE2	*Erigeron L.*			
GETR	*Geum triflorum Pursh*			
PAPL12	*Senecio plattensis Nutt.*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	34	50.11	47.580586111
Longitude	103	48	54.01	-103.815002778

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK106_01b, BSA-NDMK107a		2) Date	6/9/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Point		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	18
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
95	5			
33) Population Comments				
Population documented as 6 point locations up to 0.5 mile apart.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E2120B	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			PASM
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments

53) Habitat Description

Rangeland dominated by Pascopyrum smithii.

54) Dominant Process

55) Process Comment

56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			

59) Disturbance/Threats Comments

Non-Natives (Invasives) Present (yes or no)

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment

61) Current Land Use Comment

Rangeland.

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
ARFR4	*Artemisia frigida Willd.*			
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ASLAR	*Astragalus adsurgens Pall.*			
ASCR2	*Astragalus crassicarpus Nutt.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
CARO2	*Campanula alaskana (A. Gray) W. Wight ex J.P. Anderson*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
HECO26	*Hesperostipa comata (Trin. & Rupr.) Barkworth*			
HECU9	*Stipa curtiseta (Hitchc.) Barkworth*			
LIPU	*Liatris punctata Hook.*			
PAPL12	*Senecio plattensis Nutt.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	35	11.39	47.586497222
Longitude	103	48	54.01	-103.815002778

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK108a, BSA-NDMK108b		2) Date	6/8/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	59
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
95	5			
33) Population Comments				
Population documented as two polygons approx. 0.17 mile apart.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM
		Flat (No Aspect)		

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E2225B	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			AGCR
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments

53) Habitat Description

Disturbed lowland dominated by Agropyron cristatum.

54) Dominant Process

55) Process Comment

56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			

59) Disturbance/Threats Comments

Non-Natives (Invasives) Present (yes or no)

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment

61) Current Land Use Comment

Canopy Cover

Record % canopy cover by actual %

Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species

List of species directly associated with the EO species on this site

64) Completeness of Species List: Selected

65) Species list Comment:

66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
PLAR3	*Plantago aristata Michx. var. nuttallii (Rapin) Morris*			
AGCR	*Agropyron cristatum (L.) Gaertn.*			
TAOF	*Taraxacum officinale F.H. Wigg.*			
PUPAM	*Anemone ludoviciana Nutt., nom. illeg.*			
ARFR4	*Artemisia frigida Willd.*			
ASLAR	*Astragalus adsurgens Pall.*			
ASCR2	*Astragalus crassicarpus Nutt.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
CASE12	*Calylophus australis Towner & P.H. Raven*			
CARO2	*Campanula alaskana (A. Gray) W. Wight ex J.P. Anderson*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
GETR	*Geum triflorum Pursh*			
LIPU	*Liatris punctata Hook.*			
PAPL12	*Senecio plattensis Nutt.*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
RACO3	*Lepachys columnifera (Nutt.) J.F. Macbr.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	34	32.6	47.575722222
Longitude	103	51	5.84	-103.851622222

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK108c, BSA-NDMK109a, BSA-NDMK109b		2) Date	6/8/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
TOHO	Hooker's Townsendia	*Townsendia hookeri*		*Sensitive - R1 2011 - G5/S1*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	147
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
50	25	25		
33) Population Comments				
Population documented as two polygon and two point locations up to 0.13 mile apart.				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM
		West southwest		

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E3107F	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			SCSC
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Dry exposed southwest-facing hill in shards of rock.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Medium	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment
61) Current Land Use Comment
Rangeland.

Canopy Cover			
Record % canopy cover by actual %			
Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species				
List of species directly associated with the EO species on this site				
64) Completeness of Species List	Selected			
65) Species list Comment:				
66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
CAFI	*Carex elyniformis A.E. Porsild*			
KOMA	*Koeleria albescens auct.*			
ECAN2	*Echinacea angustifolia DC.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
DAPU5	*Dalea purpurea Vent.*			
PHLOX	*Phlox L.*			
Erigonum sp.	*#N/A*			
TEAC	*Tetraneuris acaulis (Pursh) Greene*			
ARCA13	*Artemisia cana Pursh*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	34	43.25	47.578680556
Longitude	103	50	51.66	-103.847683333

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK0122a		2) Date	6/6/2018
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
ESMI3	Missouri foxtail cactus	*Escobaria missouriensis*		*Sensitive - R1 2011 - G5/SNR*
Spatial Feature Type		Polygon		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Milburn	First Name 1	Scott
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	166
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Estimate		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
95	5			
33) Population Comments				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM
		Flat (No Aspect)		

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E2225B	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			AGCR
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Occurring in rangeland dominated by Agropyron cristatum. Relatively flat.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			
NRCS Code	Common Name	Status	Scientific
60) Non-Native Comment			
61) Current Land Use Comment			

Canopy Cover			
Record % canopy cover by actual %			
Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species				
List of species directly associated with the EO species on this site				
64) Completeness of Species List	Selected			
65) Species list Comment:				
66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
LICO3	*Cathartolinum compactum (A. Nelson) Small*			
ARFR4	*Artemisia frigida Willd.*			
PLAR3	*Plantago aristata Michx. var. nuttallii (Rapin) Morris*			
AGCR	*Agropyron cristatum (L.) Gaertn.*			
OPFR	*Cactus fragilis Nutt.*			
ANOC2	*Androsace arizonica (A. Gray) Derganc*			
PASM	*Agropyron molle (Scribn. & J.G. Sm.) Rydb.*			
TAOF	*Taraxacum officinale F.H. Wigg.*			
TRRE3	*Trifolium repens L. var. atropurpureum hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	30	18.46	47.505127778
Longitude	103	53	32.57	-103.892380556

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

DPG Sensitive Plant Field Form - 2018 Version

- Data/comments entered in gray outlined cells, lookup formulas in white outlined cells **Revised 3/15/2018**

General Information				
1) SiteID	BSA-NDMK0123a	2) Date	6/12/2018	
LocalID				
3) Site Name				
4-5) Plant NRCS Code	Common Name	Scientific		Status & Ranking
TOHO	Hooker's Townsendia	*Townsendia hookeri*		*Sensitive - R1 2011 - G5/S1*
Spatial Feature Type		Point		
If Point, buffer distance from pt center (meters):				
If Line, Buffer distance from line center (meters):				
6) Record Source		Field Survey	7) Survey ID	
8) Survey Name				
Purpose of Visit		Project Survey	Project Type	Oil and Gas
9) Examiner	Last Name 1	Gockman	First Name 1	Otto
	Last Name 2		First Name 2	
Survey Agency	Midwest Natural Resources		10) Ownership	
11) Loc Uncert		12) Uncert Dist (m)		
13) EO#		14) State	ND	
15) County	McKenzie	16) Region		
17) Forest		18) District		
19) Est Area		20 Est Area UOM		

Element Occurrence Data				
21) Canopy Cover Method				
22) EO Canopy Cover (%Cover)			DAUBEN Code	
			NRMCOV Code	
23) EO Life Form			24) # of Subpopulations	
25) Plant Found (Revisit): Yes or No			26) Plant Count	4
26a) Plant Abundance			27) Count Type	
28) Count Method (Actual or Est)	Actual		29) Revisit needed	
30) Desired Revisit Date				
31) Revisit Justification				
32) Phenology by % (must add up to 100%)				
Vegetative	Flower/Bud	Fruit/Dispersed	Seedlings	Juvenile
50	25	25		
33) Population Comments				
34) Evidence of disease, competition, predation, collection, trampling or herbivory?				
35) Evidence Comments				
36) Pollinator observed			37) Pollinator type	
38) Pollinator Comments				

Site Morphometry				
39) Slope%	40) Slope Position	41) Aspect	42) Elevation Avg	43) Elev UOM

Soil Characteristics and Light Conditions			
46) Soil Moist	47) Soil Texture	48) Soil Type (musm)	49) Light Exposure
Dry		E4143A	Full Sun

Site Classification			
Classification Type	Upper Level	Mid Level	Lower Level
50) Existing Veg (Dom)			AGCR
51) Potential Veg/Habitat Type			
52) Ecotype (Ecological Site Name)			

Habitat Quality and Management Comments			
53) Habitat Description			
Disturbed rangeland dominated by non-native graminoids.			
54) Dominant Process			
55) Process Comment			
56) Community Quality	Low	57) Landscape Integrity	
58) Dominant Disturb/Threats (present or imminent)			
58a) Codominant Disturb/Threats (present or imminent)			
59) Disturbance/Threats Comments			
Non-Natives (Invasives) Present (yes or no)			

NRCS Code	Common Name	Status	Scientific

60) Non-Native Comment
61) Current Land Use Comment
Rangeland.

Canopy Cover			
Record % canopy cover by actual %			
Lifeform Canopy Cover	62) % Cov	Ground Cover	63) % Cov
Tree		Bare Ground	
Shrub		Gravel	
Forb		Rock	
Graminoid		Moss	
Non-vascular		Litter/Duff	
Lichen		Basal Veg	
Algae		Water	
		Road surface	
		Lichen	
Total	0		0

Associated Species				
List of species directly associated with the EO species on this site				
64) Completeness of Species List	Selected			
65) Species list Comment:				
66) NRCS Plant Code	67) Scientific Name	68) Life Form	70) % Cov	71) Non-native
ARFR4	*Artemisia frigida Willd.*			
ASLAR	*Astragalus adsurgens Pall.*			
BOCU	*Bouteloua curtipendula (Michx.) Torr.*			
DACA7	*Dalea candida Michx. ex Willd.*			
DAPU5	*Dalea purpurea Vent.*			
ECAN2	*Echinacea angustifolia DC.*			
ERIGE2	*Erigeron L.*			
LIPU	*Liatris punctata Hook.*			
PAPL12	*Senecio plattensis Nutt.*			
SCSC	*Schizachyrium scoparium (Michx.) Nash*			
JUHO2	*Juniperus horizontalis Moench var. argentea hort.*			

Location Information				
84) Legal Description			Principle Meridian	
Township	Range	Section	Q Sec	QQ Sec

85) GPS info

Preferred minimum average number of positions for each GPS point: (1 position/second)	30-60
Preferred distance between positions/vertices for gps line or polygon:	5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

GPS Filename:			Differentially Corrected:	
Survey Datum	WGS84	87) GPS Model Used	GeoXT 6000	
	Degree	Minutes	Seconds	Decimal Degree
Latitude	47	34	43.25	47.578680556
Longitude	103	53	33.98	-103.892772222

88) General directions/location information

EO Speciman Documentation			
72) Reference for ID			
73) Collector Last Name 1		First Name 1	
73a) Collector Last Name 2		First Name 2	
74) Collection #		75) Confirmed	
76) Verification			
77) Specimen Repository			

Image Information	
78) Image ID	79) Image Description

90) Sketch of Site or Area

91) General EO Comments:

Appendix F

Table of Documented RFSS Plants

Feature ID	**Species**	**Common Name**	**Pop. Size**	**Location Type**	**Figure Number**
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	150	Polygon	A-3
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	3	Point	A-3
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-3
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-3
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-3
BSA-NDMK0123a	*Townsendia hookeri*	Hooker's Townsendia	4	Point	A-3
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK0122a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-4
BSA-NDMK108a	*Escobaria missouriensis*	Missouri foxtail cactus	33	Polygon	A-5
BSA-NDMK108b	*Escobaria missouriensis*	Missouri foxtail cactus	26	Polygon	A-5
BSA-NDMK108c	*Hooker's Townsendia*	Hooker's Townsendia	45	Polygon	A-5, A-6
BSA-NDMK109a	*Hooker's Townsendia*	Hooker's Townsendia	100	Polygon	A-5
BSA-NDMK109b	*Townsendia hookeri*	Hooker's Townsendia	1	Point	A-5
BSA-NDMK109b	*Townsendia hookeri*	Hooker's Townsendia	1	Point	A-5
BSA-NDMK106_01a	*Townsendia hookeri*	Hooker's Townsendia	1	Point	A-7
BSA-NDMK106_01a	*Townsendia hookeri*	Hooker's Townsendia	2	Point	A-7
BSA-NDMK106_01b	*Escobaria missouriensis*	Missouri foxtail cactus	13	Point	A-7
BSA-NDMK106_01b	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-7
BSA-NDMK106_01b	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-7
BSA-NDMK106_01b	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-7
BSA-NDMK107a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-7
BSA-NDMK107a	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-7
BSA-NDMK107b	*Townsendia hookeri*	Hooker's Townsendia	1	Point	A-7
BSA-NDMK103b	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-9
BSA-NDMK103a	*Escobaria missouriensis*	Missouri foxtail cactus	148	Polygon	A-10
BSA-NDMK103c	*Escobaria missouriensis*	Missouri foxtail cactus	4	Point	A-10
BSA-NDMK103c	*Escobaria missouriensis*	Missouri foxtail cactus	6	Point	A-10
BSA-NDMK103c	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-10
BSA-NDMK103d	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-10, A-11
BSA-NDMK101a	*Townsendia exscapa*	Easter daisy	1	Point	A-11, A-12
BSA-NDMK101b	*Escobaria missouriensis*	Missouri foxtail cactus	20	Polygon	A-11
BSA-NDMK101c	*Escobaria missouriensis*	Missouri foxtail cactus	13	Polygon	A-11
BSA-NDMK101d	*Escobaria missouriensis*	Missouri foxtail cactus	5	Polygon	A-11
BSA-NDMK101e	*Escobaria missouriensis*	Missouri foxtail cactus	100	Polygon	A-11
BSA-NDMK101f	*Escobaria missouriensis*	Missouri foxtail cactus	100	Polygon	A-11
BSA-NDMK101g	*Escobaria missouriensis*	Missouri foxtail cactus	750	Polygon	A-12
BSA-NDMK101i	*Escobaria missouriensis*	Missouri foxtail cactus	25	Polygon	A-12
BSA-NDMK101j	*Escobaria missouriensis*	Missouri foxtail cactus	17	Polygon	A-12
BSA-NDMK101s	*Escobaria missouriensis*	Missouri foxtail cactus	1	Point	A-12
BSA-NDMK101h	*Escobaria missouriensis*	Missouri foxtail cactus	400	Polygon	A-12, A-13
BSA-NDMK101k	*Escobaria missouriensis*	Missouri foxtail cactus	5	Polygon	A-13
BSA-NDMK101l	*Escobaria missouriensis*	Missouri foxtail cactus	10	Polygon	A-13

Feature ID	Species	Common Name	Pop. Size	Location Type	Figure Number
BSA-NDMK101m	*Escobaria missouriensis*	Missouri foxtail cactus	13	Polygon	A-13
BSA-NDMK101n	*Escobaria missouriensis*	Missouri foxtail cactus	9	Polygon	A-13
BSA-NDMK101o	*Escobaria missouriensis*	Missouri foxtail cactus	12	Polygon	A-13
BSA-NDMK101p	*Escobaria missouriensis*	Missouri foxtail cactus	125	Polygon	A-13
BSA-NDMK101q	*Escobaria missouriensis*	Missouri foxtail cactus	14	Polygon	A-13
BSA-NDMK101r	*Escobaria missouriensis*	Missouri foxtail cactus	35	Polygon	A-13

Appendix G

U.S. Forest Service Data Forms (Animals)

DPG Wildlife Survey Field Form - 2018 Version

- Data/comments entered in gray outlined cells, formulas in white outlined cells **Revised 6/4/2018**

General Information

Survey ID:		Survey Name:	
Local ID:		Survey Purpose:	
Survey Type:		Project Type:	Oil and Gas

Date/Time:	Start					End					
	Year	Mon	Day	Date	24hr Time (hh:mm)	Year	Mon	Day	Date	24hr Time (hh:mm)	Length Min
	2018	6	5	6/5/2018		2018	7	19	7/19/2018		

Survey Agency:					
Surveyor Last Name 1:	Gockman	First Name 1:	Otto	Quals:	
Surveyor Last Name 2:	Cress	First Name 2:	Robert	Quals:	

Survey Method:??		Survey Protocol:		Survey Status:	
Spatial Feature:	Polygon				
If Point, Buffer distance from pt center:		Unit of Measure:			
If Line, Buffer distance from line center:		Unit of Measure:			

Target Species

Common Name	Class	TE Status	Srank	R1 Status	Suitable Habitat	Present	Site ID's
Great Plains Toad	Amphibian		SU				
Northern Leopard Frog	Amphibian		SU				
Plains Spadefoot	Amphibian		SU				
American Bittern	Bird		SU				
Baird's sparrow	Bird		SU	Sensitive - R1 2011	Yes		
Bald eagle	Bird		S1	Sensitive - R1 2011	Yes		
Black-billed Cuckoo	Bird		SU				
Brewer's Sparrow	Bird		S3				
Burrowing owl	Bird		SU	Sensitive - R1 2011	No		
Chestnut-collared Longspur	Bird		SU				
Dickcissel	Bird		SU				
Grasshopper Sparrow	Bird		SU				
Greater sage-grouse	Bird		SU	Sensitive - R1 2011	No		
Interior least tern	Bird	Endangered (Mck)	SU				
Lark Bunting	Bird		SU				
Loggerhead shrike	Bird		SU	Sensitive - R1 2011	Yes		
Long-billed curlew	Bird		S2	Sensitive - R1 2011	No		
McCown's Longspur	Bird		S2				
Piping plover	Bird	Threatened (Mck)	S1				
Red-headed Woodpecker	Bird		SU				
Rufa Red knot	Bird	Threatened (Mck)					
Sage Thrasher	Bird						
Sprague's pipit	Bird		S3	Sensitive - R1 2011	Yes		
Whooping Crane	Bird	Endangered	SX				
Pallid sturgeon	Fish	Endangered (Mck)	S1				
Red-bellied dace	Fish		S2	Sensitive - R1 2011	No		

Target Species - continued

Common Name	Class	TE Status	Srank	R1 Status	Suitable Habitat	Present	Site ID's
Dakota skipper Critical Habitat	Habitat	Designated (Mck)					
Piping plover Critical Habitat	Habitat	Designated (Mck)					
Dakota skipper	Insect	Threatened (Mck)	S2		Yes		
Monarch Butterfly	Insect		S5				
Ottoe skipper	Insect		SU	Sensitive - R1 2011	Yes	Yes	01, dsp-m-218, dsp-r
Regal fritillary	Insect		S2	Sensitive - R1 2011	Yes	Yes	, dsp-m-207, dsp-m-
Tawny crescent	Insect		S3	Sensitive - R1 2011	Yes		
Bighorn sheep	Mammal		S2	Sensitive - R1 2011	Yes		
Black-footed ferret	Mammal	Endangered	S1				
Black-tailed prairie dog	Mammal		SU	Sensitive - R1 2011	No		
Gray Wolf	Mammal	Endangered	SX				
Hispid Pocket Mouse	Mammal		S4				
Merriam's Shrew	Mammal		SU				
Northern long-eared bat	Mammal	Threatened	SU		Yes		
Sagebrush Vole	Mammal		S4				
Swift Fox	Mammal		S1				
Plains Hog-nosed Snake	Reptile		SU				
Sagebrush Lizard	Reptile		S4				
Short-horned Lizard	Reptile		SU				
Smooth Green Snake	Reptile		SU				
End of List	NA						

Survey Comments: 24 *- characters (try to limit to 255)*

Incidental observations.

Survey Protocol

Survey Protocol:		*from first page* Protocol Date:	
Protocol Name:			
Protocol Author:			
Protocol Description:			
Protocol Reference:			

- if Basic Protocol is used the author is "NRIS Wildlife" and description is "A search for animal species or animal group within a defined area, where the data elements are standardized, but the information collected cannot be tied to a defined survey protocol or survey methodology."

Location Information

State	County	Region	Natl Forest/Grassland	District
ND	McKenzie	1	Dakota Prairie Grasslands	

Legal Description:

Township	Range	Section	Qsec	QQSec	QQQSec	QQQQSec	Principle Meridian

GPS Info

GPS Model Used: | GPS filename:

Survey Datum: | Differentially Corrected?

Lat/Long for point feature:

Buffer Distance - report on first page

	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000

Lat/Long for two point line transect:

Buffer Distance - report on first page

Begin	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000
End	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000

Preferred minimum average number of positions for each GPS point (1 position/sec) 30-60

Preferred distance between positions/vertices for gps line or polygon: 5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

Location Comments: 0 *- characters (try to limit to 255)*

- Keyboard shortcut to activate drop down lists is Alt - Arrow down key

DPG Wildlife Site or Observation Field Form - 2018 Version

Revised 6/4/2018

General Information

Site, Observation or Visit	Observation	Date	6/7-6/19/18
		Time - 24hr (hh:mm)	
Examiner Last Name	Selby	First Name	Jerry
	Gockman		Otto
Examiner Qualifications		Examiner Organization	
Survey ID		Survey Name	
Survey Type		Survey Method	
Spatial Feature		Project Type	Oil and Gas

Site/Visit Information

Start Date		Start Time		End Date		End Time	
Site ID	205, dsp-m-207, dsp-m-214	Site Category	Biological	Site Status			
Local ID		Admin Type		Site Condition			
SiteName		Biol Type		Biol Site Use			
		Use Area Type		Substrate			
Site Origin		Origin Method		Site History			
Veg Type		Topography		Environ Cond			
Site/Visit Comments		Observation information provided?					

Observation Information

Common Name	Group Type	Observation Method	Reprod Status	Gender Count Unk	Gender Count Unk	Age	Activity
Regal fritillary		Visual		19			

Observation Comments

Incidental observations during Dakota Skipper surveys.

Location Information

Legal Description

Prin Meridian	Township	Range	Section	Q Sec	QQ Sec

GPS Info

GPS filename		Differentially Corrected	
Survey Datum		GPS Model Used	

	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000

Preferred minimum average number of positions for each GPS point: (1 position/second) 30-60

Preferred distance between positions/vertices for gps polygon: 5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors

DPG Wildlife Site or Observation Field Form - 2018 Version

Revised 6/4/2018

General Information

Site, Observation or Visit	Observation	Date	6/8-6/13/18
		Time - 24hr (hh:mm)	
Examiner Last Name	Selby	First Name	Jerry
	Gockman		Otto
Examiner Qualifications		Examiner Organization	
Survey ID		Survey Name	
Survey Type		Survey Method	
Spatial Feature		Project Type	Oil and Gas

Site/Visit Information

Start Date		Start Time		End Date		End Time	
Site ID	n-201, dsp-m-218, dsp-m1-	Site Category		Site Status			
Local ID		Admin Type		Site Condition			
SiteName		Biol Type		Biol Site Use			
		Use Area Type		Substrate			
Site Origin		Origin Method		Site History			
Veg Type		Topography		Environ Cond			
Site/Visit Comments		Observation information provided?					

Observation Information

Common Name	Group Type	Observation Method	Reprod Status	Gender Count Unk	Gender Count Unk	Age	Activity
Ottoe skipper		Visual		6			

Observation Comments

Incidental observations during Dakota Skipper surveys.

Location Information

Legal Description

Prin Meridian	Township	Range	Section	Q Sec	QQ Sec

GPS Info

GPS filename		Differentially Corrected	
Survey Datum		GPS Model Used	

	Degree	Minutes	Seconds	Decimal Degree
Latitude				0.000000000
Longitude				0.000000000

Preferred minimum average number of positions for each GPS point: (1 position/second) 30-60

Preferred distance between positions/vertices for gps polygon: 5-10 feet

Preference is to transfer GPS information directly from GPS unit to computer to reduce data entry errors