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Biennial Monitoring Evaluation Report (FY23)

Dakota Prairie Grasslands

THE LAST BIENNIAL MONITORING EVALUATION REPORT (BMER) WAS CONDUCTED IN FY21. THIS FY23 BMER UPDATES AND SUPERSEDES PREVIOUS EVALUATIONS OF ALL MONITORING ITEMS CURRENTLY IN THE DAKOTA PRAIRIE GRASSLANDS PLAN MONITORING PROGRAM.

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Introduction

The Biennial Monitoring Evaluation Report (BMER) is designed to evaluate the three monitoring goals of the Land Management Plan (LMP) Monitoring Program to help inform adaptive management of the plan area.

1. Proper implementation of a subset[1] of Land Management Plan objectives, standards, and guidelines. (*implementation monitoring*)
2. Maintenance and progress towards a subset[1] of Land Management Plan goals, desired conditions. (*effectiveness monitoring*)
3. Evaluation of monitoring information to assess if change is warranted. (*validation monitoring*)

Monitoring results are evaluated to determine the Plan Implementation Status (Box 1). The Plan Implementation Status is used to assess if change is warranted in (1) plan, (2) management activities, (3) the monitoring program, or in (4) a new assessment [36 CFR 21912(d)(2). Providing timely, accurate monitoring information to the responsible official and the public is a key objective of the plan monitoring program. This report is the vehicle for disseminating this information.

Box 1. PLAN IMPLEMENTATION STATUS.

(A) **Uncertain** - Interval of data collection beyond this reporting cycle (indicate date of next time this monitoring item will be evaluated)

(B) **Uncertain** - More time/data are needed to understand status or progress of the Plan Component(s)

(C) **Uncertain** - Methods inadequate to assess the status or progress toward achieving Plan Component(s)

(D) **NO** - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired

(E) **YES** - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired

The BMER is not a decision document - it evaluates the status of LMP Components based on monitoring questions and indicators presented in the Land Management Plan Monitoring Program chapter of the Land Management Plan.[2]

[1] Monitoring questions and indicators were selected to inform the management of resources on the plan area and not every plan component was determined necessary to track [36 CFR 219.12(a)(2)]. See the Plan Monitoring Program at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1032125.pdf for discussion on how the monitoring questions were selected to be consistent with the 2012 planning regulations 36 CFR 219.12.

[2] Monitoring and evaluation requirements have been established through the National Forest Management Act (NFMA) at 36 CFR 219. Additional direction is provided by the Forest Service in Chapter 30 – Monitoring – of the Land Management Handbook (FSH 1909.12).

The Dakota Prairie Grasslands (DPG) Monitoring Program was updated in July 2016 for consistency with the 2012 planning regulations [36 CFR 219.12 (c)(1)]. Additional updates were completed in April 2022, based on recommendations from the FY21 Biennial Monitoring Evaluation Report. The DPG Land and Resource Management Plan (LRMP or Plan) was administratively changed to include the updated monitoring program [36 CFR 219.13 (c)]. For a copy of the current monitoring program go to https://www.fs.usda.gov/resources/dpg/landmanagement/resourcemanagement.

FY21 BMER Items Addressed

Comments and questions were received on several monitoring items for the FY21 BMER and included:

- Use of Ecological Site Descriptions and Similarity Index: The DPG followed direction from the December 3, 2013, Ecological Site Description Memo, which formally completed the transition to Ecological Site Descriptions/State and Transition Models as outlined in the 2006 Livestock Grazing Record of Decision (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3818907.pdf). The Ecological Site Description Memo provides citations to the *Rangeland Interagency Ecological Site Manual* and *Interagency Ecological Site Handbook for Rangelands* (https://www.ars.usda.gov/ARSUserFiles/30501000/InteragencyEcolSiteHandbook.pdf).

- A reference to Prichard et al. (1998) is included in the BMER regarding Proper Functioning Condition assessment (MON-AQU-01).

- A reference to North Dakota State University's recommendations for monitoring visual obstruction readings on biologically capable sites for Major Land Resource Area is included in the BMER (MON-WLD-02B).

- The Grazing Associations are included in efforts 'to determine if the implementation of vegetation management tools are moving towards desired conditions or if management techniques need to be adjusted' through the process of the Demonstration Project, Vegetation Management Project development, and the Adaptive Management development and process (MON-VEG-01).

- Comments were noted on the loss of woody vegetation from age and disease and use of fire as a management tool on the Grasslands.

Monitoring Results Summary

Evaluation from this FY23 BMER found, 1) 13 monitoring items where implementation of Plan Components are trending, progressing, and/or conducted as desired; 2) 4 implementation of Plan Component are not trending, progressing, and/or conducted as desired; 3) and 15 where the status of the Plan Component were uncertain. Based on these findings, recommendations for change were provided to adjust, 1) the monitoring program in 16 instances; 2) management activities in 9 instances; 3) the LMP Assessment in 0 instances; and the LMP in 3 instances. (See Table 1 and Table 2 for specific recommendations for change)

Table 1. Summary of FY23 monitoring evaluations.

***** Monitoring items with asterisk have no new data to report for FY23 because the data collection interval is beyond the 2-year BMER reporting cycle. Evaluations/findings for these asterisked items remain unchanged from the FY21 BMER except for the addition of reporting on the status of recommendations from the FY21 BMER.

Monitoring Item *And associated Plan Components being monitored*	**PLAN IMPLEMENTATION STATUS** [1] *Do monitoring results demonstrate intended progress (i.e., maintaining, trending, or advancing) of the associated Plan Components listed with this monitoring item?*	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** [2] *If a change may be warranted, where may the change be needed?*
MON-GEO-01	(E)	Yes	Monitoring Program
MON-SOIL-01	(B)	Yes	Monitoring Program
MON-AQU-01	(B)	Yes	Monitoring Program Management Activities
MON-AQU-02	(B)	Yes	Management Activities Monitoring Program
MON-AQU-03*	(C)	Yes	Monitoring Program Management Activities
MON-AQU-04	(E)	Yes	Monitoring Program
MON-BOT-01A MON-BOT-01B MON-BOT-01C	MON-BOT-01A (E) MON-BOT-01B (E) MON-BOT-01C (B)	Yes	Monitoring Program
MON-BOT-02	(B)	No	NA
MON-WLD-01A, -01B	(D)	Yes	Monitoring Program
MON-WLD-02A, -02B, -02C	MON-WLD-02A (D) MON-WLD-02B (C) MON-WLD-02C (C)	Yes	Monitoring Program Management Activities
MON-WLD-03	(B)	No	NA
MON-WLD-04*	(C)	Yes	Monitoring Program
MON-WLD-05*	(D)	Yes	Monitoring Program
MON-WLD-06*	(C)	Yes	Land Management Plan
MON-WLD-07*	(C)	Yes	Monitoring Program
MON-NOX-01	(E)	Yes	Monitoring Program
MON-VEG-01	(B)	Yes	Land Management Plan
MON-VEG-02	(E)	No	NA
MON-VEG-03	(D)	Yes	Management Activities
MON-REC-01	(E)	Yes	Management Activities
MON-REC-02*	(E)	Yes	Management Activities
MON-REC-03	(E)	Yes	Land Management Plan
MON-REC-04*	(B)	Yes	Monitoring Program
MON-REC-05	(E)	Yes	Management Activities
MON-HRT-01	(E)	Yes	Monitoring Program
MON-HRT-02	(B)	Yes	Monitoring Program
MON-CMR-01	(E)	No	NA

Monitoring Item *And associated Plan Components being monitored*	**PLAN IMPLEMENTATION STATUS** [1] *Do monitoring results demonstrate intended progress (i.e., maintaining, trending, or advancing) of the associated Plan Components listed with this monitoring item?*	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** [2] *If a change may be warranted, where may the change be needed?*
MON-CMR-02	(E)	Yes	Management Activities

[1]**PLAN IMPLEMENTATION STATUS**: (A) Uncertain - Interval of data collection beyond this reporting cycle (indicate date of next time this monitoring item will be evaluated); (B) Uncertain - More time/data are needed to understand status or progress of the Plan (s); (C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).(D) NO - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired; (E) YES - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired

[2]**ADPATIVE MANAGEMENT**: [36 CFR 219.12(d)(2)] - The monitoring evaluation report must indicate whether or not a change to the (1) Plan, (2) management activities, (3) the monitoring program, or a (4) new assessment, may be warranted based on the new information. Specific recommendations follow in the monitoring report.

Table 2. BMER FY23 Adaptive Management – Monitoring Items with Recommendations for Change

Monitoring Item	Recommended Change	Rationale for recommendation
MON-GEO-01	Monitoring Program: Development of methodology to assess the status of the objective. Continued work to: • Define clearly what an interpretive site is. • Improve the accuracy for number of known paleontological sites on the DPG will allow comparison with the 20% target goal stated in the LRMP. • Continue to improve field survey inventories through cooperative efforts. • Completion of the number of displayed specimens.	The monitoring question is in line with methodology and findings. No baseline or definition of important paleontological sites was ever established for the 20% target goal in the LRMP. The identification of geological sites as Special Interest Areas are available for education and research. Achieving goals is generally dependent on resources and funding provided.
MON-SOIL-01	1. Monitoring Program: For rangeland infrastructure, remove INFRA as a data source. 2. Monitoring Program: For rangeland infrastructure, rangeland Improvements, and oil and gas well pad development, road development and reclamation change data collection to “annual”. 3. Monitoring Program: Add Watershed Condition as monitoring question indicator (data collection interval = annual, data source = WCF/WCATT, POC = Watershed PM)	1. The Watershed Program Manager does not have access to the INFRA library. For this report, data is extracted from WIT and/or the GIS library. 2. Data collection intervals omitted in error from previous Monitoring Program revision. 3. The watershed condition framework satisfies the first part of the Goals and Objectives: “Within 10 years identify watershed conditions to provide baseline data”. Periodically and as conditions change, WCF is updated and
MON-AQU-01	1. Management Activities: Initiate survey of high value springs, and high value wetlands as funding allows. 2. Management Activities: Discuss the addition of “riparian restoration” as an adaptive management tool in future vegetation management plans with leadership. 3. Monitoring Program: Continue to perform PFC surveys and plan for outyear budgets for future	1. More data is needed to determine conditions of high value springs and high value wetlands. 2. Adding riparian restoration as a tool in future vegetation management plans fulfills NEPA requirements for riparian restoration projects. 3. More PFC surveys are needed and outyear budgeting for monitoring provides the capacity to conduct monitoring. 4. Springs and wetlands can vary in size from a few square feet to many acres.

Monitoring Item	Recommended Change	Rationale for recommendation
	4. Monitoring Program: Change indicator to "Acres and/or numbers of wetlands and springs in: proper functioning condition, functioning at risk (upward, not applicable, downward), non-functioning"	Most springs are mapped with as point data with no area.
MON-AQU-02	1. Management Activities: DPG should contract out water quality sampling, potentially in 2023. Water sampling may be district-wide, but not unit-wide. 2. Land Management Plan: Reword the first bullet point to read "Improve HUC12 (Hydrologic Unit Code) watersheds (sun-watersheds) from Class II to Class I or Class III to Class II (approximately 1 every 5-years). Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities" 3. Land Management Plan: Reword the third bullet point to read "Improve the water quality associated with degraded water bodies." 4. New Assessment: Report out the essential project accomplishments completed within each WRAP as well as WRAPS completed. 5. Monitoring Program: Changes will be made in a future agency-wide monitoring protocol revision.	1. Water quality will continue to be monitored in the DPG. 2. In order to accomplish this, the DPG would have to complete WRAPs for 32 HUC12s over an undetermined time frame (the monitoring component specifies the time frame for identifying baseline watershed conditions, not the timeframe for watershed or water quality improvements). Assuming a ideal world 15 year plan timespan, this means that the DPG should have been completing 2 WRAPs per year. This is an unattainable goal- the national watershed condition improved target is 14, i.e. roughly 2 priority watershed completed per region. There are 10 Units in the Region. This factors out to each Unit completing roughly 1 WRAP per year. This recommendation will be reviewed during plan revision efforts. 3. As with the recommendation above, 20% of degraded waters is not attainable. No time frame or criteria is given. Degraded waters are improved via WRAPs and individual projects. This recommendation will be reviewed during plan revision efforts. 4. WRAP accomplishments are completed throughout the year. Reporting out specific accomplishments with photos would better showcase what is being done on the ground. 5. The Agency is going through Watershed Condition Framework Modernization (WCF). The rollout and training of the new WCF is scheduled for 2025 and the next nationwide watershed assessment is scheduled for 2026.
MON-AQU-03	1. Management Activities: Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability, and potential partnerships to prioritize watershed improvement projects. 2. New Assessment: add a focus of what was learned from the BMP surveys in the report.	1. These criteria will be used to select watersheds for improvement. 2. This provides the "why" to why we do these surveys.

Monitoring Item	Recommended Change	Rationale for recommendation
MON-AQU-04	1. Monitoring Program: Remove Best Management Practices from MON-AQU-04. 2. Monitoring Program: Add well conversions (Oil & Gas wells to water for grazing) and any associated monitoring data to MON-AQU-4 3. New Assessment: Expand on the undesirable events and cleanups and how each is or is not a threat to WQ.	1. Best Management Practices are thoroughly discussed in MON-AQU-03. They are redundant here. 2. Medora completed one well conversion and more are planned across the LMNG. Monitoring will be conducted to protect surface and groundwater resources. 3. The number of spills or cleanups does not tell the whole story. Determine if the spills were cleaned up and how to get into the bigger picture of water quality.
MON-BOT-01A, -01B, -01C	Monitoring Program: Orchid habitat dominated by invasive species should be tracked to see if this affects orchid populations. Include an additional indicator of acres of orchid habitat in the invaded state.	Monitoring Program: Vegetation treatments and orchid populations need to be evaluated further to determine if there is a cause-and-effect relationship.
MON-WLD-01A-, -01B	Monitoring Program: Control efforts should be evaluated to determine if efforts have had negative impacts to establishing or maintaining desired complex numbers.	This recommendation was made to ensure that as a focal species, prairie dogs continue to contribute to the integrity of grassland ecosystems by aerating and fertilizing soil, creating habitat for other wildlife, and serving as prey for predators.
MON-WLD-02A, -02B, -02C	Management Activities: If Prairie Chicken & Sage Grouse are to persist, more focused management such as prescribed fire, tree reduction, invasive species management and native restoration will need to be done on the species habitat. Monitoring Program: Visual Obstruction on SNG: Analyze past polygon mapping data. A more detailed assessment of Sage Grouse habitat is needed to evaluate future management options. Management Activities: Habitat Management data records need to be recorded at a scale that is sensitive to representative distribution of grouse monitoring sites.	To meet Plan goals and objectives, management activities and monitoring programs should be altered in order to demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution of prairie grouse within the planning area.
MON-WLD-04	Monitoring Program: Need to incorporate bat habitat considerations into management and develop a monitoring plan, which is currently in development.	The DPG does not have a monitoring plan for bats, and one is needed. Distribution of the northern-long eared bat is poorly understood, and additional species are likely to be listed in the next 5 years.
MON-WLD-05	Monitoring Program: Pending confirmation of extirpated status, re- evaluate need for monitoring and consider dropping this monitoring question based on negative survey results.	The species has not been detected in over 20 years on the SNG. The need to continue monitoring is unlikely and consideration should be given to drop the question for the next monitoring report.
MON-WLD-06	Monitoring Program: Reevaluate indicator and monitoring program. Monitoring efforts and indicator should be refocused on maintaining the inventory of Golden Eagle nests to ensure stipulations are effectively applied. Additional post-project monitoring efforts should be implemented to evaluate the	The indicator is not adequate to help understand the status of the Plan Component.

Monitoring Item	Recommended Change	Rationale for recommendation
	effectiveness of stipulations	
MON-WLD-07	Monitoring Program: Develop an effective indicator and adjust Plan timing limitation to extend through July 15. An appropriate indicator should involve evaluating bighorn sheep populations against timing limitations at the extent of the species' location within the LMNG administrative boundary.	To avoid confusion and misuse of language regarding timing stipulations between the current DPG LRMP language and North Dakota Game and Fish Departments recommendations and to understand how bighorn sheep respond to timing limitations.
MON-NOX-01	Monitoring Program: Develop a strategy on monitoring effects of treatments to align with Goal 1.c Objective 6 - Within 10 years, limit further expansion of areas affected by noxious weeds.	Until the DPG has a permanent program manager in place to have a group discussion on the need to develop a more detailed monitoring protocol, we will continue monitoring through Forest Service personnel and weed control partner observations.
MON-VEG-01	Land Management Plan: When land management plan revision is initiated: Update the LRMP with new desired conditions, goals, and objectives that include the state and transition models for individual ecological site within the MLRA's across the DPG. Identify desired state and community phases and if transition between existing and desired states can occur.	Once completed, the DPG will have the ability of doing subsampling of the NDSU plots baseline data to determine if the implementation of vegetation management tools is moving towards the desired conditions or if management techniques need to be adjusted.
MON-VEG-03	Management Activities: Identify sites having pathways that will move them to the desired state and community phase. Prioritize management actions such as improving livestock grazing management, removal of undesirable species such as conifers, reintroduction of fire, and treatment of noxious and invasive species to shift the community to desired site potential, as only 12% of the sampled woody draw plots have pathways back to desired conditions. Plots within the desired states should also be monitored to assure that management does not transition them into a native/invaded or invaded state.	Woody draw plots that are meeting desired conditions or have pathways back to the desired condition have not yet been influence by exotic graminoids. Once exotic graminoids invade these sites recruitment of green ash seedlings is curtailed by competition. Once this transition occurs restoration will be difficult, requiring either a coincidence of increasingly unlikely biological and environmental conditions or large expenditures of time and money.
MON-REC-01	Management Activities: Attempt to increase trail Improvements annually across the DPG	The Dakota Prairie Grasslands needs to improve the timeliness and accuracy of project reporting, to better representant the maintenance and improvements results of completed trail projects. Improving data collection and reporting will provide a clear nexus to identifying trails meeting regional standards.
MON-REC-02	Management Activities: maintain developed recreation and improve dispersed recreation opportunities across the DPG	The DPG continues to provide high quality outdoor recreation across the North Dakota and South Dakota. This is evident by the expansion of the non-motorized trail system, addition of the Sheyenne River Water Trail, and the new amenities being installed in the developed campground.
MON-REC-03	Land Management Plan: consider reviewing why CCC campground is in management area 1.2A.	The CCC campground is within management area 1.2A. The CCC Campground provides a large space for gathering of people and offers complex infrastructure to aid in the camper's experience; neither of which promote solitude and protect wilderness characteristics. A consideration to

Monitoring Item	Recommended Change	Rationale for recommendation
		remove the CCC Campground from management area 1.2A should be reviewed.
MON-REC-04	Monitoring Program: Provide capacity and tools for program managers to provide data on projects for scenic integrity objectives for FY25 BMER.	Utilize the United States Forest Service Visual Resource Inventory Process and the Scenery Management System to inventory and analyze scenery on the Dakota Prairie Grasslands, and to develop a monitoring program for scenic resources.
MON-REC-05	Management Activity: Develop travel management plan on Little Missouri National Grassland	A travel management plan is essential for meeting LRMP Goal 4a Objective 1, Goal 4a Objective 2, and Goal 4a Objective 4. Protection of national grassland resources will be challenging until a suitable road system is established and clear rule and regulation on authorized travel-ways and areas is developed, enforced, and monitored.
MON-HRT-01	Monitoring Program: Continue to ensure the capacity for the heritage program manager to implement the monitoring program.	In the 2021 BMER, it was recommended that the DPG ensure capacity of the heritage program manager to implement the Plan. With the hiring of a new heritage program manager, and the modification to the DPGs organizational chart to include additional heritage positions, the DPG is in the process of implementing this recommendation.
MON-HRT-02	Monitoring Program: Continue to utilize the heritage programs process of Staff-to-Staff consultation to identify, evaluate and monitor Traditional Cultural Properties, and better utilize the Office Of Tribal Relations existing tracking as it relates to the identification, interpretation, and management of Sacred Sites.	Ensure adequate collection of data, as proposed.
MON-CMR-02	Management Action: There is a need to update the NEPA for GRNG prairie dog control	To have a stand-alone NEPA analysis specific to prairie dog control and to be consistent with the Little Missouri Grasslands.

Monitoring Evaluation and Adaptive Findings

The following results reflect data updates from all previous monitoring evaluation reports. New information collected or compiled from previous evaluation reports have been incorporated. This FY23 BMER updates and supersedes previous monitoring evaluations for all monitoring items currently in the Dakota Prairie Grasslands Monitoring Program.

GEOLOGY

Monitoring Item MON-GEO-01

Why the Plan Component(s) is monitored?

The DPG has multiple geological formations that contain diverse and accessible paleontological specimens including vertebrate, invertebrate, and plants. Many geologic and paleontological resources are non-renewable resources, which provide valuable educational, scientific, and recreational opportunities. These resources require sound management and protection for current and future generations to enjoy. The DPG LRMP Goal 2 Multiple Benefits to People; To provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems. (DPG LRMP Chapter 1-4).

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 2.c Objective 1. Within 15 years, provide interpretation for at least 20% of important geological and paleontological sites consistent with the conservation plans.

Monitoring Question evaluating the above Plan Component(s)

MON-GEO-01 What is the status of providing interpretation of geological and paleontological sites?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Visitor Days (N)	Annually	Area Museums	Area Museum Staff
DPG Paleo Permits Issued (N)	Annually	DPG SO and District Records	Minerals PM
Public Field Days (N)	Annually	DPG SO Records	Minerals PM
Partnerships	Annually	DPG SO Records	Minerals PM

Data and Evaluation History

MON-GEO-01	Year
Data last collected or compiled	2022
Next scheduled data collection/compilation	2023
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain – Based on the need to compile additional data and methods.
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Change monitoring question to align better with the Plan objective. Suggested change: What is the status of providing interpretation of geological and paleontological sites?	D (FY22)

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Development of methodology to assess the status of the objective.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The monitoring question was administratively changed in FY22 and was updated in the Grasslands Plan Monitoring Program (April 2022). Development of methodology to assess the status of the objective is still in progress.

Methods

Monitoring methods may change based on changes in technology, staffing, budgets, and issues. Only standardized protocols will be used in collecting monitoring item data. Protocols will be peer-reviewed as appropriate.

Monitoring precision and reliability depends on the program or activity to be monitored. Two classes of precision and reliability are recognized:

Class A: These methods are generally well accepted for modeling or measuring the resource. They produce repeatable results that are statistically valid. Reliability, precision, and accuracy are very good. The cost of conducting these measurements is higher than other methods. These methods are often quantitative in nature.

Class B: These methods are based on project records, communications, on-site ocular estimates, or less formal measurements like pace transects, informal visitor surveys, aerial photograph interpretation, and other similar types of assessments. Reliability, precision, and accuracy are good, but usually less than Class A. Class B methods are often qualitative in nature, but still provide valuable information on the status of resource conditions. Class B was used for Monitoring Item MON-GEO-01.

Results

Visitor Days

Table 3. Locations of Dakota Prairie Grasslands Specimens and Average Annual Visitors

Locations where DPG Specimens are Displayed	Average Annual Visitors (year)	Comments
North Dakota Heritage Center, Bismarck, ND	220,000 – 240,000 (2014 – 2020) 151,722 (2021) 180,802 (2022)	2020 numbers down (141,000) due to COVID19. The 2023 visitor days to the Heritage Center continue below the longer-term average.
Badlands Dinosaur Museum, Dickinson, ND	16,000 – 17,189 (2016 – 2020) 20,118 (2021) 19,281 (2022)	2016 a partial year 2020 numbers were down (12,708) due to COVID19. 2021-2022 show an increase over previous averages.
Pioneer Trails Museum, Bowman, ND	2,000 – 2,500 (2016 – 2020) 2,264 (2021) 2,150 (2022)	2020 numbers were down due to COVID19. 2021-2022 consistent with previous years.
Grand River Museum, Lemmon, SD, this museum will be removed from the list as it is a private collection	Contacted owner of museum. Private collection museum.	Museum closed September until May
Pioneer Museum McKenzie County/Long X Visitor Center (New)	3,457 (2021) 3,424 (2022)	Not on previous list of surveyed museums.

Locations where DPG Specimens are Displayed	Average Annual Visitors (year)	Comments
Petrified Wood Park and Museum Lemmon, SD	Unable to contact.	

Paleontological Permits.

Five DPG Paleontological Permits were issued on the DPG from 2015 to 2017; 3 Special Use Permits and 2 Mineral Geology Permits. For 2021 one new permit was issued and in 2022 three new permits were issued.

Table 4. Paleontological Permits issued on DPG

Permit issued to	Duration of Permit	Comments
Absaroka Energy and Environmental Solutions LLC	5-year permit 2021	Allows to conduct survey work and mitigation of fossils on LMNG.
Quality Services LLC	5-year permit 2022	Allows to conduct survey work and mitigation of fossils on DPG.
KLJ	5-year permit 2022	Allows to conduct survey work and mitigation of fossils on DPG.
North Dakota Industrial Commission, ND Geological Survey	5-year permit 2022	Allows to conduct survey work and mitigation of fossils on DPG. Also 2022 5 yr. agreement for the inventory and curation of fossil specimens found on the DPG.
Westminster College	5-year permit 2022	Allows for excavation and removal of fossils on 2 sites on the Grand River RD.

Public Field Days

The last public field days were held in 2018.

There have been a number of public digs conducted on the DPG either by Forest Service or with partnering organizations. No public digs have been scheduled due to Paleontological staffing shortages with the Forest Service for coordination support and periods of COVID restrictions.

Partnerships and Agreements

From 2016 to 2020, there have been three cooperative agreements with: 1. North Dakota Industrial Commission, 2. ND Heritage Center, and 3. Geological Society of America (GeoCorps). One new agreement was signed in 2022 with the ND Geological Survey for the continuation of inventory and curation of fossils removed from NFS lands in North Dakota, and to assist the DPG in potential field verification of fossils and removal if necessary.

Discussion

The number of public displays from previous monitoring reports has declined, as reported in 2021. Not all contacted museums display DPG fossil specimens and displays are not controlled by the DPG. Museums generally display fossils that represent local formations and are locally found, prepared, and curated, or loaned from a larger museum. More complete fossil specimens are more likely to be displayed; but most fossils are fragments and incomplete.

The data displayed in the 2021 report findings of visitor use days is considered baseline data. This data helps determine public interest in DPG paleontological resources. Museums have other attractions, so how many visits can be attributed strictly to paleontological exhibits is unknown. While some museums reported an increase in visitor days, the largest museum remains below its long-term average. No indications were given for an increase or decrease in visitor data; therefore suggests variability, not necessarily trend.

In 2020, a survey of surrounding museums that house specimens that came off the DPG, was conducted. Local museums in Western ND surveyed were: ND Heritage Center in Bismarck, ND; Badlands Dinosaur Museum, in Dickinson, ND (assumed new ownership in 2016); Pioneer Trails Museum in Bowman, ND. McKenzie County Pioneer Museum and Long X Trail Visitor Center numbers were added this year. Data from Petrified Wood Park and Museum in Lemmon, SD will be added to the results once established.

Public field days have declined from previous reported numbers. USDA Forest Service paleontologists are few, so agreement and cooperation with ND Heritage Center and State of North Dakota Paleontologist may help with public participation and public interaction.

The 2009 Omnibus Public Land Management Act subtitle, the Paleontological Resources Preservation Act (Act), 16 U.S.C. 470aaa through 16 U.S.C. 470aaa–11 expanded the protections for paleontological resources to include invertebrates and plants. A new code of federal regulations was created for the Forest Service, CFR Title 36 Part 291 due to this.

The DPG is planning continued improvement of baseline paleontological resource data, distribution, and specimens. Additional law and emphasis on paleontological resources may help focus management efforts and interpretation. The paleontology programs within the US Forest Service remain low staffed and poorly funded. No current qualified paleontologist exists within the DPG or Region 1. The FS relies on cooperation and assistance from various other sources.

The DPG is continuing work with ND Geological Survey Paleontologists to identify, catalog, organize and preserve fossil specimens housed in the ND Heritage Center and create GIS layers of known sites and on the ground inventories. To date, we have recorded 6 locations on Sheyenne Ranger District (7 within the district boundary); 523 on Medora Ranger District (865 within the district boundary); and 121 on McKenzie Ranger District (142 within the district boundary); 14 locations on Cedar River NG (none reported on NFS land); no data is available for Grand River Ranger District at this point.

The 2001 DPG LRMP identified five special geological or paleontological resource areas under Management Area 2.1: Bullion Creek Type Formation, MA 2.1h; Burning Coal Vein /Columnar Juniper MA 2.1i; Cannonball/Slope Contact, MA 2.1j; Slope Type Formation, MA 2.1p; Square Butte, MA 2.1q. These areas are made available to the public for educational and research purposes.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (see Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 2.c Objective 1. Within 15 years, provide interpretation for at least 20% of important geological and paleontological sites consistent with the conservation plans.

Monitoring Question evaluating the above Plan Component(s)

MON-GEO-01To what extent are geologic and Paleontological resources being made available for the education, use, or enjoyment of the general public?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above Component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: The findings show there is public awareness and public opportunity to view and interact with Paleontological resources found in western North Dakota. Continuing to improve the data collection/inventory for sites and setting specific quantitative goals is probably not achievable due to lack of program and funding support. The DPG is making the most of opportunities through agreements and institutions.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Development of methodology to assess the status of the objective. Continued work to: • Define clearly what an interpretive site is. • Improve the accuracy for number of known paleontological sites on the DPG will allow comparison with the 20% target goal stated in the LRMP. • Continue to improve field survey inventories through cooperative efforts. • Completion of the number of displayed specimens.
RATIONALE FOR THE RECOMMENDATION
The monitoring question is in line with methodology and findings. No baseline or definition of important paleontological sites was ever established for the 20% target goal in the LRMP. The identification of geological sites as Special Interest Areas are available for education and research. Achieving goals is generally dependent on resources and funding provided.

SOILS

Monitoring Item MON-SOIL-01

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated due to an uncertainty of the extent to which soils have been restored that were previously eroded or disturbed by FS management or permitted activities.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives: Achieve a 20% reduction in acres of eroded or disturbed soils caused by Forest Service permitted or management actions.

Monitoring Question evaluating the above Plan Component(s)

MON-SOIL-01 To what extent have soils been disturbed and restored?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
By allotment or pasture: Similarity index (weight of plant species within dominant sites in a pasture/allotments) – same indicators as MON- VEG-01 (Y) State transition (acres of each state/transition per ecological site) – same indicators as MON-VEG-01 (Y)	Annual- approx. 75 plots/yr., each plot read every 5-15 yrs. depending on NEPA decisions	Supervisor's Office records	Watershed Program Manager; Range Program Manager
Rangeland infrastructure (acres of) (N)	Annual	WIT INFRA GIS Library	Watershed Program Manager; Range Program Manager
Rangeland Improvements (acres and numbers of actions that contribute towards improvement) (N)	Annual	FACTS WIT	Watershed Program Manager; Range Program Manager
Oil and gas well pad development (acres of) (N)	Annual	Supervisor's Office records	GIS Coordinator
Road development (acres of)	Annual	Supervisor's Office records	GIS Coordinator
Reclamation (acres of reclaimed lands)	Annual	Supervisor's Office records	GIS Coordinator

For monitoring item MON-SOIL-01:	Year
Data last collected or compiled	2022
Next scheduled data collection/compilation	2024
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain - More time/data are needed to understand status or progress of the plan Component
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Include GIS library as a data source for rangeland infrastructure in the monitoring program.	D (FY22)

[1] **IMPLEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Recommendation to include the GIS library was implemented. The Plan monitoring program was administratively changed in FY22 to include the additional data source.

Methods

Similarity Index/State Transition

See Monitoring Item MON-VEG-01

Rangeland Infrastructure

Range infrastructure includes fencing, pipelines, tanks, and wells and were added to the Watershed Improvement Tracking (WIT) for FY 2013, 2014, 2016, and 2017. Range infrastructure for all years was extracted from the DPG's Geographic Information System (GIS) Library.

In 2018, there were 10 range improvement projects completed benefitting 24,031 acres. In 2019, there were 19 range improvement projects benefitting 38,229 acres. Fencing controls use of rangeland areas and prevents overgrazing that could lead to erosion. Pipelines, tanks, and wells provide water sources away from riparian areas where cattle would otherwise congregate and cause erosion.

Rangeland Improvements

Rangeland improvement data, such as invasive weed control, prescribed burns and mowing, is reported in the Forest Activity Tracking System (FACTS). Refer to the BMER Soils & Aquatics Monitoring Guide for instructions for extracting data from FACTS (Semenza, 2021).

Oil and Gas Well Pad Development

The dataset was created using well data provided by the North Dakota Department of Mineral Resources Oil and Gas Division and digitizing oil pads using National Agriculture Imagery Program (NAIP) and Light Detection and Ranging (LiDAR). The current dataset is considered baseline data and is not complete when comparing to 2020 NAIP photos.

Data from WIT is baseline data.

For the FY23 BMER, data for all rehab types and pad statuses were included. This will improve comparison from year to year.

Road Development and Reclamation

Acres of road reclamation (roadbed eliminated, recontoured to natural condition and culvers eliminated) is extracted from the WIT database (Table 6). Total road miles and acreage are extracted from the DPG's GIS library. Only FS roads are counted and where the road width is unknown, roads are assumed to be 8-feet wide. This dataset will be compared to a new layer next year to determine if there are more or fewer roads each year.

Results

Similarity Index/State Transition

See Monitoring Item MON-VEG-01

Rangeland Infrastructure

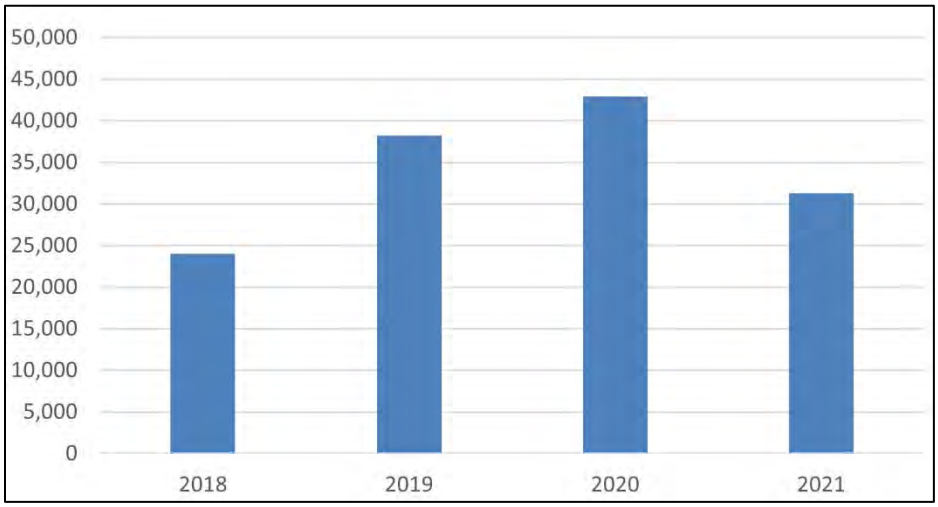


Figure 2. Range infrastructure acres 2018-2021

Rangeland Improvements

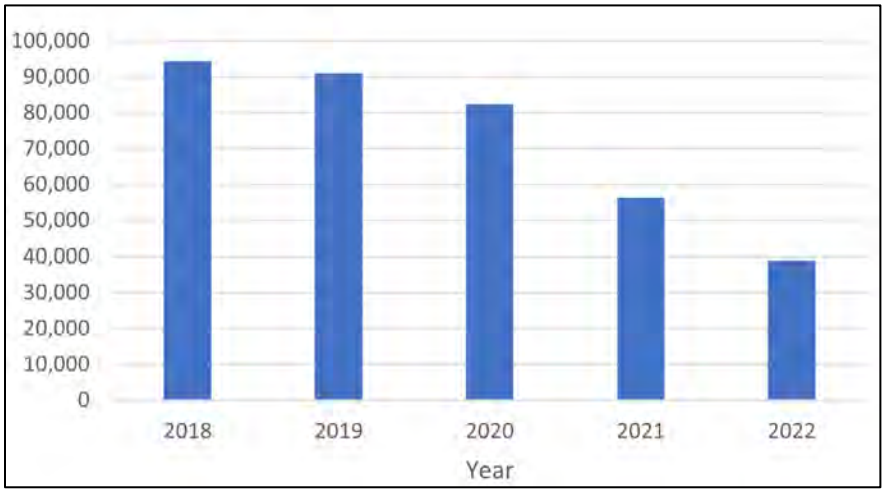


Figure 3. Range improvement acres 2018-2021

Oil and Gas Well Pad Development

For the FY23 BMER, it appears acres of production and total rehab increased. For the FY21 BMER, we only calculated rehab acres. In FY23, it seemed appropriate to add acres for pads in other statuses for comparison The FY23 data should be considered baseline.

Table 5. Oil and Gas Well Pad type, status, and acres 2022

Rehab Type and Pad Status	2020	2022
Elkhorn Production Rehab		**11.70**
Active	11.70	11.70
Elkhorn Total Rehab	**57.58**	**57.58**

Rehab Type and Pad Status	2020	2022
Active		25.11
Closed		32.48
Production Rehab	**799.58**	**955.78**
Abandoned		8.70
Active		850.36
Closed		11.84
Confidential		1.02
Inactive		44.12
Plugged and abandoned		5.21
Rehab		22.38
Temporarily abandoned		12.16
Total Rehab	**2,492.20**	**2,795.55**
Abandoned		23.90
Active		1,850.54
Closed		539.32
Confidential		6.47
Expired Permit		2.75
Inactive		76.21
Plugged and abandoned		14.14
Rehab		248.47
Special Use		7.14
Temporarily abandoned		26.61
Grand Total		**3,820.61**

Road Development and Reclamation

The number of acres for 2016-2020 are different in this report than what was reported in the FY21 BMER. In this case, all values were extracted from the WIT database in the same way. This report shows that unneeded roads on the DPG continue to be reclaimed. Most or all of the roads reported in this section are oil and gas related and therefore changes in road miles and acres have been driven by changes in the oil and gas industry.

Total miles and acreage of roads appear to have decreased since the FY21 BMER.

Table 6. Acres of Road Reclamation extracted from WIT

Year	Acres of Reclamation
2016	10.00
2017	44.63
2018	13.99
2020	9.11
2021	50.94
2022	5.65

Table 7. Miles and acreage of FS Roads on DPG per year

Year	Miles of FS Roads	Acres of FS Roads
2021	3,353	4,343

2023	3,351	4,340

Discussion

The DPG continues to establish baseline data to evaluate soil conditions. Rangeland vegetation monitoring is still needed for a few years to gather sufficient data to understand condition despite yearly precipitation differences. North Dakota State University will continue to collect baseline data the next 3-4 years. Once baseline data is completed, DPG can subsample for continued monitoring to better understand the status of achieving the LRMP goal; Achieve a 20% reduction in acres of eroded or disturbed soils caused by Forest Service permitted or management actions.

Rangeland infrastructure and rangeland improvements data is lower than in previous years because of less funding. Trends would be irrelevant because infrastructure and improvements are dependent on funding. Greater year to year investment in range infrastructure and improvement indirectly suggests conservation occurring that could improve soil conditions and limit degrading soils. Recent decreases in improvement projects do not directly infer prolonged soil degradation on rangelands. Cumulative impacts of these projects may maintain favorable conditions. However, the vegetation monitoring will more keenly identify potential adverse conditions.

The oil and gas data gives a snapshot of production levels and reclamation. This data, including the roads data, provides a numerical measure of acreage of soils used for infrastructure purpose versus acreage of soils reclaimed. Currently, well pad reclamation affects 3,820 acres while system roads cover 4,340 acres. Although rehabilitation is desired, the amount of rehabilitation and road building will fluctuate with oil and gas activity. FS system roads and oil and gas roads do not factor as degraded soils since roads support infrastructure, decommissioning roads returns these areas to the productive land base and thus restores some function of soil. Over the past 2 years the DPG has decommissioned 3 acres of road to productive land base.

Road data is created and maintained by the Forest Service. Trends should be apparent with more data sets in subsequent BMER monitoring reports.

The changes between the FY21 and FY23 reporting periods highlight the importance of consistent data gathering. As BMER reports become standard practice, techniques will continue to refine. Slight adjustments were made this year that will carry into future monitoring to better source data that increases consistency and ability to measure progress. Monitoring datasets will be collected annually and from sources available to the soil specialist.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives: Achieve a 20% reduction in acres of eroded or disturbed soils caused by Forest Service permitted or management actions.

Monitoring Question evaluating the above Plan Component(s)

To what extent have soils been disturbed and restored?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above Component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(B) Uncertain More time/data are needed to understand status or progress of the Plan Component(s)	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: More time is needed to continue collecting, updating, and acquiring data. Watershed Condition Framework needs to be factored in.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
4. Monitoring Program: For rangeland infrastructure, remove INFRA as a data source. 5. Monitoring Program: For rangeland infrastructure, rangeland Improvements, and oil and gas well pad development, road development and reclamation change data collection to "annual". 6. Monitoring Program: Add Watershed Condition as monitoring question indicator (data collection interval = annual, data source = WCF/WCATT, POC = Watershed PM)
RATIONALE FOR THE RECOMMENDATION
1. The Watershed Program Manager does not have access to the INFRA library. For this report, data is extracted from WIT and/or the GIS library. 2. Data collection intervals omitted in error from previous Monitoring Program revision. 3. The watershed condition framework satisfies the first part of the Goals and Objectives: "Within 10 years identify watershed conditions to provide baseline data". Periodically and as conditions change, WCF is updated and

AQUATICS

Monitoring Item MON-AQU-01

Why the Plan Component is monitored?

The following Plan Component is evaluated to determine if existing conditions are meeting or approaching desired conditions.

"The Grassland management goal to improve and protect watershed conditions to provide the water quality and quantity […] to support ecological functions and intended beneficial water uses and move at least 80% of riparian areas […] toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability." The intent of the objective is complete through the following:

- B (2) "Allow only those actions next to perennial and intermittent streams, seeps, springs, lakes, and wetlands that maintain or improve long-term proper functioning of riparian ecosystem conditions. Standard. (p. 1-9)

- B (4) Maintain and protect the hydrologic regime that supplies ground water to the wetlands so as to support species and habitats dependent on the existing water table and its natural variations. Standard (p. 1- 4)

- B (13) For streams identified as "non-functioning" or "functioning at risk with a downward trend," begin corrective action within 3 years of stream inventories. Guideline (p. 1-11)".

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 2. Move at least 80% of riparian areas and woody draws toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability.

Goal 1a Objective 3. Meet or move toward Proper Functioning Condition (PFC) on at least 80% of perennial streams.

Monitoring Question evaluating the above Plan Component(s)

MON-AQU-01: What is the condition of perennial and intermittent streams and high value spring and high value wetlands?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
17 indicators of PFC to determine:	10-yr interval	Supervisor's Office records	Watershed Program Manager; GIS Coordinator
Miles of intermittent and perennial streams in: proper functioning condition, functioning at risk (upward, not applicable, downward), non-functioning	10-yr interval	Supervisor's Office records	Watershed Program Manager; GIS Coordinator
Acres of wetlands and springs in: proper functioning condition, functioning at risk (upward, not applicable, downward), non-functioning	10-yr interval	Supervisor's Office records	Watershed Program Manager; GIS Coordinator

Data and Evaluation History

MON-AQU-01	Year
Data last collected or compiled	Sheyenne RD 2016-2017, and 2022 (collected) Grand River RD 2016 Medora RD 2012, 2013, 2022 (collected north section) McKenzie RD 2013
Next scheduled data collection/compilation	Sheyenne RD 2023 (compiling) Medora RD north 2023 (compiling) Medora RD south & McKenzie RD south 2023 (collecting)
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain - More time/data are needed to understand status or progress of the plan Component(s)
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Action: Initiate survey of high value springs, and high value wetlands, as funding allows.	C
FY21	Management Action: Discuss the addition of "riparian restoration" as an adaptive management tool in future veg management plans with leadership.	B
FY21	Monitoring Program: Plan for outyear budgets for future	C

[1] **IMPLEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Initial surveys of high value springs and wetlands were planned for 2022, however the DPG was unsuccessful in securing assistance from National Groundwater Technical Team (NGTT) and Enterprise Program. The DPG requested assistance again from NGTT for 2023. At the time of this report, implementation is on standby and scheduled to begin field season FY23.

The addition of "riparian restoration" as an adaptive management tool in future vegetation management plans is in progress, however, NEPA for future projects is only in its early initial stages.

Outyear funding is planned for 2023 PFC surveys, however, due to the increase in costs of surveys, and the small numbers of bids in 2022, surveys will be planned yearly for smaller areas rather than entire districts. The last survey was planned for 413 miles of stream but funding only allowed 240 miles of stream surveys.

Methods

Riparian Areas

The data source for this report was the USGS National Hydrography Dataset (NHD); which was used as the base for survey locations and Proper Functioning Condition (PFC) field surveys conducted by contractors and DPG personnel using specific protocols (Dickard et al 2015, Prichard et al 1998). PFC assessment is used to identify riparian areas that are not functioning properly and pinpoint the factors that may be affecting their health. A PFC protocol is a qualitative assessment based on quantitative science (Prichard et al. 1998) and can be used to determine monitored and apparent trends. All accessible perennial and intermittent reaches on DPG land may be included in the assessment.

The following are the specific protocol used for the last surveys and reports:

- McKenzie RD: Prichard et al, 1998,
- Grand River RD, Medora RD south, Sheyenne RD: Dickard et al, 2015,

Data was collected in the field by contractors for Grand River Ranger District (RD) and Little Missouri National Grassland (LMNG). Due to the low number of streams in Sheyenne RD, Forest Service personnel conducted PFC surveys. Once surveys are completed, the data is put into a spreadsheet with Latitude/Longitude and uploaded into the DPG's GIS library where it can be analyzed.

Additional survey data was required by contract for the last LMNG surveys. These will be added for all future surveys.

- Instream Cover: Habitat available in stream (fallen trees, logs, branches, large rocks, and undercuts).

- Embeddedness: Extent which rocks (gravel, cobble, boulders) are covered or sunken into stream.
- Stream Bank Conditions: Extent which erosion is occurring or has the potential to occur.
- Bank Vegetation Conditions: The amount of the stream bank that is covered by vegetation.
- Extent of Grazing Pressure: The extent of grazing impacts and its effect on streamside vegetation and instream pools.

For analysis purposes, all the PFC data was merged into one geo-database feature class. The entirety of the feature class was exported to a spreadsheet. Because several surveys took two field seasons, survey years were modified/combined as follows:

- Sheyenne RD: 1997, 2000, 2002, 2007-2008, 2010-2011, 2012, 2016-2017, 2022
- Grand River RD: 2003, 2004-2005, 2010-2011, 2016
- Medora RD: 1998, 2004-2005, 2006, 2012-2013, 2022
- McKenzie RD: 1998, 2004-2005, 2008, 2013

Stream reaches with PFC ratings of ephemeral, not applicable, or unknown [totaling 108] were removed and not used in analysis.

Wetlands and Springs

Surveys were not conducted on wetlands and springs.

Results

Riparian and PFC results have not been updated since the FY21 monitoring report. Riparian (PFC) surveys were conducted on the Sheyenne RD and the south half of the Medora RD; however, data has not been compiled for those surveys. Data will be compiled in 2023.

Table 8 displays past district wide PFC surveys as included in the 2021 BMER. Figure 4, Figure 5, and Figure 6 compare PFC results between the districts for the survey periods. The percentage of streams in PFC in Sheyenne and Grand River RD went up, remained the same in McKenzie RD and dropped in Medora RD. The drop in the percentage of streams in PFC was likely due to extreme precipitation events that occurred in 2011 and not due to district management. Subsets of streams or individual streams not reaching or moving towards proper functioning condition are addressed in management decisions. The increase in number of miles surveyed on the Grand, McKenzie and Medora districts was due to the survey crews. Earlier surveys were conducted by district personnel where capacity was an issue. Later surveys were conducted by contactors. Changes in survey miles on the Sheyenne district are due to a more project-based stream selection.

Table 8. Miles of Stream by Condition Class and Percent of those at or approaching PFC*

Ranger District	Year	PFC	FAR-U	FAR-NA	FAR-D	NF	Total	% PFC or FAR-U
Sheyenne	1997	0.56	0.61	3.12	1.04	-	5.33	22
Sheyenne	2016-2017	1.36	2.27	-	-	-	3.63	100
Grand River	2003	91.12	0.77	7.17	25.2	23.93	148.19	62
Grand River	2016	116.36	0.25	12.65	37.37	-	166.63	70
Medora	1998	196.98	12.99	73.01	28.45	4.32	315.75	67
Medora	2012-2013	124.7	17.7	103.51	110.03	40.82	396.76	36

Ranger District	Year	PFC	FAR-U	FAR-NA	FAR-D	NF	Total	% PFC or FAR-U
McKenzie	1998	90.09	20.29	49.03	17.35	10.2	186.96	59
McKenzie	2013	215.77	4.49	67.9	75.6	7.05	370.81	59
DPG (District- wide Surveys)	1997-2003	378.75	34.66	132.33	72.04	38.45	656.23	63
DPG (District- wide Surveys)	2012-2016	458.19	24.71	184.06	223	47.87	937.83	51

*PFC = Proper functioning condition, FAR-U = Functioning at risk with an upward trend, FAR-NA = Functioning at risk with no apparent trend, FAR-D = Functioning at risk with a downward trend; NF = Non-functioning

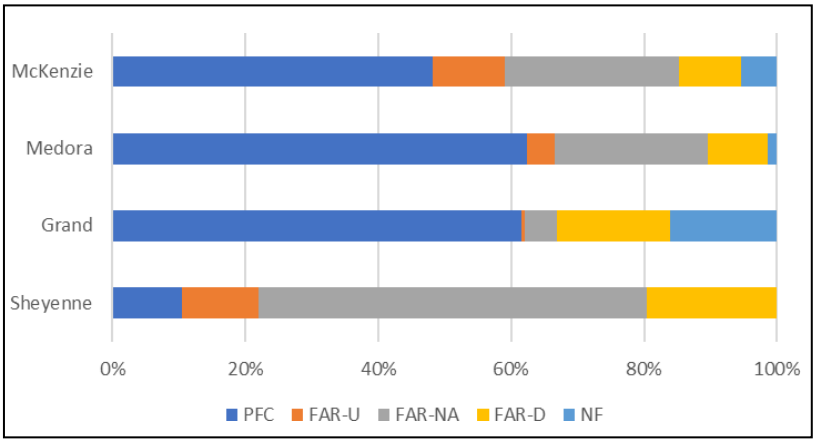


Figure 4. PFC Data 1997-2003 by District

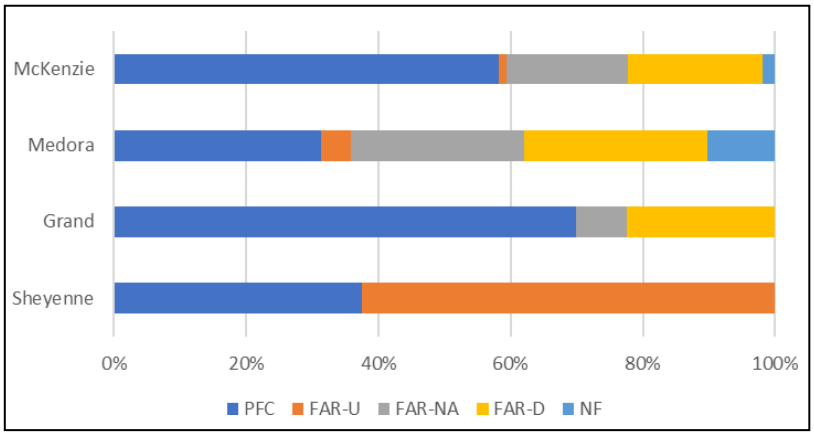


Figure 5. PFC Data 2012-2017 by District

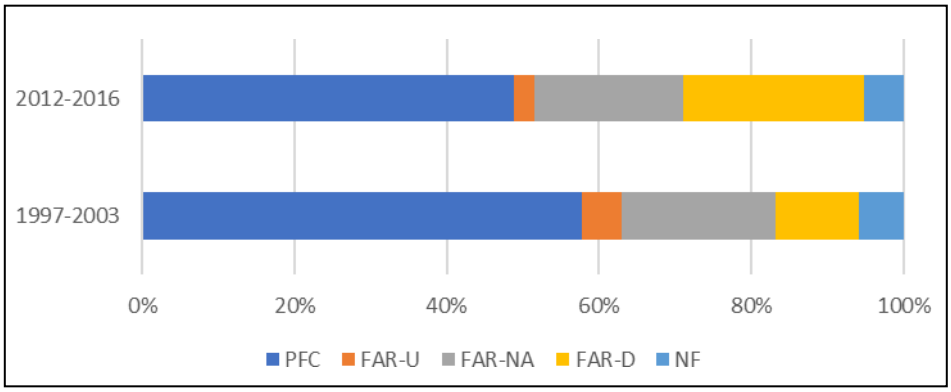


Figure 6. Combined District-Wide PFC Surveys

Sheyenne RD: Sheyenne RD has the fewest intermittent or perennial contiguous streams of all the districts. PFC surveys have been conducted in Sheyenne RD seven times. In 2016, a nearly complete PFC survey of every accessible perennial and intermittent was conducted. The previous nearly complete survey was conducted in 1998. In 1998, only 22% of streams were found to be in or approaching PFC. In 2016, all streams surveyed were in or approaching PFC.

Grand River RD: District-wide surveys were conducted in 2003, 2005, and 2016. The survey conducted in 2005 was project-based and only covered blocks 69 and Corson County. The percentage of streams in or approaching PFC has increased slightly.

Medora RD: Medora RD has the most surveyed intermittent and perennial streams. Four surveys were conducted. The 1998 and 2013 surveys are the only district-wide surveys. Surveys in 2004, 2005 and 2006 were project based and conducted for the North Billings Environmental Impact Statement (EIS). The number of streams in PFC or FAR-UP has dropped from 66.5% to 35.89%.

McKenzie RD: Two district-wide surveys were conducted in 1998 and 2012. Even though both surveys were district-wide, the 1998 survey covered 187 miles of stream while the 2012 survey covered 371 miles. The percent of streams at or approaching PFC increased by 0.4%. However, due to the difference in total stream miles surveyed, this result is inconclusive.

Grassland Wide: Overall, the percentage of streams on the DPG at or approaching PFC had declined 11.51%. The surveyed stream miles increased 43% from 656 miles to 938 miles.

Discussion

The 2005 monitoring report was based on the Dakota Prairie Grasslands (DPG) Land and Resource Management Plan (LRMP). In 2016, the DPG modified the monitoring program to be consistent with the 2012 Planning Rule. The National Hydrography Dataset (NHD) data has gone through several updates including: name corrections, channel locations, and data corrections. These changes to NHD have little to no effect on PFC survey data collection.

In total, the DPG has nineteen years of PFC surveys. Due to the scale of the surveys, district-wide surveys are only conducted once every 10 years. Additionally, doing surveys every 10 years provides a long enough timeframe within which attribute changed can be detected. Project-based surveys are conducted as needed and are included in the PFC GIS library.

District-wide surveys were conducted in 2012, 2013, and 2016 and included an additional 282 miles of stream channels. The data reflects a decrease in percentage of streams that are at or approaching PFC. The greatest

decrease is reflected in streams located in the Medora RD. DPG-wide, the percentage of riparian areas at or approaching PFC has decreased.

Goal 1a Objective 2 of the LRMP states “Move at least 80% of riparian areas […] toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability.” Goal 1a Objective 3 “Meet or move toward Proper Functioning Condition (PFC) on at least 80% of perennial streams.” PFC ratings, in Table 9 are for all streams surveyed. Grand River and Sheyenne RD had more streams at or moving towards PFC in the latest survey. McKenzie RD numbers of streams at or approaching PFC was nearly unchanged. On the Medora RD, a decrease in streams at or approaching PFC was observed.

The DPG appears to be moving away from achieving 80% of perennial streams at or approaching PFC when all districts are combined. This may not be due to any specific management practices. It was noted in the 2012 Medora RD PFC report that the area had experienced peak stream flows. Flooding occurred May 2011. The Little Missouri River near Medora and Beaver Creek recorded record flood events. It was also noted in the 2013 McKenzie RD PFC report, the area experienced extremely heavy precipitation prior to surveying Magpie Creek.

Goal 1a Objective 3 of the LRMP specifically calls out perennial streams. The first surveys used stream class from USGS NHD data. The latest surveys used field observations to determine which streams were perennial. Since different criteria were used to determine which streams were perennial, specific trends cannot be determined pertaining to perennial streams. Future data collection on stream classes will be based on field observations.

For reaches accessible by cattle, with adaptive management and best management practices, it should have been expected that more riparian areas would be at or approaching PFC. Due to the limited number of surveys, survey interval, and the time frame, no specific rate of change can be determined. PFC survey data is the only monitoring conducted directly relevant to the monitoring question. This suggests the need for additional surveys.

Climate change may exacerbate reach sensitivity, which may require alternative management approaches to avoid or mitigate adverse effects. North Dakota has experienced an average annual temperature increase of 0.26 ºF per decade and this trend is expected to continue. The annual precipitation and number of severe precipitation events have increased each year. Intensity of droughts is predicted to increase.

Range management practices such as fencing, creation of riparian pastures, livestock rotation, and water and mineral locations did lead to improvements in some riparian areas.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) and Monitoring Question

Goal 1a Objective 2. Move at least 80% of riparian areas and woody draws toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability.

Goal 1a Objective 3. Meet or move toward Proper Functioning Condition (PFC) on at least 80% of perennial streams.

Monitoring Question evaluating the above Plan Component(s)
What is the condition of perennial and intermittent streams and high value springs and high value wetlands?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e., maintaining, trending, or advancing) of the above Component(s)?	IS CHANGE WARRANTED? Based on the evaluation of monitoring results, may changes be warranted?	ADAPTIVE MANAGEMENT If a change may be warranted, where may the change be needed?
(B) Uncertain More time/data are needed to understand status or progress of the Plan Component(s)	Yes	Monitoring Program Management Activities

[1] See Box 1

Findings Rationale: More data is needed to determine a trend. Goal 1a Objective 2: Riparian areas that are "self- perpetuating …" are in PFC The monitoring directly addresses Goal 1a Objective 3.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
5. Management Activities: Initiate survey of high value springs, and high value wetlands as funding allows. 6. Management Activities: Discuss the addition of "riparian restoration" as an adaptive management tool in future vegetation management plans with leadership. 7. Monitoring Program: Continue to perform PFC surveys and plan for outyear budgets for future 8. Monitoring Program: Change indicator to "Acres and/or numbers of wetlands and springs in: proper functioning condition, functioning at risk (upward, not applicable, downward), non-functioning"
RATIONALE FOR THE RECOMMENDATION
1. More data is needed to determine conditions of high value springs and high value wetlands. 2. Adding riparian restoration as a tool in future vegetation management plans fulfills NEPA requirements for riparian restoration projects. 3. More PFC surveys are needed and outyear budgeting for monitoring provides the capacity to conduct monitoring. 4. Springs and wetlands can vary in size from a few square feet to many acres. Most springs are mapped with as point data with no area.

Monitoring Item MON-AQU-02

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated to assess the current watershed condition and determine if the watersheds are at or approaching the desired conditions.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives:

- Improve 20% of 6th Hydrologic Unit Code (sub-watershed) level watersheds from Class II to Class I or Class III to Class II. Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities.

- Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability, and potential partnerships to prioritize watershed improvement projects.
- Improve the water quality associated with 20% of degraded water bodies.

Monitoring Question evaluating the above Plan Component (s)
MON-AQU-02 What is the water quality condition?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Watershed Condition Class (number of watersheds moved from one Class to a higher functioning Class)	Watersheds assessed 2010 Reassessment planned 2021-2022	WCATT (access with completion of watershed actions plans)	Watershed Program Manager
303(d) streams (miles of impaired streams)	2-years	North Dakota Department of Environmental Quality and South Dakota Department of Environment and Natural Resources	Watershed Program Manager
Water quality (levels of pH, conductivity, total dissolved solids, sulfate, chloride, sodium)	Specific interval not set	Supervisor's Office records (5 year) North Dakota Department of Environmental Quality and South Dakota Department of Environment and Natural Resources	Watershed Program Manager

Data and Evaluation History

MON-AQU-02	Year
Data last collected or compiled	Watershed assessments 2010, updated 2020. WRAPs completed 2013, 2014, 2017. Impaired waters: SD 2020, ND 2018[3]. Water Quality: Grand River 2019, LMNG 2017.
Next scheduled data collection/compilation	Watershed reassessments planned 2026. Next WRAP planned 2023. Impaired waters: SD 2022, ND 2022. Water Quality: Sheyenne[4] and McKenzie 2020[5]
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	Watershed Condition Class -(E) Yes 303(d) streams and water quality -(B) Uncertain More time/data are needed to understand status or progress of the Plan Component
Next scheduled BMER evaluation of this monitoring item:	FY25

[3] The North Dakota 2018 Integrated Section 305(b) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads is currently only available in draft as of 02/03/2021. As of 03/06/2023 the final report was no available
[4] Report received 01/25/2021.
[5] Field work was conducted in 2020. Final reports are forthcoming as of 02/03/2021. Analysis and data compiling were slowed due to COVID-19.

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Changes will be made in a future agency-wide monitoring protocol revision	C
FY21	Monitoring Program: DPG-wide water quality sampling potentially in 2022 or 2023	A

[1] **IMPLEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The Agency is going through Watershed Condition Framework Modernization (WCF). The rollout and training of the new WCF is scheduled for 2025 and the next nationwide watershed assessment is scheduled for 2026.

Funding did not permit a complete DPG-wide water quality sampling as proposed. Sampling may continue with a smaller scope as funding permits beginning in 2023.

Methods

Watershed Condition Class

Watershed Condition Framework (USDA 2011a) provides the basic framework for WCF and the Watershed Condition Classification Technical Guide (USDA 2011b), provide technical guidance for WCF.

Watershed is broken into three classes: Class 1 = Functioning Properly, Class 2 = Functioning at Risk, and Class 3 = Impaired function. This is determined through 4 process categories which are broken down into 12 indicators; each with specific attributes. Data was collected from Grassland and Regional GIS databases and analyzed by an interdisciplinary team. Each attribute was given a numeric rating of 1-GOOD, 2-FAIR, 3-POOR, or NA in accordance with the Watershed Condition Classification Technical Guide. Indicators are calculated from the average of the attribute scores. Process categories are calculated from the average of the indicators. The watershed condition score is calculated using weighted averages (Table 10). Watershed condition score corresponds to watershed condition class (Table 9).

Table 9. Watershed Condition Class Model

Process Categories	Indicators	Attributes
Aquatic Physical (Weight = 30%)	Water Quality	Impaired Waters
Aquatic Physical (Weight = 30%)	Water Quality	Water Quality Problems
Aquatic Physical (Weight = 30%)	Water Quantity	Flow Characteristics
Aquatic Physical (Weight = 30%)	Aquatic Habitat Condition	Habitat Fragmentation
Aquatic Physical (Weight = 30%)	Aquatic Habitat Condition	Large Woody Debris
Aquatic Physical (Weight = 30%)	Aquatic Habitat Condition	Channel Shape Function
Aquatic Biological (Weight = 30%)	Aquatic Biota	Life Form Presence
Aquatic Biological (Weight = 30%)	Aquatic Biota	Native Species
Aquatic Biological (Weight = 30%)	Aquatic Biota	Aquatic Invasive Species
Aquatic Biological (Weight = 30%)	Riparian-Wetland Vegetation	Riparian Vegetation Condition
Terrestrial Physical (Weight = 30%)	Roads and Trails	Open Road Density
Terrestrial Physical (Weight = 30%)	Roads and Trails	Road Maintenance
Terrestrial Physical (Weight = 30%)	Roads and Trails	Proximity to Water
Terrestrial Physical (Weight = 30%)	Roads and Trails	Mass Wasting

Process Categories	Indicators	Attributes
Terrestrial Physical (Weight = 30%)	Soils	Soil Productivity
Terrestrial Physical (Weight = 30%)	Soils	Soil Erosion
Terrestrial Physical (Weight = 30%)	Soils	Soil Contamination
Terrestrial Biological (Weight = 10%)	Fire Regime or Wildfire	Fire Condition Class
Terrestrial Biological (Weight = 10%)	Fire Regime or Wildfire	Wildfire Effects
Terrestrial Biological (Weight = 10%)	Forest Cover	Forest Cover
Terrestrial Biological (Weight = 10%)	Rangeland Vegetation	Range Vegetation Condition
Terrestrial Biological (Weight = 10%)	Terrestrial Invasive Species	Extent Spread Rate
Terrestrial Biological (Weight = 10%)	Forest Health	Insects Disease

Table 10. Watershed Condition Score translated to Watershed Condition Class

Watershed Condition Score	Watershed Condition Class	Description
1.0 – 1.6	Class 1	Functioning Properly: watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
1.7 – 2.2	Class 2	Functioning at Risk: watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
2.3 – 3.0	Class 3	Impaired Function: watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

The following attributes were not used because they did not apply to the Grassland: “Large Woody Debris, Mass Wasting, and Forest Cover”.

The following attributes were modified from the guidance document:

- Water Quality Problems - PFC data was used when 303(d) information was not available.
- Flow Characteristics & Habitat Fragmentation – National Wetland Inventory (NWI) data was used to determine number of modifiers within the watershed.
- Channel Shape Function & Riparian Vegetation Condition - PFC data was used.
- Soil Productivity & Soil Erosion - Number of oil & gas wells was used.

Data for Watershed Condition Class can be found in multiple places including:

- Natural Resource Manager (NRM) ArcGIS Geospatial Interface (GI) /Water/Watershed Classification
- NRM Website

303(d) Streams

States and territories are required under the Clean Water Act (CWA) to report on the quality of their water and provide the information to the Environmental Protection Agency (EPA). This is public data is available from the State and EPA.

Impaired waters spatial data was generated by the EPA and respective States. This data was pulled from the EPA. Each reach in these sets is linked to the Waterbody Quality Assessment Report. The data in the spatial sets is from 2012, and therefore not current. The linked Waterbody Quality Assessment Report has links to

more recent reports up to 2016. The database containing the Waterbody Quality Assessment Report's was retired and replaced in 2017.

Current impaired waters GIS data for North Dakota, available to the public, can be found online at North Dakota GIS Hub Data Portal (search for "Assessed Rivers and Streams").

Current impaired waters GIS data for South Dakota, available to the public can be found online at North Dakota DANR Water Quality Monitoring Access Portal.

Water Quality

Water quality monitoring was conducted at locations throughout the DPG by Dr. Andre DeLorme, from Valley City State University (Delorme 2017, 2018, 2019, 2020). The surveys included water quality sampling using a Hydrolab multiprobe "sonde" [measuring instrument], lab sample analysis, macroinvertebrate sampling [which correlates to water quality], and habitat assessment [which has similarities to PFC surveys]. Specific methods and protocols are in the reports. Data was extracted from the reports and imported into ArcGIS for further analysis.

Results and Discussion

Updates have not occurred since the FY21 BMER. Updates should be available in the FY25 BMER.

Watershed Condition Class

An Interdisciplinary Team (IDT) assessed and rated 166 watersheds (Table 11). Watershed Action Plans (WRAP) were written for all priority watersheds (Table 12). Three WRAPs have been completed with a fourth to be completed 2024. Reports for completed WRAPS are linked in Table 12. Figure 7, Figure 8, Figure 9 show some of the restoration completed.

Table 11. Watersheds Analyzed

Watershed Condition Class	Pre-2020	2020
Class 1	17	20
Class 2	147	144
Class 3	2	2
All	166	166

Table 12. Active or Pending Watershed Restoration Action Plans

FY	Watershed	HUC121	Completed Date
2013	Giles Creek – North Fork Grand River	101303010603	9/29/2013
2014	Deer Creek – North Fork Grand River	101303010504	9/29/2014
2015	Magpie Creek	101102050102	
2017	Pigeon Point	090202040504	2/7/2017
2020	Prairie Dog Creek	101102040508	

Figure 7. USFS crew planting shrubs in the 5A Wildlife Area on a steep slope next to Giles Creek

Figure 8. Scenic view of Deer Creek and the surrounding prairie landscape.

Figure 9. Dugout restoration before and after Pigeon Point

The Giles Creek-North Fork; Grand River, Pigeon Point; Sheyenne River, and Deer Creek-North Fork /Grand River watersheds assessments were completed and changed from Class-2 to Class-1.

One issue with the original calculated scores was how to analyze Non-FS lands within the watersheds. In some cases, the conditions of the Non-FS lands were not fully understood and could not be analyzed. It was decided that non-FS lands within the watershed would be given the same score as the FS land. This is not in the written protocol but is understood. This change may explain some of the discrepancies between the original scores and calculated scores.

303(d) Streams

This indicator has not been analyzed in previous monitoring. The 2012 data set contains only category-5[2] waters. Coverage for this data set is nationwide. The 2018 data sets contain all categories, but category-5 can be selected out. The coverage is limited to their respective states. The only miles of 303(d) listed stream on DPG land was compared between the 2012 and 2018 data sets.

In 2012, there were 98.7 miles of 303(d) listed waters vs. 83.4 miles in 2018. There are fewer miles of impaired reaches in more recent surveys. However, because there are only two data sets, there is no specific trend.

Water Quality

Water samples collected from 2017-2020 form a baseline data set. Analysis and discussion of the results are found in the reports.

The water quality and 303(d) indicators both fit in with the first indicator, Watershed Condition Class.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole. This is a change from the FY21 BMER, which offered an implementation status finding for each indicator.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives:

- Improve 20% of 6th Hydrologic Unit Code (sub-watershed) level watersheds from Class II to Class I or Class III to Class II. Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities.
- Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability, and potential partnerships to prioritize watershed improvement projects.
- Improve the water quality associated with 20% of degraded water bodies.

Monitoring Question evaluating the above Plan Component(s)

What is the water quality condition?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)	Yes	Management Activities Monitoring Program

[1] See Box 1

Findings Rationale: Although metrics of the Watershed Condition Class indicate that Plan Components Goal 1a Objective 1 bullets 1 and 2 above are progressing as desired, more data is needed to understand if the 303(d) assessments directly address the 3rd bullet point, improving water quality.

Recommendations

SPECIFIC RECOMMENDATIONS

Based on these results, the following are recommended:

6. Management Activities: DPG should contract out water quality sampling, potentially in 2023. Water sampling may be district-wide, but not unit-wide.
7. Land Management Plan: Reword the first bullet point to read “Improve HUC12 (Hydrologic Unit Code) watersheds (sun-watersheds) from Class II to Class I or Class III to Class II (approximately 1 every 5-years). Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities”
8. Land Management Plan: Reword the third bullet point to read “Improve the water quality associated with degraded water bodies.”
9. New Assessment: Report out the essential project accomplishments completed within each WRAP as well as WRAPS completed.
10. Monitoring Program: Changes will be made in a future agency-wide monitoring protocol revision.

RATIONALE FOR THE RECOMMENDATION

1. Water quality will continue to be monitored in the DPG.
2. In order to accomplish this, the DPG would have to complete WRAPs for 32 HUC12s over an undetermined time frame (the monitoring component specifies the time frame for identifying baseline watershed conditions, not the timeframe for watershed or water quality improvements). Assuming a ideal world 15 year plan timespan, this means that the DPG should have been completing 2 WRAPs per year. This is an unattainable goal- the national watershed condition improved target is 14, i.e. roughly 2 priority watershed completed per region. There are 10 Units in the Region. This factors out to each Unit completing roughly 1 WRAP per year. This recommendation will be reviewed during plan revision efforts.
3. As with the recommendation above, 20% of degraded waters is not attainable. No time frame or criteria is given. Degraded waters are improved via WRAPs and individual projects. This recommendation will be

reviewed during plan revision efforts.

4. WRAP accomplishments are completed throughout the year. Reporting out specific accomplishments with photos would better showcase what is being done on the ground.
5. The Agency is going through Watershed Condition Framework Modernization (WCF). The rollout and training of the new WCF is scheduled for 2025 and the next nationwide watershed assessment is scheduled for 2026.

Monitoring Item MON-AQU-03

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated partly due to Forest Service direction in FSM 2500 and is in compliance with the CWA.

The objective for monitoring item MON-AQU-03 is described in the National Core Best Management Practices (BMP) Technical Guide. The purpose of the National BMP Program is to provide a standard set of core BMPs and a consistent means to track and document the use and effectiveness of BMPs on NFS lands across the country. The objectives of the National BMP Program are as follows:

- To establish uniform direction for BMP implementation to control nonpoint source pollution on all NFS lands to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources that will meet the intent of the Federal and State water quality laws and regulations, Executive orders, and USDA and Forest Service directives.
- To establish a consistent process to monitor and evaluate Forest Service efforts to implement BMPs and the effectiveness of those BMPs at protecting water quality at national, regional, and forest scales.
- To establish a consistent and creditable process to document and report agency BMP implementation and effectiveness.

The National BMP Program has four components: 1) A national core set of BMPs; 2) a procedural guide for monitoring BMP implementation and effectiveness; 3) a data management system; 4) corresponding national direction. This technical guide contains the national core set of BMPs to be used in the National BMP Program.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives:

- Improve the water quality associated with 20% of degraded water bodies.

Monitoring Question evaluating the above Plan Component(s)

MON-AQU-03 What is the effectiveness of Best Management Practices (BMPs) in preventing degradation to water bodies?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
BMPs (total number of BMPs surveys) – BMP national database (annual)	Annual	BMP national database	Watershed Program Manager

BMP implementation ranking (sampling of total are checked for implementation) – BMP national database (annual)	Annual	BMP national database	Watershed Program Manager
BMP effectiveness ranking (sampling of total are checked for effectiveness) – BMP national database (annual)	Annual	BMP national database	Watershed Program Manager
BMP composite ranking (sampling of total implementation and effectiveness rankings) – BMP national database (annual)	Annual	BMP national database	Watershed Program Manager

Data and Evaluation History

MON-AQU-03	Year
Data last collected or compiled	2021/2022
Next scheduled data collection/compilation	2023/2024
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	BMP Total number prescribed and implemented -(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s). BMP Implementation, Effectiveness and Composite ranking –(E) Yes
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Drop LRMP objectives from this question as they are answered in AQU-02: Improve 20% of 6th Hydrologic Unit Code (sub-watershed) level watersheds from Class II to Class I or from Class III to Class II. Maintenance of unimpaired watersheds and restoration of impaired watershed are high priorities.	D (FY21)
FY21	Monitoring Program: Change indicator of "BMP total number prescribed and implemented" to include total number of BMP surveys only.	D (FY21)
FY21	Management Activities: Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability, and potential partnerships to prioritize watershed improvement projects.	C

[1] **IMPLEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The DPG is in preliminary discussions with partners to work towards implementing watershed improvement projects. Field assessments and NEPA work are planned for 2023.

The following results, discussion, and findings are unchanged from the FY21BMER due to BMP data moving to a new updated BMP application. The new application is in an initial release (MVP/ Minimal Viable Product) phase. At the time of this report, BMP data could not be fully processed. The next anticipated update to this monitoring item will be in 2025 and will include FY21/22 and FY23/24 data.

Methods

Data collection methods are explained in individual protocols. There are a total of 40 protocols as of 2018 and 10 are used on the DPG include:

1. AqEco B Completed Aquatic Ecosystem Improvements (USDA 2018a)

2. Chem A Chemical Use Near Waterbodies (USDA 2018b)
3. Fac C Completed Construction or Operation and Maintenance of Pipelines, Transmission Lines, or Rights-of-Way (USDA 2018c)
4. Fire B Wildfire Management Actions (USDA 2018d)
5. Min D Reclamation of Mineral Operations (USDA 2018e)
6. Range A Grazing Management (USDA 2018f)
7. Rec A Developed Recreation Sites (USDA 2018g)
8. Road F Completed Road Decommissioning (USDA 2018h)
9. Veg C Mechanical Site Treatments (USDA 2018i)
10. WatUses A Completed Construction or Operation and Maintenance of Water Wells for Monitoring or Production (USDA 2018i)

BMP Evaluation targets are assigned by the Forest Service Washington Office and Regional Office. For Fiscal Year 21/22, the target was 14 evaluations. DPG was assigned the following 10 evaluations: Aquatic Ecosystems, Chemical Uses, Facilities, Fire (2), Minerals (2), Grazing (2), Recreation, Roads (2), Vegetation Management, and Water Uses.

Data was collected by an IDT made up of specialists and line officers and partners might also participate. Once data was collected, it was uploaded into a Forest Service Access database (via Citrix and National Applications) where the fields were set up the same way as the monitoring protocols. Currently, there is no way to write directly to the data base from data collection tablets in the field of “upload pdf” and “autofill”.

Reports were created using IBM Cognos Analytics.

The following reports were pulled using IBM Cognos Analytics:

- Best Management Practices (BMP) Evaluation Counts,
- Best Management Practices (BMP) Implementation Scores Analysis,
- Best Management Practices (BMP) Effectiveness Scores Analysis.

Site selection differed from the protocol for sites selected in 2019/2020. Due to the emphasis on timber and fuels, the target number was reduced and the requirement that the site be randomly selected was waived. Evaluations were assigned to Little Missouri Grassland (LMNG) and Sheyenne National Grassland (SNG). Since the evaluations were assigned to specific districts, the selection was not truly random. Sites on the SNG were selected due to accessibility. With the exception of the road BMP, sites on the LMNG were selected because they were the only ones fitting the criteria of the protocols.

Results

Fourteen evaluations were completed for the 2021/2022 cycle; however, these results have not been compiled to date. During 2022, the Forest Service moved from an Access database to a web-based database and survey data could not be fully processed.

A total of 25 BMP reviews were conducted from 2015 to 2020. All BMP reviews were conducted using the Forest Service’s National Core Best Management Protocols (BMP) (Table 13 and Table 14). BMP reviews

consist of Implementation and Effectiveness Monitoring. Implementation Monitoring evaluates the degree to which planned soil and water conservation measures for a given activity or project have been carried out. Effectiveness Monitoring, evaluates whether implemented soil and water conservation practices successfully avoided resource impacts. In reviews conducted between 2015 and 2020, 17 out of the 25 reviews yielded Fully Effective ratings. One review resulted in a "Mostly Effective" rating, one review resulted in a "Marginally Effective" rating, four resulted in "Not Effective" ratings, and two had incomplete data (Figure 10, Figure 11). The BMP database generates ratings independent of the reviewer, making it difficult to determine what specifically led to the individual implementation and effectiveness ratings. This will be resolved in the FY25 report.

Table 13. Number and Types of National Core BMP Reviews conducted 2015 – 2020

BMP Review	Number of Evaluations	Evaluation Type Imp Count	Evaluation Type Eff Count	Evaluation Type Imp- Eff Count	Evaluation Type Follow- up Imp Count	Evaluation Type Follow- up Eff Count	Evaluation Type Follow- up Imp- Eff Count	Random Count	Non-Random Count
Chemical	1	0	0	1	0	0	0	0	1
Facility	4	0	0	4	0	0	0	2	2
Fire	2	0	0	2	0	0	0	0	2
Mineral	8	0	0	8	0	0	0	6	2
Range	4	1	0	3	0	0	0	3	1
Recreation	3	0	0	3	0	0	0	2	1
Road	3	1	0	2	0	0	0	1	2
Water Uses	2	0	0	2	0	0	0	1	1
Total	27	2	0	25	0	0	0	15	12

The specific targets for BMP evaluations for 2015/2016 and 2017/2018 were not known at the time of this report. The DPG was assigned seven assessments for the 2019/2020 monitoring period. Originally, the target was 14, but due to the emphasis on ramping up timber and fuels, the target was reduced.

Table 14. BMP Evaluations and Scores by 2015-2016

Monitoring activity	Site	Evaluation Type	Implementation	Effectiveness	Composite
Min_B	Federal 6-2	Both	Marginal	Effective	Good
Min_B	Demores Federal 31-10 TFH	Both	Marginal	Effective	Good
Min_B	Enduro Operating 9 147 102	Both	Mostly	Effective	Excellent
Min_B	Nance 9-6H	Both	Mostly	Effective	Excellent
Range_A	GRRD 1B West	Both	Mostly	Effective	Excellent
Range_A	GRRD 3B West	Both	Mostly	Mostly	Good
Rec_A	Magpie Campground	Both	No BMPs	Effective	No Plan
Min_D	Debra Rauch 1-1H	Both	Fully	Effective	Excellent
Min_D	BSMU 0103	Both	Fully	Effective	Excellent

Monitoring activity	Site	Evaluation Type	Implementation	Effectiveness	Composite
Range_A	Pfingsten East, 924	Implementation	Fully	Missing Q45	Missing data
Road_E	701a	Implementation	Fully	Not evaluated	Incomplete
WatUses_A	INFRA ID 100288 Ekre Yearling	Both	Mostly	Effective	Excellent

Table 15. BMP Evaluations and Scores by 2017-2018

Monitoring activity	Site	Evaluation Type	Implementation	Effectiveness	Composite
Fac_D	Tesoro Exposed Line Removal SESE	Both	Marginal	Effective	Good
Fac_D	SM Energy- Elkhorn Tank Site	Both	Fully	Effective	Excellent
Fac_D	016 Dam Reclamation Project (AG- 872	Both	Fully	Marginal	Fair
Fire_A	J West	Both	Fully	Effective	Excellent
Fire_B	Magpie Creek	Both	Fully	Not	Poor
Min_B	Mormon Butte Fed 5-25 2B	Both	Mostly	Effective	Excellent
Range_A	Chicken Creek Exclosure	Implementation	Marginal	Not evaluated	Incomplete

Table 16. BMP Evaluations and Scores by 2019-2020

Monitoring activity	Site	Evaluation Type	Implementation	Effectiveness	Composite
Rec_D	North Country National Scenic, 1001	Both	Mostly	Not	Poor
Chem_A	A Anex*	Both	Mostly	Effective	Excellent
Fac_B	Woods Cabin	Both	No BMPs*	Not*	No Plan
Min_D	Tower Butte #1 Tank Battery T144N	Both	Mostly	Effective	Excellent
Range_A	Pfingsten East, 924	Effectiveness	(fy2016)	Missing Q45*	Missing data*
Road_C	805-2	Both	No BMPs	Missing Q49*	Missing data*
Road_F	712-28	Both	Marginal	Effective	Good
WatUses_A	100278*	Both	Not*	Effective	Good

* Missing data or error

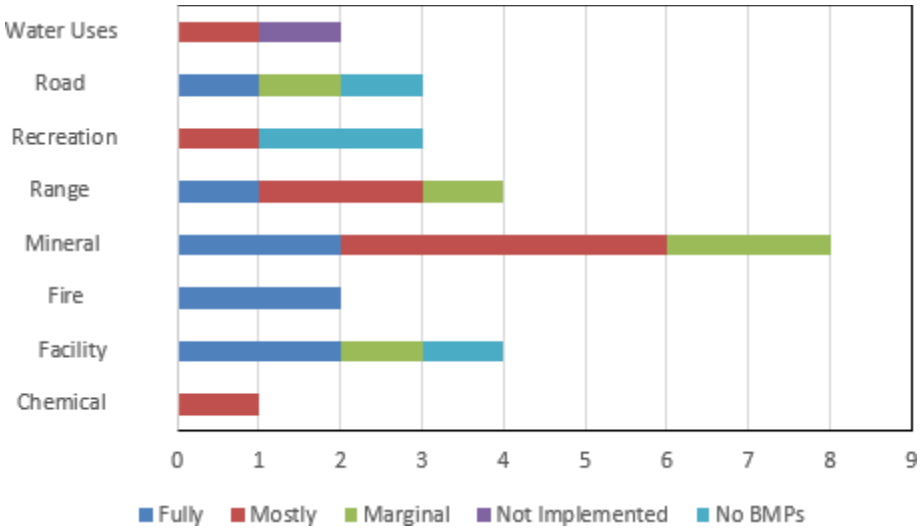


Figure 10. Implementation Ratings for BMP Reviews conducted using FS National Core BMP Protocols from 2015 to 2020

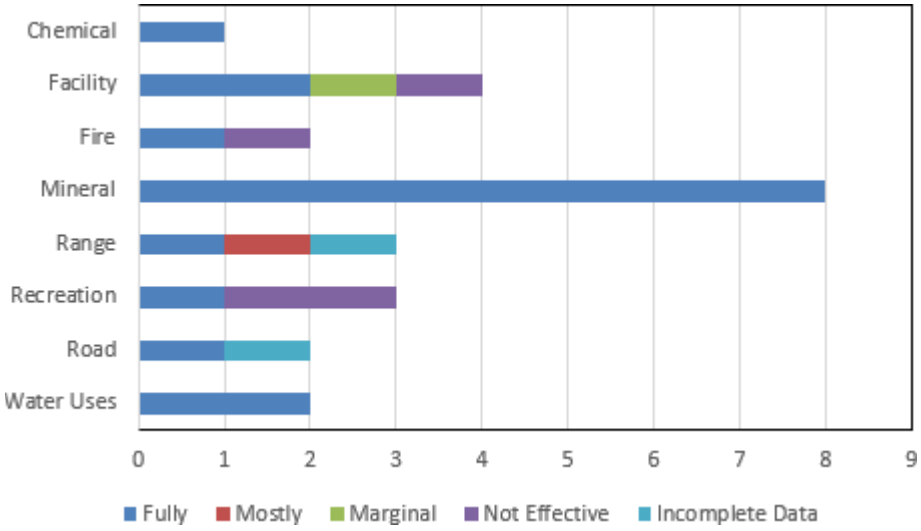


Figure 11. Effectiveness for BMP Reviews conducted using FS National Core BMP protocols from 2015 to 2020

Discussion

The DPG achieved its target of seven BMP assessments for 2015/2020. In total, 5 years of data has been collected. During each cycle, the DPG has achieved or exceeded the assigned targets.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole. This is a change from the FY21 BMER, which offered an implementation status finding for each indicator.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 1. Within 10 years identify watershed conditions to provide baseline data sufficient to meet the following objectives:

- Improve the water quality associated with 20% of degraded water bodies.

Monitoring Question evaluating the above Plan Component(s)

What is the effectiveness of Best Management Practices (BMPs) in preventing degradation to water bodies?

Findings for the above Plan Components

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e., maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s)	Yes	Monitoring Program Management Activities

[1] See Box 1

Findings Rationale: BMP surveys cannot be compared to previous years until processed. Comparisons will be conducted in FY25.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
3. Management Activities: Utilize criteria of geomorphic integrity, water quality integrity, biotic information, watershed vulnerability, and potential partnerships to prioritize watershed improvement projects. 4. New Assessment: add a focus of what was learned from the BMP surveys in the report.
RATIONALE FOR THE RECOMMENDATION
1. These criteria will be used to select watersheds for improvement. 2. This provides the “why” to why we do these surveys.

Monitoring Item MON-AQU-04

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated partly to protect surface and ground water resources.
The DPG LRMP contains several standards and guidelines protecting watersheds and ground water. Additional laws protect the watersheds:

- Clean Water Act (CWA)
- Organic Administration Act of June 4, 1897, as amended.
- Bankhead Jones Farm Tenant Act of July 22, 1937, as amended.
- North Dakota Administrative Code Chapter 33-16-02.1 Standards of Quality for Waters of the State.
- USDA Departmental Regulation 9500-8 (DR 9500-8). This departmental regulation provides direction for all USDA agencies regarding the protection and enhancement of groundwater quality.

- Forest Service Directives: FSM 2540 establishes procedures for complying with Federal policy and state water rights laws.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 1a Objective 5. Prevent contamination of surface water, sub-surface flows, and aquifers.

Monitoring Question evaluating the above Plan Component(s)
MON-AQU-04: To what extent have surface, sub-surface flows, and aquifers been protected from contamination by management actions?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Decommissioned wells (number of oil and water wells properly decommissioned)	Annual	Supervisor's Office records, WIT Database	Watershed Program Manager Medora: Brian Kempenich brian.kempenich@usda.gov 701-227-7847 McKenzie: Cale Bickerdyke cale.bickerdyke@usda.gov 701-842-8502 Sheyenne: Stacy Swenson stacy.swenson@usda.gov 701-683-4342
Hazardous spills and clean actions (number of)	Annual	District Office records Supervisor's Office records	Medora: Claudia Arends Claudia.arends@usda.gov McKenzie: Cale Bickerdyke cale.bickerdyke@usda.gov 701-842-8502
BMPs (total number of BMPs surveys	Annual	BMP national database	Watershed Program Manager
BMP implementation ranking (sampling of total are checked for implementation)	Annual	BMP national database	Watershed Program Manager
BMP effectiveness ranking (sampling of total are checked for effectiveness)	Annual	BMP national database	Watershed Program Manager
BMP composite ranking (sampling of total implementation and effectiveness rankings)	Annual	BMP national database	Watershed Program Manager

Data and Evaluation History

MON-AQU-04	Year
Data last collected or compiled	2022
Next scheduled data collection/compilation	2024
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) YES - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	None	N/A

[1] **IMPLEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

Decommissioned Wells

On the McKenzie RD, oil and gas wells are recorded as decommissioned when the entire pad is rehabilitated. Reclaimed or 'rehabbed' pads are entered into WIT for accomplishment tracking. Eleven pads were reclaimed within the McKenzie RD boundaries during the monitoring time period for this report. Information needs to be requested from the ranger districts for accomplishment reporting.

No artesian wells were plugged within the Sheyenne RD boundaries for this monitoring time period. Two wells were plugged in 2015 and several more wells are marked as planned for rehabilitation in WIT. These wells can be found using the "Feature Inspector" in WIT.

Hazardous spills and clean-up actions

The Ranger District Offices track spills and provide that data to the DPG Supervisors Office (SO). Contact the appropriate spill coordinators at the district offices for the most up to date data. Data used in this report will be stored on Pinyon, a US Forest Service electronic filing program.

Best Management Practices

Refer to Monitoring Item MON-AQU-03

Results

Decommissioned Wells

The number of and acreage of wells and well pads reclaimed are in are in Table 17. More detailed information about individual wells and pads can be found in **Error! Reference source not found.**Table 18Table 19Table 20. No Artesian wells were plugged since the last monitoring.

Table 17. Number of and acreage of wells and well pads reclaimed annually.

Year	Pad Acres Reclaimed	Number of Pads/Wells Reclaimed
2020	28.3	11
2021	88.82	30
2022	21.34	9
Grand Total	**138.46**	**50**

Table 18. Oil & Gas Wells Decommissioned, Pads Rehabilitated (FY22)

District and Well/Pad Name	Reclaimed Acres
011807-O&G Fed 1-17 1.7 Ac S&W AZ	1.7
011807-O&G KochFed 7-21 3.9 Ac S&W AZ	3.9
011807-O&G MHMU 11 1.5 Ac S&W AZ	1.5
011807-O&G NERU 2703 2.09 Ac S&W AZ	2.09
011807-O&G Shapiro 22-10p 2.08 Ac S&W AZ	2.08

District and Well/Pad Name	Reclaimed Acres
011807-O&G TMW 33-23 Reclaim 4 Ac S&W AZ	4
011808-O&G Burlingtion 11-1 1.65 Ac S&W AZ	1.65
011808-O&G Fed 19-42 Reclaim 1.74 Ac S&W AZ	1.74
011808-O&G State 1-16H Reclaim 2.68 Ac S&W AZ	2.68
Total	**21.34**

Table 19. Oil & Gas Wells Decommissioned, Pads Rehabilitated (FY21)

District and Well/Pad Name	Reclaimed Acres
011807-O&G AmeradaFed32-22 2.95 Ac S&W AZ	2.95
011807-O&G Beaver Ck 11-53 2.71 Ac S&W AZ	2.71
011807-O&G Buckhorn Fed 1 4.40 Ac S&W AZ	4.4
011807-O&G Fed 35-2 2.18 Ac S&W AZ	2.18
011807-O&G MOI 24-1H 3.76 Ac S&W AZ	3.76
011807-O&G SFTU 11-24 2.85 Ac S&W AZ	2.85
011807-O&G SFTU 4-35 2.87 Ac S&W AZ	2.87
011807-O&G Well Pad Buckhorn Fed A2 3.77 Ac S&W AZ	3.77
011807-O&G Well Pad DO-1 SWD 2.14 Ac S&W AZ	2.14
011807-O&G Well Pad Elkhorn Fed A7 2.55 Ac S&W AZ	2.55
011807-O&G Well Pad Fed 14-7HH 2.54 Ac S&W AZ	2.54
011807-O&G Well Pad Fed 32-2HR 2.88 Ac S&W AZ	2.88
011807-O&G Well Pad HAMACKOFF23-17H 3.65 Ac S&W AZ	3.65
011807-O&G Well Pad Key Fed 33-33 2.71 Ac S&W AZ	2.71
011807-O&G Well Pad NERU 1504 2.54 Ac S&W AZ	2.54
011807-O&G Well Pad NERU 1701 2.92 Ac S&W AZ	2.92
011807-O&G Well Pad NERU 1804 1.91 Ac S&W AZ	1.91
011807-O&G Well Pad NERU 2102 1.65 Ac S&W AZ	1.65
011808-O&G Proc Fac Hess Sec-8 2.92 Ac S&W AZ	2.92
011808-O&G Proc Fac Petro Sec-5 5.14 Ac S&W AZ	5.14
011808-O&G Well Deep Unit #2 7.29 Ac S&W AZ	7.29
011808-O&G Well Fed Rivet 6-6 CTB 2.37 Ac S&W AZ	2.37
011808-O&G Well Pad Fed 15-43 4.84 Ac S&W AZ	4.84
011808-O&G Well Pad Fed 3-32X 2.44 Ac S&W AZ	2.44
011808-O&G Well Pad Fed Rivet 6-6 1.07 Ac S&W AZ	1.07
011808-O&G Well Pad FedRivet6-3 SWD 3.09 Ac S&W AZ	3.09
011808-O&G Well Pad Snowcover 43-18 2.17 Ac S&W AZ	2.17
011808-O&G Well Pad USA 33-11-106 2.26 Ac S&W AZ	2.25
011808-O&G Well Pad USA 33-20 1.61 Ac S&W AZ	1.61
011808-O&G Well Pad USA 33-23-154 2.65 Ac S&W AZ	2.65
Total	**88.2**

Table 20**.** Oil & Gas Wells Decommissioned, Pads Rehabilitated (FY20)

District and Well/Pad Name	Reclaimed Acres
011807-O&G Corey Fed. 12-5 5.0 Ac S&W AZ	5
011807-O&G FHMU G-808 1.4 Ac S&W AZ	1.4
011807-O&G H&R Tower Butte 1 2.4 Ac S&W AZ	2.4
011807-O&G Morgan Draw Fed C5 4.7 Ac S&W AZ	4.7
011807-O&G Roosevelt Fed 2-4H 3.1 Ac S&W AZ	3.1
011807-O&G Summit Fee 1-9H 3.5 Ac S&W AZ	3.5
011808-O&G, Bicentennial 10-34H 4.2 Ac S&W AZ	4.2
011808-O&G, CMNU C-205 1 Ac S&W AZ	1
011808-O&G, ERRMU 1-8WIW 1 Ac S&W AZ	1
011808-O&G, ERRMU 4-12R 1 Ac S&W AZ	1
011808-O&G, USA 2B-2-2 1 Ac S&W AZ	1
Total	**28.3**

Hazardous spills and clean-up actions

A total of 957 spills occurred on the Little Missouri National Grassland (LMNG) from 2011-2022 (Figure 12, Table 21).

Table 21. Hazardous Spills 2011 – 2022

Year	Medora	McKenzie	LMNG Combined
2011	60	13	73
2012	64	24	88
2013	55	49	104
2014	69	32	101
2015	52	33	85
2016	51	19	70
2017	6	34	40
2018	43	31	74
2019	56	50	106
2020	29	17	46
2021	32	38	70
2022	36	64	100
Total	**553**	**404**	**957**

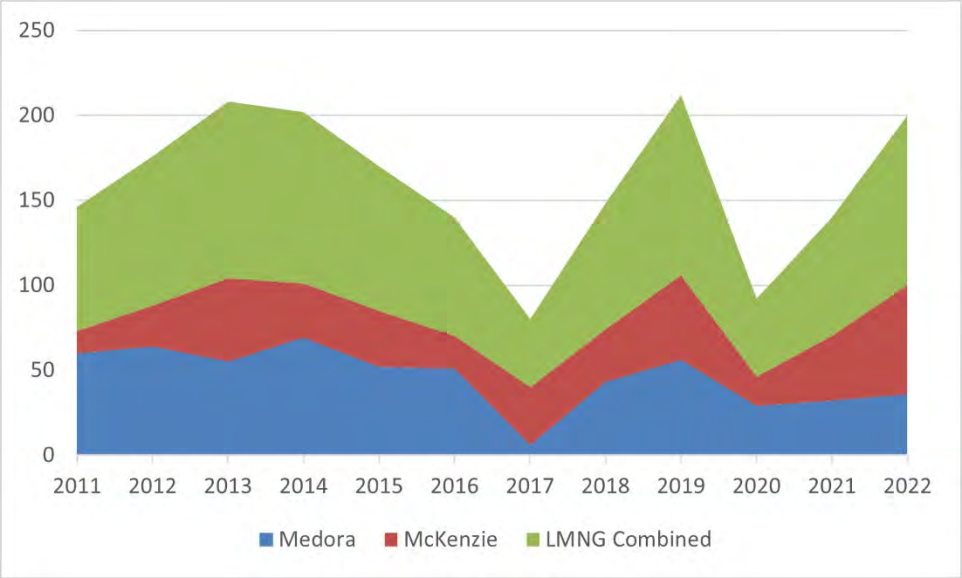


Figure 12. Undesirable events/spills per Year

Best Management Practices

Refer to Monitoring Item MON-AQU-03

Discussion

The data for decommissioned wells was considered baseline data and was previously not recorded in WIT for the FY21 BMER. With two more years of data, it demonstrates that wells and pads are continually being decommissioned on the DPG. Future decommissioning's will continue to be recorded in WIT.

Oil and gas activities are mostly responsible for hazardous material spills within the DPG. Between 2010 and 2022, 957 such spills were known to occur. All were cleaned up preventing contamination of surface and ground water. The number of spills and cleanups increased slightly from 2010 to 2014. This increase follows the oil boom which ended in 2014, when oil prices fell from $108 to $40 per barrel (Figure 14). Beginning in 2017, the production per well started to increase again which corresponds with the increased number of spills and cleanups (Figure 12). Production decreased in 2020, with a second drop in oil prices (Figure 14) and decreased demand due to COVID-19. As of 2022, production had not fully recovered.

The total number of unfavorable events/spills (Figure 12) trends with barrels of oil per day/daily oil per well (Figure 13) from 2011 to 2020. After 2020, the number of events went up while barrels of oil per day/daily oil per well declined. The points from 2011 to 2020 can be viewed as a trend, but there are too few points between 2020 and 2022 to determine a trend. It should be noted that the number of spills and cleanups includes all unfavorable events. Not all unfavorable events, like fires and freshwater spills or leaks, are a threat to water resources.

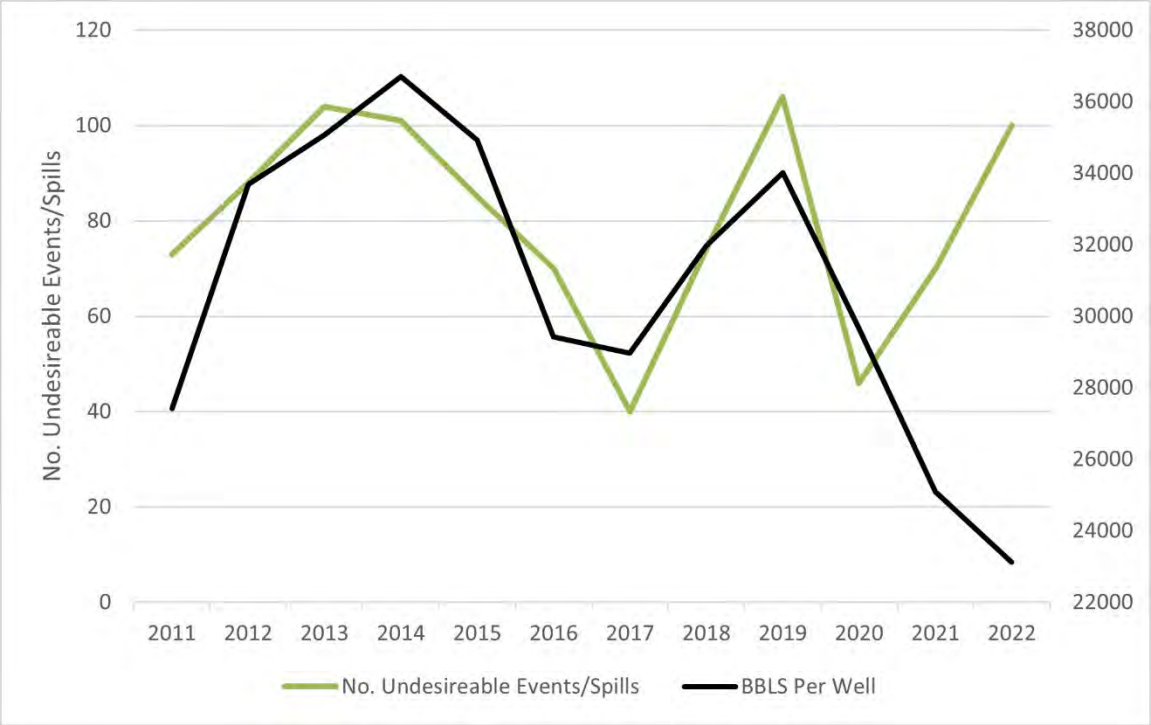


Figure 13. Number of undesirable events versus barrels per day

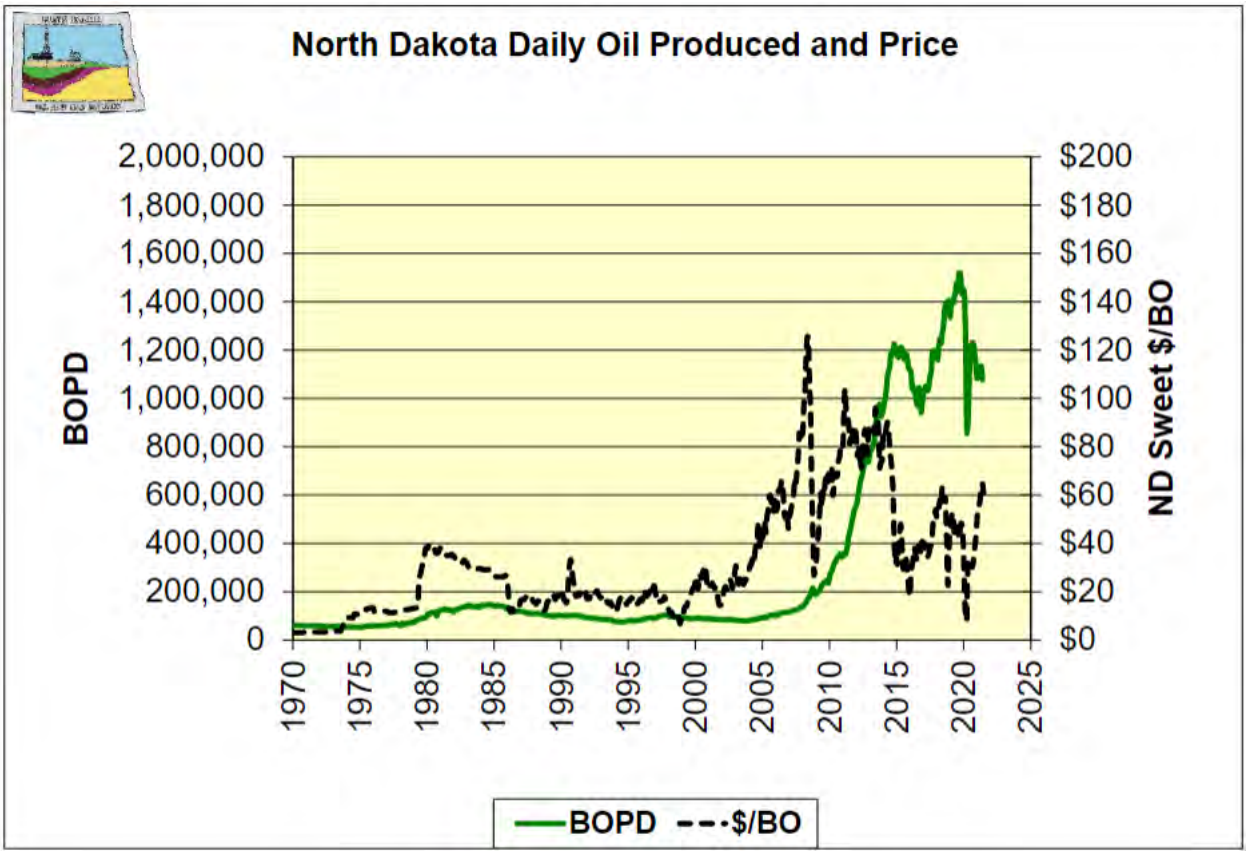


Figure 14. Chart of Daily Oil Production with Price per Barrel (from ND Dept. of Mineral Resources)

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1a Objective 5. Prevent contamination of surface water, sub-surface flows, and aquifers.

Monitoring Question evaluating the above Plan Component(s)

To what extent have surface, sub-surface flows, and aquifers been protected from contamination by management actions?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e., maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired(s)	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Implementation of Plan Components are being conducted as desired. All hazardous spills are cleaned up and decommissioned wells and pads are being restored.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
4. Monitoring Program: Remove Best Management Practices from MON-AQU-04. 5. Monitoring Program: Add well conversions (Oil & Gas wells to water for grazing) and any associated monitoring data to MON-AQU-4 6. New Assessment: Expand on the undesirable events and cleanups and how each is or is not a threat to WQ.
RATIONALE FOR THE RECOMMENDATION
1. Best Management Practices are thoroughly discussed in MON-AQU-03. They are redundant here. 2. Medora completed one well conversion and more are planned across the LMNG. Monitoring will be conducted to protect surface and groundwater resources. 3. The number of spills or cleanups does not tell the whole story. Determine if the spills were cleaned up and how to get into the bigger picture of water quality.

BOTANY

Monitoring Item MON-BOT-01A, -01B, -01C

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated due to the DPG LRMP standards, guidelines and monitoring pertaining to the western prairie fringed orchid. The LRMP Appendix N, Recovery Strategy for the Western Prairie Fringed Orchid on the Sheyenne National Grassland represents the best identified approach for managing the orchid in a multiple use setting and meets the intent of the Endangered Species Act. These monitoring questions exist to identify the trends of the western prairie fringed orchid population and status of habitat.

The LRMP Appendix N describes general conditions necessary for the conservation of the orchid on the Sheyenne National Grassland and include the following:

- Manage western prairie fringed orchid populations consistent with metapopulation concepts.
- Manage toward sustainable native tallgrass prairie ecosystems.
- Manage the Sheyenne National Grassland to promote the ecological processes that provide the structural and floristic diversity characteristic of the tallgrass prairie ecosystem.

Management activities should favor practices that 1) reduce woody and exotic plant species such as leafy spurge and Kentucky bluegrass, 2) provide a mosaic of structural classes, seral stages and plant communities characteristic of tallgrass prairies using fire, grazing, and other suitable practices, and 3) maintain the hydrological regime that supplies ground water to the wetlands supporting the orchid.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)

MON-BOT-01A. What is the current population status of western prairie fringed orchid (Platanthera praeclara)?

MON-BOT-01B. What is the current and potential habitat capability for western prairie fringed orchid?

MON-BOT-01C. What management actions and naturally occurring events have influenced changes to western prairie fringed orchid status and/or its habitat?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
MON-BOT-01A. Occurrences (number of flowering stems, number of pods that set seed per flowering plant, and the number of viable seeds incorporated into the seedbank)	Annual	SNG Records	SNG Staff
MON-BOT-01A. Surveys (number of pastures and allotments surveyed for flowering orchids)	Annual	SNG Records	SNG Staff
MON-BOT-01B. Potential habitat (*acres of*)	Annual	SNG Records	SNG Staff

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
MON-BOT-01B. Current habitat (*acres of*)	Annual	SNG Records	SNG Staff
MON-BOT-01C. Grazing activities (*acres grazed and not grazed overlapping with orchid occurrences, acres of orchid occurrences rested between 6/1-9/15 within each core allotment*)	Annual	SNG Records	SNG Staff
MON-BOT-01C. Vegetation treatments (*e.g. acres treated for leafy spurge within core and satellite areas, acres burned or mowed in core and satellite areas, including rested areas*)	Annual	SNG Records	SNG Staff
MON-BOT-01C. Orchid habitat in invaded state (*acres of*)	Annual	SNG Records	SNG Staff

Data and Evaluation History

MON-BOT-01A, -01B, -01C	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	**MON-BOT-01A and MON-BOT-01B.** (E) YES - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired **MON-BOT-01C.** (B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Orchid habitat dominated by invasive species should be tracked to see if this affects orchid populations. Include an additional indicator of acres of orchid habitat in the invaded state.	C
FY21	Monitoring Program: Vegetation treatments and orchid populations need to be evaluated further to determine if there is a cause-and-effect relationship.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The monitoring question was administratively changed in FY21 to include an additional indicator of acres of orchid habitat in the invaded state. Implementation of this new indicator is still in progress as data needs to be collected to answer this question. The other recommendation was to further evaluate the cause-and-effect relationships of the vegetation treatments. Data has been collected on vegetation treatments and is in the process of being evaluated.

Methods

MON-BOT-01A-What is current population status of western prairie fringed orchid?

Surveys

In 2002, the Forest Service installed permanent microplots to monitor orchids. Each plot is 100 x 100 meters and is monitored annually. The orchids in the plot are GPS'd, the height of the orchid measured, and number of flowers and buds of each plant are recorded. This data is recorded by the district and filed in the 2600 District Files.

Locations of microplots:

- McLeod: McLeod Allotment South Pasture, T134N R53W SW ¼ Sec 35
- Penberthy Plot A: Penberthy Allotment South Pasture Plot A, T135N R53W SW ¼ Sec 30
- Penberthy Plot B: Penberthy Allotment South Pasture Plot B, T135N R53W SW ¼ Sec 30
- R: R Allotment Northeast pasture, T133N R52W NW ¼ Sec 34
- Venlo: Venlo Allotment South Pasture, T134N R54W SE ¼ Sec 1

In 2002, the Forest Service designated macro plots to monitor orchid populations. Each plot is approximately 160 acres in size. From 2002-2017, the plots were monitored annually and from that point forward they will be inventoried every 5 years. All flowering orchids within the plots are counted. The protocol to count the orchids is to have surveyors line up and walk across the plot in a swath, counting all flowering orchids. This data is recorded by the district and filed in the 2600 District Files.

Locations of macroplots:

- McLeod: McLeod Allotment North Pasture, T134N R53W NW¼ Sec 27
- Milton Jr.: Milton Jr. Allotment North Middle Pasture, T135N R52W NW¼ Sec 13
- Olerud: Olerud Allotment West Pasture, T135N R53W SW¼ Sec 34
- Sagvold: Sagvold Allotment West Pasture, T134N R53W SW¼ Sec 4
- Venlo: Venlo Allotment South Pasture, T134N R54W SE¼ Sec 1
- Viking Prairie: Viking Prairie General Resource Area, SW¼ Sec 9

When funding is available, North Dakota Parks and Recreation (NDPR), Heritage Division, contracts for grazing allotments to be inventoried for orchids on the Sheyenne National Grassland. Each year NDPR personnel coordinate with Sheyenne District personnel for recommendations of which areas to inventory. NDPR maps and counts all flowering orchids in the agreed upon areas and provides a report of findings to USDA Forest Service.

MON-BOT-01B - What is the current and potential habitat capability for western prairie fringed orchid

Current habitat

Acres of current habitat are reported by using the GIS layers (orchid point and orchid poly) that include all areas on the Sheyenne National Grassland where orchids have been inventoried from 1982 to 2020. Because orchid populations shift in time and space in response to water levels, not all of these acres will support orchids each year. This layer is updated annually in the GIS reference library. To analyze the data, we buffered the orchid points by five feet and then joined this layer with the orchid polygon layer to produce acres of current habitat.

Potential habitat

The habitat for the western prairie fringed orchid generally occurs in wet meadow ecological sites and less frequently in sub-irrigated or limy sub-irrigated ecological sites. One option would be to map potential habitat by using GIS layers to display ecological sites that could support orchids. Instead, we are reporting acres of "potential habitat" as equal to "current habitat" because we feel this most adequately represents where orchids have the potential to occur based on 40 years of extensive surveys. Orchids require a soil-inhabiting fungus and specific water conditions to inhabit an area. Since we have surveyed nearly all wet meadow ecological sites on the Grassland we are at a point where current and potential habitat are likely the same.

MON-BOT-01C - What management actions and naturally occurring events have influenced change to western prairie fringed orchid status and/or its habitat?

Grazing activities

Acres grazed and not grazed overlapping with orchid occurrences are analyzed by comparing the current orchid habitat with location of grazing allotments by using the GIS layers.

Appendix N of the LRMP states that each year, 1/3 of the acres historically occupied by orchids in core allotments will not be grazed June 1 to September 15. Areas that are rested during this time period encompass a topographic gradient to allow for local population shifts and are adjusted spatially to account for future metapopulation shifts. These orchid deferment areas are mapped with GPS and reported annually by the district and are also indicated in the grazing program's Annual Operating Instructions.

Implementation of the deferred acres has been a gradual process. Orchid deferment areas are either an entire pasture (these pastures were previously fenced for cattle rotations) that is deferred from grazing impacts by working this into the grazing rotation or areas where USDA Forest Service purchases and installs temporary electric fence to defer a specific area of orchid habitat within a pasture.

Vegetation treatments

Data for acres treated for leafy spurge within core and satellite areas is collected by gathering the information for these allotments from NRM FACTS database.

Data for acres burned, mowed, or rested in core and satellite areas is collected by gathering the information for these allotments from NRM FACTS database.

Results

MON-BOT-01A - What is current population status of western prairie fringed orchid?

The current population status of western prairie fringed orchid is shown in Table 22, Table 23 and Table 24. Table 22 shows how the population of the western prairie fringed orchid (based on flowering orchids) within the microplots has changed from year to year. Table 23 shows how the population of the western prairie fringed orchid (based on flowering orchids) within the macroplots has changed from year to year. Table 24 represents acres that have been surveyed for the western prairie fringed orchid. These areas are different each year and contain varying amounts of potential orchid habitat so they cannot be compared from year to year like the micro and macro plots can be.

Table 22. Western Prairie Fringed Orchid Count in Sheyenne National Grassland Microplots by Year**

Year	*F McLeod	*V McLeod	*F Penberthy Plot A	*V Penberthy Plot A	*F Penberthy Plot B	*V Penberthy Plot B	*F R	*V R	*F Venlo	*V Venlo	*F Total	*V Total
2002	25	20	6	0	74	68	1	0	30	57	136	145
2003	12	11	20	12	41	124	17	7	6	16	96	170
2004	30	11	1	7	2	10	0	0	5	38	38	66
2005	45	1	12	0	166		6	0	5	15	234	16
2006	38	3	20	2	224	36	6	0	5	1	293	42
2007	9	0	5	0	25	8	4	0	0	0	43	8
2008	37	14	6	0	23	3	6	0	5	1	77	18
2009	8	0	2	0	1	1	2	0	15	0	28	1
2010	11	2	12	5	13	0	1	1	0	0	37	8
2011	2	--	0	--	2	--	0	--	3	--	7	--
2012	0	--	18	--	42	--	0	--	2	--	62	--
2013	2	--	3	--	20	--	0	--	2	--	27	--
2014	0	--	3	--	11	--	0	--	0	--	14	--
2015	8	--	3	--	5	--	0	--	2	--	18	--
2016	21	3	11	0	47	5	0	0	3	1	82	9
2017	15	5	6	6	58	29	2	2	18	0	99	42
2018	2	1	0	0	1	7	0	0	65	0	68	8
2019	6	0	3	0	35	3	3	0	42	2	89	5
2020	0	0	0	0	0	0	9	0	1	0	10	0
2021	3	0	1	0	0	0	2	0	7	1	13	1

Year	*F McLeod	*V McLeod	*F Penberthy Plot A	*V Penberthy Plot A	*F Penberthy Plot B	*V Penberthy Plot B	*F R	*V R	*F Venlo	*V Venlo	*F Total	*V Total
2022	2	0	3	0	10	0	8	0	13	1	36	1

*F-flowering orchid, V-vegetative orchid
**Cells with -- indicate there were no visits during those years.

Table 23. Western Prairie Fringed Orchid Counts in Sheyenne National Grassland Macroplots by Year *

Year	McLeod	Milton Jr.	Olerud	Sagvold	Venlo	Viking Prairie	Annual Total
2001	--	256	--	--	--	647	--
2002	--	--	--	--	--	119	--
2003	--	--	7	--	--	38	--
2004	--	--	--	--	--	27	--
2005	--	--	--	--	--	194	--
2006	--	--	1815	--	186	206	--
2007	19	162	339	218	198	94	1030
2008	277	14	62	293	117	322	1085
2009	258	115	67	265	374	315	1394
2010	100	952	48	62	6	744	1912
2011	159	282	94	106	120	612	1373
2012	37	11	53	138	31	319	589
2013	101	28	48	57	174	65	473
2014	196	225	113	182	15	50	781
2015	--	--	--	--	--	--	--
2016	140	119	149	1	237	120	766
2017	2	51	132	158	259	85	687
2018	94	--	--	--	--	107	--
2021	20	41	331	28	319	13	752

**Cells with -- indicate there were no visits during those years.

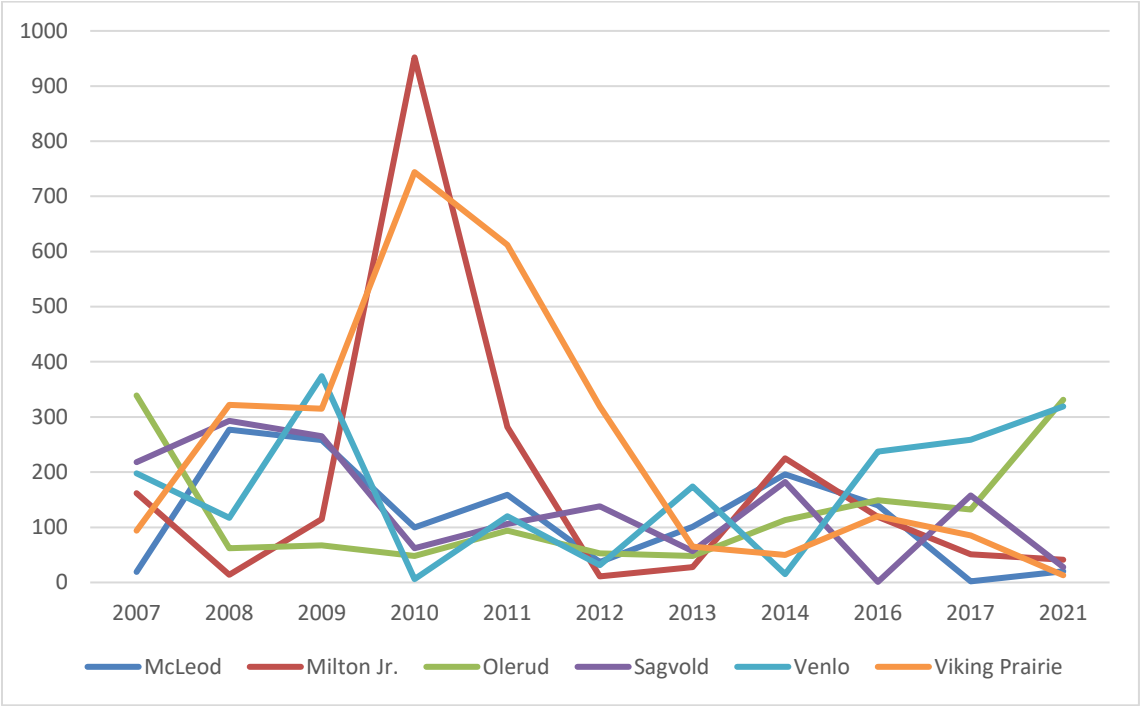


Figure 15. Western Prairie Fringed Orchid Counts in Sheyenne National Grassland Macroplots by Year

Table 24. Acres Surveyed for Western Prairie Fringed Orchid by North Dakota Parks and Recreation*

Year	Acres Surveyed	Number of Orchids
2001	4,401	1,042
2002	10,298	174
2003	885	--
2004	4,720	85
2005	3,640	3,209
2006	3,558	560
2007	4,404	1,433
2008	3,019	2,544
2009	2,997	1,347
2010	5,473	1,595
2011	3,814	1,666
2012	4,148	480
2013	0	--
2014	5,062	1,017
2015	4,779	2,487
2016	5,130	1,781
2017	0	--
2018	4,292	853
2019	5,134	634
2020	5,106	125
2021	5,200	318
2022	4829	1,192

*Cells with -- indicate there were no visits during those years.

MON-BOT-01B - What is the current and potential habitat capability for western prairie fringed orchid?

Table 25. Current and Potential Habitat Capability for Western Prairie Fringed Orchid

Habitat	Acres
Current habitat	8,380
Potential habitat	8,380

MON-BOT-01C - What management actions and naturally occurring events have influenced change to western prairie fringed orchid status and/or its habitat?

Table 26, Table 27, Table 28, show different management actions that may influence change to western prairie fringed orchid status and/or habitat. Table 26 shows acres of orchid habitat within the Sheyenne National Grassland that is grazed or not grazed. Almost all of the orchid habitat is grazed each year on the Grassland. Table 27 shows those acres of orchid habitat that are rested each year from June 1 to September 15 to avoid grazing impacts to the orchid. Table 28 shows other vegetation treatments that may occur nearby or within orchid habitat.

Table 26. Acres Grazed and Not Grazed Overlapping with Orchid Occurrences

	Acres
Orchid habitat – grazed	8,350
Orchid habitat – not grazed	30

Table 27. Acres of Orchid Habitat Rested between June 1 to September 15 within Core Allotments

Year	A Annex	Bjugstad satellite	McLeod	Milton Jr	North Durler	North S	Olerud/ Sagvold	Penberthy	Venlo	Wall	Total
2001	--	--	--	160	--	--	--	--	--	--	160
2002	--	--	--	320	--	--	--	--	--	439	759
2003	50	--	--	160	--	245	--	460	--	160	1,075

Year	A Annex	Bjugstad satellite	McLeod	Milton Jr	North Durler	North S	Olerud/ Sagvold	Penberthy	Venlo	Wall	Total
2004	50	--	160	320	--	274	160	311	--	160	1,435
2005	22	--	160	160	--	245	320	160	300	160	1,527
2006	22	--	191	160	--	297	160	18	89	160	1,097
2007	50	--	160	160	--	200	320	22	320	160	1,392
2008	22	--	160	160	--	281	160	60	100	160	1,103
2009	39	--	99	146	--	241	161	24	92	173	975
2010	26	--	142	158	--	281	152	25	268	152	1,204
2011	24	--	177	159	--	246	161	22	110	152	1,051
2012	24	--	105	171	--	281	159	18	274	171	1,203
2013	39	--	164	155	--	246	145	22	98	152	1,021
2014	24	--	105	171	--	20	152	18	268	171	929
2015	20	--	161	155	--	3	158	15	27	152	691
2016	23	--	103	168	606	18	160	14	40	152	1,284
2017	35	873	153	152	581	21	170	158	90	232	2,,465
2018	30	331	26	161	26	14	140	204	298	367	1598
2019	27	333	32	171	33	12	161	157	279	203	1,408
2020	--	333	--	155	--	--	158	260	298	152	1,356
2021	27	332	9	171	24	10	166	167	433	203	1542
2022	27	333	20	155	33	18	9	204	280	367	1446

**Cells with -- indicate there were no visits during those years.

Vegetation treatments (e.g, acres treated for leafy spurge within core and satellite areas, acres burned or mowed in core and satellite areas, including rested areas). Acres of leafy spurge treatments that are listed in Table 28 include biocontrol releases, sheep or goat grazing, and herbicide application. Noxious weed treatments in orchid habitat follow all mitigation measures within the 2007 DPG Noxious Weed Project EIS and LRMP Appendix N. Acres of mown wet meadows were not recorded in the Natural Resource Manager (NRM) database until 2012. Mowing treatments occurred before this time but have not been digitized or summarized. Brush reduction in wet meadows did not occur until vegetation projects were completed and these treatments were not implemented until 2016. Brush reduction includes using an aerator or diamond brush mower to reduce willow in wet meadow sites.

Table 28. Acres of Vegetation Treatments in Core and Satellite Allotments by Year

Year	Leafy Spurge Treatment Core	Leafy Spurge Treatment Satellite	Prescribed Fire Core	Prescribed Fire Satellite	Mowing Wet Meadows Core	Mowing Wet Meadows Satellite	Brush Reduction in Wet Meadows Core	Brush Reduction in Wet Meadows Satellite
2002	981	2,110	1,071	524	--	--	--	--
2003	3,870	2,216	1,964	1,088	--	--	--	--
2004	2,226	3,656	709	1,653	--	--	--	--
2005	7,179	6,312	1,939	1,887	--	--	--	--
2006	5,255	5,203	1,316	3,731	--	--	--	--
2007	1,483	4,931	734	1,431	--	--	--	--
2008	5,364	5,729	2,721	1,118	--	--	--	--
2009	664	1,781	0	741	--	--	--	--
2010	293	896	0	373	--	--	--	--
2011	30	423	0	0	--	--	--	--
2012	1,594	3,106	1,059	1,382	685	1,213	--	--
2013	984	3,025	0	320	999	1,093	--	--
2014	2,258	6,486	875	1,621	999	1,001	--	--
2015	6,163	2,416	732	419	1,053	1,168	--	--
2016	5,718	6,273	911	0	992	1,406	43	50
2017	6,945	2,809	0	1,067	1,217	1,256	339	96
2018	7,867	3,670	1,010	325	1,240	1,392	445	128
2019	7,326	4,027	0	1,486	155	514	162	0
2020	7,759	4,575	0	0	717	610	0	39
2021	2,071	2,419	0	0	886	2,264	0	75
2022	5,549	1,211	0	809	742	1,265	728	373

**Cells with -- indicate there were no visits during those years.

Discussion

MON-BOT-01A - What is current population status of western prairie fringed orchid?

The orchid survey data shows that the population varies from year to year. From 2002 to 2022 there were between 7 to 293 total flowering orchids within the microplots. From 2007 to 2021 (years when all plots were counted) there were between 473 to 1,912 total flowering orchids within the macroplots. The allotment surveys that are done also vary in number of orchids by year, but this data is not comparable between years since different areas are surveyed each year. An average of 4,000 acres have been surveyed for orchids annually from 2001-2022.

When looking at the data from the macroplots it shows that the orchid population can vary greatly from year to year, but it appears that the population overall is maintaining itself when you look across the 15 years of data.

MON-BOT-01B - What is the current and potential habitat capability for western prairie fringed orchid?

The current and potential habitat for western prairie fringed orchid is 8,380 acres. See the methods section for further information on how this was calculated.

MON-BOT-01C - What management actions and naturally occurring events have influenced change to western prairie fringed orchid status and/or its habitat?

Management actions and naturally occurring events may influence change to western prairie fringed orchid status and/or its habitat. The indicators that were assigned for this question only ask for acres of many of the vegetation management actions that occur on the Sheyenne National Grassland. Those actions include grazing, rest from grazing, leafy spurge treatment, prescribed burning, and mowing. In order to see if these management actions actually influenced orchid status or habitat, there would need to be a much more in-depth review of how those actions may or may not correlate with fluctuating orchid numbers. The management activities that are being tracked do not appear to be affecting the population or habitat in a negative way. However, there are other naturally occurring events (e.g., invasive species such as reed canary grass and hybrid or invasive cattails) that may be directly affecting the habitat that are not addressed in the indicator.

The greatest impact to the orchid status and habitat is likely fluctuating ground water conditions. The orchid prefers growing in sites with saturated soils. Precipitation creates changes in the habitat quality within the wet meadow sites from year to year so population levels can vary greatly. Flooding events between 2009 and 2011 brought in an invasive hybridized cattail that can tolerate a greater range of water depths and tends to form monocultures. This invasives species and others, such as reed canary grass, may compete with the orchid since they prefer similar habitats.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS

Monitoring Question evaluating the above Plan Component(s)
MON-BOT-01A. What is the current population status of western prairie fringed orchid (Platanthera praeclara)?
MON-BOT-01B. What is the current and potential habitat capability for western prairie fringed orchid?
MON-BOT-01C. What management actions and naturally occurring events have influences changes to western prairie fringed orchid status and/or its habitat?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
MON-BOT-01A and MON-BOT-01B. (E) YES - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired **MON-BOT-01C.** (B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)	No	N/A

[1] See Box 1

Findings Rationale: Monitoring of the orchid population has occurred for many years and results demonstrate that the population fluctuates annually, but overall is maintained. In addition, orchids have been surveyed across the Sheyenne National Grassland and over many years we are able to identify current and potential habitat. It appears the habitat is being maintained. However, more time and data are needed to track invasive species (ecological sites in the invaded state) in orchid habitat and evaluate effects to orchid populations and habitat. In addition, vegetation treatments and orchid populations need to be evaluated further to determine if there is a cause-and-effect relationship.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Orchid habitat dominated by invasive species should be tracked to see if this affects orchid populations. Include an additional indicator of acres of orchid habitat in the invaded state.
Monitoring Program: Vegetation treatments and orchid populations need to be evaluated further to determine if there is a cause-and-effect relationship.

Monitoring Item MON-BOT-02

Why the Plan Component(s) is monitored?

To ensure that Forest Service actions do not contribute to loss of population viability of sensitive plant species or contribute to a trend towards Federal listing under the Endangered Species Act (DPG LRMP pages 1-3 and 1-15, and Forest Service Manual 2270). *Eriogonum visheri* (Dakota buckwheat, Visher's Buckwheat) and *Chenopodium subglabrum* (smooth goosefoot), are species with Global conservation ranking of G3 and G2. There are two guidelines within the LRMP, page 1-16 number 38 and 39, that guide us to do target surveys and implement conservation strategies for globally rare Forest Service sensitive plant species. *Eriogonum visheri* has a signed conservation strategy; however, *Chenopodium subglabrum* only has a drafted conservation strategy.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 5. As rare plant and wildlife communities are identified, inventory them and develop associated management strategies to conserve them.

Goal 1.b Objective 9. Conduct target surveys for globally rare plant species and other rare plant species with viability concerns.

Monitoring Question evaluating the above Plan Component(s)

MON-BOT-02 What is the status of rare plants?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Occurrences (number of stems, acres of occupancy) Surveys (presence/absence)	Annual Note: Not all occurrences will be visited every year. Selection of interval of visits dependent on life history of plants.	DPG SO Records	LMNG Botanists & Biology Program Manager

Data and Evaluation History

MON-BOT-02	To what extent have soils been disturbed and restored?
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	None	N/A

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

There was no recommendation from the last BMER. Since the last BMER a District Botanist and Program Manager were hired. Additional time is needed to understand the extent of potential habitat across the DPG's five grasslands for most of the listed R1 DPG sensitive plant species. Additional monitoring needs to occur among all districts for DPG to evaluate the status of conservation of rare plants.

Methods

The methods used to collect this data includes the Region 1 Botany Field Protocol (July 2020) and Little Missouri Biological Survey and Reporting Guidelines (2016 through 2022). Methods used on occurrence revisits was a presence and absence survey. The extent of occurrences was determined, and individual stems were counted, and recorded using Collector Classic. Historical occurrence data (going back to 1992) will then be compared to

determine trends. A data dictionary was developed by the DPG GIS staff and botanist to assure all field requirements were covered for future input into Natural Resource Information System (NRIS). Each year the survey data is uploaded into the DPG Botany GIS layer.

Results

Table 29. Number of Stems and Year Collected based on GIS Point Data of DPG Sensitive Plants**

Plant Species	2016	2017	2018	2019	2020	2021	2022	Total
Apios americana (groundnut)	--	--	0	--	--	--	--	0
Campanula aparinoides (marsh bellflower)	--	--	30	--	--	--	--	30
Carex formosa (handsome sedge)	--	--	0	--	--	--	--	0
Chenopodium subglabrum (smooth goosefoot)	--	--	0	--	--	--	--	0
Cypripedium reginae (showy lady's slipper)	--	--	0	--	--	--	--	0
Equisetum palustre (marsh horsetail)	--	--	0	--	--	--	--	0
Eriogonum cernuum (nodding buckwheat)	--	--	156	0	--	--	--	156
Eriogonum visheri (Dakota buckwheat)	--	318	13,978	34,561	3,965	--	900	53,722
Escobaria missouriensis (Missouri foxtail cactus)*	144	15	1,981	--	--	--	--	2,140
Euonymus atropurpureus (wahoo)	--	--	0	--	--	--	--	0
Galium labradoricum (bog bedstraw)	--	--	0	--	--	--	--	0
Gymnocarpium dryopteris (oakfern)	--	--	0	--	--	--	--	0
Leucocrinum montanum (Sand lily)	--	--	--	--	--	--	7	7
Menyanthes trifoliata (buckbean)	--	--	0	--	--	--	--	0
Onoclea sensibilis (sensitive fern)	--	--	0	--	--	--	--	0
Ophioglossum pusillum (adder's tongue fern)	--	--	0	--	--	--	--	0
Phlox alyssifolia alyssum (leaved phlox)	--	--		--	25	--	--	25
Populus x acuminata (lanceleaf cottonwood)	--	--	22	--	--	--	2	24
Solidago flexicaulis (zigzag goldenrod)	--	--	20	--	--	--	--	20
Townsendia exscapa (Easter daisy)	0	2	--	--	--	6	115	123
Townsendia hookeri (Townsendia hookeri)	225	36	--	1,881	921	15	965	4,043
Total	**369**	**371**	**16,187**	**36,442**	**4,911**	**21**	**1,989**	**60,290**

Table 30. Number of Stems, Acres of Occurrence, and Year Collected based on GIS Polygon Data of DPG Sensitive Plants[1]

	Eriogonum cernuum	*Eriogonum visheri***	*Escobaria missouriensis**	*Hudsonia tomentosa*	*Populus x acuminata*	*Townsendia hookeri*	*Townsendia sp.*	Total
2016 Stem Count	--	--	0	0	--	50		50
2016 Acres	--	--	1.19	0.01	--	0.11		1.31
2017 Stem Count	--	0	59	--	--	--	--	59
2017 Acres	--	0.18	0.3	--	--	--	--	0.48

	Eriogonum cernuum	*Eriogonum visheri***	*Escobaria missouriensis**	*Hudsonia tomentosa*	*Populus x acuminata*	*Townsendia hookeri*	*Townsendia sp.*	Total
2018 Stem Count	78	6,489	207	--	11	--	--	6,785
2018 Acres	0.05	0.5	6.31	--	0.05	--	--	6.91
2019 Stem Count	--	44,446	--	--	--	919	--	45,365
2019 Acres	--	9.01	--	--	--	0.45	--	9.46
2020 Stem Count	--	3,000	--	--	--	1,000	--	4,000
2020 Acres	--	N/A	--	--	--	1.89	--	1.89
2021 Stem Count	--	--	--	--	--	15	6	21
2021 Acres	--	--	--	--	--	1.18	0.096	1.28
2022 Stem Count	--	--	--	--	--	101	--	101
2022 Acres	--	--	--	--	---	0.058	--	0.058
Total Stem	78	53,935	318	0	11	1,969	11	56,322
Total Acres	0.05	9.7	8.36	0.01	0.05	2.45	0.02	20.64

**Escobaria missouriensis* was removed from the R1 DPG sensitive plant species (May 2019).

***Eriogonum visheri* stem count may be doubled up with point data; However, over all stem counts are between 52,000 to 54,000.

[1]Cells with -- indicate there were no visits or no survey information for that year.

Table 31. DPG Sensitive Species Project Survey Acres, Number of Projects Number of Meta-Populations Found, and Year of Surveys

Year	Number of Projects Surveyed	Number of Meta-Populations	Surveyed Acres*
2016	19	3	1,899
2017	20	20	865
2018	32	20	~1,067.43
2019	32	13	717
2020	77	75	1,537
2021	40	5	3452.76
2022	65	21	2,964
Total	285	157	12,502.19

* Acreage does not include targeted occurrence revisit surveys

Discussion

The DPG, in the last 7 years, has revisited and discovered new occurrences of sensitive plant species on three of the four grasslands. Table 29 illustrates the number of stems counted for 18 DPG sensitive plant species. The extent (acres) of the occurrences, within Table 29, cannot be determined since the data was collected as a point feature. Results presented in the table show that DPG focused on *Eriogonum visheri* for revisits which would be consistent with our Grassland Plan. Twenty-three occurrences were revisited and as a result, new subpopulations were discovered. Two new occurrences of *Eriogonum visheri* were found in Slope County in 2020. Table 30 illustrates the extent of the meta-populations in acres and the number of stems recorded. Based on historical occurrence data and results from the revisits of this species seem to be stable, which indicates that current and past management on the DPG has not had an effect on species. Only one *Chenopodium subglabrum* revisit has been conducted in the last six years. This plant is also an annual that has a tendency of moving down stream of the Little Missouri River. No individuals were found during the revisit of the occurrence in 2018. A trend for this species cannot be determined until a more thorough survey is conducted along the Little Missouri River and on the Grand River National Grassland. The information provided in the tables above does not provide enough information to determine a trend of the existing occurrences of past and current management on the DPG.

Table 31 illustrates the number of projects surveyed for sensitive plant in the last six years. The data provided for 2016 and 2017 was inconsistent across districts on the DPG. Changes have been made and data provided from 2018 through 2022 captures the number of surveys, and the presence and absence of sensitive plant occurrences. The DPG does not know the extent of potential habitat across its five grasslands for most of the R1 DPG sensitive plant species list. The DPG also doesn't know the exact number of projects that will be surveyed annually. The data provided in the tables above indicates that on average 40 projects are surveyed for sensitive

plants per year. On average 22 metapopulation are detected annually and on average 1,786 acres are surveyed annually. These occurrences may be historical occurrences or new occurrences. *Townsendia hookeri* is the most common species found during project surveys and the reason for this is that the DPG has adjusted the timing of surveys to capture this species in the flower stage (USFS 2020b).

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 5. As rare plant and wildlife communities are identified, inventory them and develop associated management strategies to conserve them.

Goal 1.b Objective 9. Conduct target surveys for globally rare plant species and other rare plant species with viability concerns.

Monitoring Question evaluating the above Plan Component(s)

What is the status of rare plants?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component (s)	No	N/A

[1] See Box 1

Findings Rationale: With the new Regional Botany Protocol and DPG data collection process, along with attributes in the DPG GIS Layer, there is no need for changes. Efforts to use these tools to further make botany data collection consistent throughout the Districts is needed. Efforts are underway to develop Survey 123 forms to be used for field data collection to streamline data collection and management. Additional staff capacity will allow for increased survey efforts to help determine the extent of sensitive plant populations on the DPG as well as potential habitat.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
None
RATIONALE FOR THE RECOMMENDATION
N/A

WILDLIFE

Monitoring Item MON-WLD-01A, -01B

Why the Plan Component(s) is monitored?

While prairie dogs are an important keystone species for grassland ecosystems; there is long-standing contention and controversy on management of this species as it relates to livestock production and unwanted encroachment onto private and state lands. The DPG LRMP Record of Decision (ROD) recognized the importance of the national grasslands in increasing prairie dog numbers, improving prairie dog viability, and the importance of prairie dogs to black-footed ferret recovery as well as other species such as the burrowing owl and ferruginous hawk. The ROD also recognizes the DPG as a good neighbor and efforts should be made to control prairie dogs in cases where there is unwanted colonization. Monitoring this Plan Component is integral in ensuring Plan goals for this species are achieved as well as acting as a good neighbor by addressing unwanted encroachment.

The Dakota Prairie Grasslands LRMP (2001) designated black-tailed prairie dog as a management indicator species (MIS) and is a focal species in the Grasslands Plan monitoring program. . The black-tailed prairie dog occurs on both districts (Medora and McKenzie) of the Little Missouri National Grassland (LMNG) and on the Grand River National Grassland (GRNG), Grand River Ranger District. The species is now absent from the Cedar River National Grassland on Grand River Ranger District. The Sheyenne Ranger District is outside of the range of this species.

Prairie dog populations on the DPG are managed in terms of complexes while also complying with the good neighbor policy. The current DPG LRMP includes guidelines to promote development of prairie dog complexes within the interior of NFS lands, including an LRMP objective to develop four prairie dog complexes across the LMNG, and two complexes on the GRNG. The purposes of a complex are to help support prairie dog species viability and help provide sufficient habitat for associated species.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS

(same as MON-BOT-01A, -01B, -01C)

Monitoring Question evaluating the above Plan Component(s)

MON-WLD-01A. What is the current black-tailed prairie dog (Cynomys ludovicianus) occupancy?

MON-WLD-01B. What management actions and naturally occurring events have influenced change to black-tailed prairie dog status and/or its habitat?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact

MON-WLD-01A. Prairie dog locations (mapped locations and acres of prairie dogs)	3 years	DPG SO Records: DPG GIS files, GRNG Allotment Management Plan Monitoring Reports, USFS yearly reports on black-footed ferret recovery prairie dog habitat management activities	Biology Program Manager
MON-WLD-01A. Complexes (number of complexes – collection of colonies)	3 years	DPG SO Records: DPG GIS files, GRNG Allotment Management Plan Monitoring Reports, USFS yearly reports on black-footed ferret recovery prairie dog habitat management activities	Biology Program Manager
MON-WLD-01A. Active colonies (total acreage and number of active colonies)	3 years	DPG SO Records: DPG GIS files, GRNG Allotment Management Plan Monitoring Reports, USFS yearly reports on black-footed ferret recovery prairie dog habitat management activities	Biology Program Manager
MON-WLD-01A. Habitat availability (acres of current prairie dog occupancy)	3 years	DPG SO Records	Biology Program Manager
MON-WLD-01B. Damage control (acreage of prairie dog towns controlled)	Annual	SD State Wildlife Control Office (annual), ND – DPG contract reports	Biology Program Manager
MON-WLD-01B. Prescribed fires (acres of)	Annual	FACTS and District Records	Biology Program Manager
MON-WLD-01B. Vegetation exclosures (number of)	Annual	FACTS, District Records, GRNG Allotment Management Plan Monitoring Reports	Biology Program Manager

Data and Evaluation History

MON-WLD-01A, -01B	**Year**
Data last collected or compiled	FY21/FY22
Next scheduled data collection/compilation	FY24
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Control efforts should be evaluated to determine if efforts have had negative impacts to establishing or maintaining desired complex numbers.	B
FY21	Monitoring Program: Recommend merging MON- WLD-01B with MON-WLD-01A due to redundancy.	D (FY21)

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Since the 2021 BMER was completed, active prairie dog colonies were mapped on the LMNG and the GRNG; therefore, it is recommended that this information be used to determine if control efforts have had negative impacts to establishing or maintaining desired complex numbers. The timing of the acquisition of the latest mapping efforts coincides with the preparation of the FY2023 BMER, therefore, this recommendation is on standby until staff have had more time to evaluate control efforts and should be discussed in the FY2025 BMER. The decision to recommend merging MON- WLD-01B with MON-WLD-01A was carried forward to eliminate redundancy and will no longer be separate questions for future monitoring reports.

Methods

MON-WLD-01A - What is the current population status of the Black-tailed Prairie Dog?

Black-tailed prairie dogs are highly social burrowing animals that live in large colonies which makes visual counts and subsequent population level estimates problematic. Current black-tailed prairie dog monitoring methods on the DPG do not provide information necessary to estimate population levels.

However, population level changes are roughly reflected in changes to the acres of occupied colonies. While population levels may not be accurately inferred from occupancy data, trends or significant changes in population levels can be inferred (see Acres of Active Colonies in results).

Prairie Dog Locations & Active Colonies

As resources allow, black-tailed prairie dog colonies are surveyed every three years. Methods for mapping prairie dog colonies are summarized in EGIS 2022. Recent prairie dog mapping is ground-based but could include unmanned aerial vehicles (also known as drones) in the future as cost and quality of data collection allows.

Complexes

A complex is defined as "a group of at least ten prairie dog colonies with nearest-neighbor, inter-colony distances not exceeding 6 miles and with a total colony complex acreage of at least 1,000 acres" (Appendix G, LRMP). Prairie dog populations on the Grand River Ranger District are managed to establish two or more complexes. On the LMNG, there is a goal to establish four prairie dog complexes. Acreages for complexes in this report are listed at mapping time, 2021/2022.

MON-WLD-01B - What management actions & naturally occurring events have influenced change to Black-tailed Prairie Dog status &/or its habitat?

Damage

Prairie dog populations are controlled with the rodenticide zinc phosphide, placed along a ¼ mile zone paralleling non-NFS property authorized by the Little Missouri National Grassland Prairie Dog Management Project Environmental Assessment (EA), 2018. Prairie Dog control is also authorized through Vegetation Management Plan EAs on the Grand River National Grassland (GRNG). Information about prairie dog control is found in the DPG GIS files, GRNG Allotment Management Plan Monitoring Reports, and USFS yearly reports on Black-footed Ferret Recovery and Prairie Dog Habitat Management Activities.

Prescribed Fire

No prescribed fires have occurred on the western DPG for over a decade.

Vegetation Exclosure

Vegetation exclosure data was obtained through discussion with GRNG range staff and GRNG Allotment Management Plan Monitoring Reports. A vegetation management cattle-exclosure is temporary (electric fence) or permanent (3 strand-wire) fence to provide visual/high structure barrier and discourage colony expansion.

Other

Other management actions and naturally occurring events such as disease, livestock grazing, predation, recreational shooting, and weather can contribute to influencing change of status for the black-tailed prairie dog and its habitat on the DPG. These factors are not actively monitored and therefore there are no current methods to obtain applicable data, although general inferences can be made (e.g. dry years are more likely to expand prairie dog towns, etc). These factors may need to be considered in future monitoring efforts if the objectives and standards and guidelines provided in the DPG LRMP to increase prairie dog populations and for establishment of new colony complexes are no longer effective.

Results

MON-WLD-01A - What is the current population status of black-tailed prairie dog (BTPD)(Cynomys ludovicianus)?

Prairie Dog Locations & Active Colonies:

Complexes - Prairie dog populations on the Grand River National Grassland (GRNG) are managed to establish two or more complexes. As of 2018, GRNG has one complex. Prairie dog populations on the Little Missouri National Grassland (LMNG) are managed to establish four or more complexes. As of 2018, LMNG has four complexes. Since the 2001 LRMP was implemented, prairie dog populations have more than doubled on the DPG (estimated acreages were 2,860 on LMNG and 1,520 on Grand at the time of Plan revision). See Table 32and Table 33 below for more information.

Table 32. Dakota Prairie Grasslands Prairie Dog Complexes

Ranger District	Complex	Acres
Medora	South Unit Theodore Roosevelt National Park	1,527
Medora	SW Slope (also known as Boyce Creek/Indian Creek)	1,903
McKenzie	SW McKenzie	1,209
McKenzie	NW McKenzie	1,967

Active colonies

Table 33. Acres of Mapped Prairie Dog Colonies by District and Year

Year*	McKenzie District	Medora District	Grand and Cedar River District	Total
2012	2,881	2,062	2,362	7,305
2015	2,263	3,242.60	2,180.10	7,685
2018	3,547.50	4,680.70	2,697.20	10,925
2021/2022	3,334.0	4,151.8	2,614.2	10,100.0

*Colony data within the DPG from the following BTPD Reports (Carlson-McCain 2012, 2015, 2018):
2021/2022. Prairie Dog Mapping on the Dakota Prairie Grasslands. EGIS 2021/22. Prepared for: USDA – DPG USFS. 41p.
2018. Black-tailed Prairie Dog Colony Mapping DPG. Prepared for: USDA – DPG USFS. 27 p.
2015. Black-tailed Prairie Dog Colony Mapping DPG. Prepared for: USDA – DPG USFS. 34 p.
2012. Black-tailed Prairie Dog Colony Mapping DPG. Prepared for: USDA – DPG USFS. 25 p.

MON-WLD-01B - What management actions & naturally occurring events have influenced change to Black-tailed Prairie Dog status &/or its habitat?

Damage Control

Table 34. Prairie Dog Control Acres by Year

Year	McKenzie	Medora	Grand and Cedar River
2011			189 acres, control done 11/2011
2014	107		Control done Fall 2014?
2017			200
2018	1,774	2,046	~287
2019	1,225	1,473	None
2020	975	1,568	161
2021	1,133	1,333	None
2022	683.5	603.8	None

Vegetation Exclosures
On GRNG, there is one prairie dog exclosure. On Medora RD, there are six prairie dog exclosures.

Discussion

MON-WLD-01A - What is the current population status of the Black-tailed Prairie Dog (Cynomys ludovicianus)?

Black-tailed prairie dogs are burrowing animals that live in large social colonies. Visual counts or estimates of population levels are not possible with the current monitoring methods, nor would this data inform management as appropriately as black-tailed prairie dog occupancy (see MON-WLD-01B) which has a spatial component that better informs management decisions. Population status for black-tailed prairie dogs is also correlated with occupancy. Presently, this indicator is redundant and per the recommendation from the 2021 BMER, it was combined with MON-WLD-01B to provide a more thorough review of prairie dog populations.

Prairie Dog Locations & Active Colonies
Acres of prairie dog colonies contract and expand based on forage availability. From 2012 to 2018 there was a major increase in colony acreage followed by a moderate decline in colony acreage from 2018 to 2021/2022, The last mapping in 2021/2022 showed a reduction of overall acreage (approximately 7.5 %) which correlates with control efforts (rodenticide applications) in 2018 – 2021 as well as higher annual precipitation in 2018 and 2019. Some colonies on the McKenzie District increased, likely due to the drought conditions experienced in 2021. The FEIS for the LRMP estimated that implementation of the selected alternative would result in 5,400 to 9,400 acres of active prairie dog colonies on the LMNG within the life of the LRMP, and 2,500-3,900 acres of active prairie dog colonies on the GRNG. Currently, the LMNG has approximately 7,484.8 acres which is within the range of predicted acreages identified in the FEIS and LRMP. The GRNG currently has approximately 2,614 acres which is also within the range of predicted acreages identified in the FEIS and LRMP.

Complexes
Based on 2021-2022 data, there is only one complex on the GRNG, which is one complex less than the identified objective of two. Also based on the 2021/2022 data, there are four complexes on the LMNG as desired in the LRMP. The number of complexes has not changed since 2021/2022 due to control efforts; based on the latest surveys conducted since the 2021 BMER.

MON-WLD-01B - What management actions & naturally occurring events have influenced change to Black-tailed Prairie Dog status &/or its habitat?

The last mapping of black-tailed prairie dog was accomplished after an above average precipitation year in 2019 followed by a below average precipitation year in 2020, potentially leading to the smaller overall acreage in 2021/2022. Some colonies exhibited expansion in areas likely due to drought conditions, and some colonies were visibly reduced from control efforts taken during 2018-2020. Precipitation in Bowman, North Dakota, located approximately 15 miles south of the nearest LMNG administrative boundary, was approximately 23 inches in 2019., and approximately 12 inches in 2020. The average annual precipitation for the area is approximately 16 inches.

Damage Control
The DPG completed the Little Missouri National Grassland Prairie Dog Management Project Environmental Assessment (EA) in 2018. Prairie Dog control is also discussed in MON-CMR-02 of this report. NEPA may need to be updated for Grand River National Grassland Prairie Dog control in the future.

Vegetation Enclosures
Authorized in the Little Missouri National Grassland Prairie Dog Management Project Environmental Assessment (EA) of 2018, once control procedures are assessed and determined to have the desired efficacy, a vegetation barrier may be established to discourage future encroachment. This vegetation barrier would be placed after at least two to three years of black-tailed prairie dog control efforts.

Other

Other management actions and naturally occurring events such as disease, livestock grazing, predation, recreational shooting, and weather are not actively monitored. There are no discussions/results to present; although general inferences are made from weather patterns as discussed above.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS

(same as MON-BOT-01A, -01B, -01C)

Monitoring Question evaluating the above Plan Component(s)

MON-WLD-01A. What is the current black-tailed prairie dog (Cynomys ludovicianus) occupancy?

MON-WLD-01B. What management actions and naturally occurring events have influenced change to black-tailed prairie dog status and/or its habitat?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(D) NO - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Lacking one complex on GRRD (based on 2018 mapping data). Striving for 2 complexes on GRNG. Control efforts may influence progress toward Plan objectives. While the objective of 2 complexes has not been met on the GRNG, there has been an overall positive trend in occupied acres since 2012. This trend indicates some progress towards Goal 1.b and Objectives 2 and 4.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Control efforts should be evaluated to determine if efforts have had negative impacts to establishing or maintaining desired complex numbers.
RATIONALE FOR THE RECOMMENDATION

This recommendation was made to ensure that as a focal species, prairie dogs continue to contribute to the integrity of grassland ecosystems by aerating and fertilizing soil, creating habitat for other wildlife, and serving as prey for predators.

Monitoring Item MON-WLD-02A, -02B, -02C

Why the Plan Component(s) is monitored?

Ensuring that plant and animal communities thrive is a basic expectation under the National Forest Management Act. The DPG LRMP designated three species of grouse as Management Indicator Species (MIS): greater prairie chicken, greater sage grouse, and sharp-tailed grouse. All three species are referred to as "prairie grouse" within the DPG. Standards and Guidelines relating to Prairie Grouse are found on P. 1-13 and P.1-14 of the DPG LRMP. Sharp-tailed Grouse (STG) are found throughout the DPG. Greater prairie chicken (PC) is only found on the Sheyenne National Grassland (SNG) located in southeastern North Dakota. The greater sage grouse range in North Dakota is limited to a small area in southwestern North Dakota including a small portion of the Little Missouri National Grassland. The species is considered absent from the LMNG since 2014. The need to conserve these prairie grouse is addressed in Goal 1.b of the LRMP.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS

Monitoring Question evaluating the above Plan Component(s)

MON-WLD-02A. What is the current population status of 1) sage grouse (*Centrocercus urophasianus*), 2) sharp-tailed grouse (*Tympanuchus phasianellus*), and 3) greater prairie chicken (*Tympanuchus cupido*)?

MON-WLD-02B. What is the current and potential habitat capability for 1) sage grouse, 2) sharp-tailed grouse, and 3) greater prairie chicken?

MON-WLD-02C. What management actions and naturally occurring events have influenced change to the status and/or habitat for 1) sage grouse, 2) sharp-tailed grouse, and 3) greater prairie chicken?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
MON-WLD-02A. Leks (For each grouse species, number of)	Annual	DPG SO Records	Biology Program Manager
MON-WLD-02A. Gender ratio (For each grouse species, number of males & females within each lek)	Annual	DPG SO Records	Biology Program Manager
MON-WLD-02B. Robel Pole/Visual obstruction readings (For each grouse species, vegetation height & density on sites dominated by herbaceous vegetation. % of Low, Medium, High by each established monitoring block or by geographic area.)	Annual	DPG SO Records	Biology Program Manager
MON-WLD-02C. Habitat improvements (For each grouse species, number and acres of actions that improve habitat)	Annual	DPG SO Records	Biology Program Manager

MON-WLD-02C. Annual Precipitation (For each grouse species)	Annual	DPG SO Records	Biology Program Manager

Data and Evaluation History

MON-WLD-02A, -02B, -02C	
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	**MON-WLD-02A.** Sharp-tailed grouse: (E) Yes- implementation fo plan components are trending, progressing, and/or conducted as desired (on SNG, however, discouragement of sharp-tailed grouse numbers may be necessary for prairie chicken to persist). Sage grouse & greater prairie chicken: (D) No - Implementation of Plan (s) ARE NOT trending, progressing, and/or conducted as desired; **MON-WLD-02B and MON-WLD-02C.** (C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Activities: If Prairie Chicken & Sage Grouse are to persist, more focused management such as prescribed fire, tree reduction, invasive species management and native restoration will need to be done on the species habitat	B
FY21	Monitoring Program: Visual Obstruction on SNG: Analyze past polygon mapping data. A more detailed assessment of Sage Grouse habitat is needed to evaluate future management options.	B
FY21	Management Activities: Habitat Management data records need to be recorded at a scale that is sensitive to representative distribution of grouse monitoring sites.	B
FY21	Monitoring Program: Drop AUMs from indicators in monitoring program	D (FY21)

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Due to staff turn-over, higher priority workloads, and conflicting views and direction on management activities such as prescribed fire, the status of the recommendations for management activities and monitoring program described above are currently unknown. Certain management activities such as invasive species management and tree reduction are on-going activities which have occurred since the FY21 BMER. These management activities have multiple benefits to flora and fauna on the DPG; however, were not necessarily focused specifically to benefit prairie chicken and sage grouse. A more focused approach to improve habitat as well as coordination with North Dakota Game and Fish Department (NDGF) is needed. Since the FY21 BMER, the decision to drop AUMs from indicators in the monitoring program was implemented.

Methods

Annual lek surveys are conducted for sharp-tailed grouse and greater prairie chickens across the DPG. Visual Obstruction Readings (VOR), an established protocol utilized for determining standing crop on grasslands (see MON-WLD-02B - What is the current & potential habitat capability for 1) Greater Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken), are completed annually on the LMNG and every three years on the Grand River National Grasslands. The Sheyenne National Grassland completes VOR surveys across the entire unit on established locations.

Sharp-tailed Grouse & Prairie Chicken

Methods for prairie grouse surveys conducted on the DPG follow standard prairie grouse census protocols. Listening runs occur to locate all dancing grounds in a block, usually mid-March to early April. Counts occur from April 1 to April 30 and may extend to May 15 during late spring years. Peak of attendance by females on grounds in North Dakota is usually April 15-25 but may vary up to a week depending on the year (NDGF, 2020).

Sharp-tailed grouse (STG) surveys have been conducted in established representative land areas, called monitoring blocks, throughout the DPG. The GRNG has 4 blocks of these surveys about 9 square miles each in size and the SNG with 3 blocks about 9 square miles each in size. The LMNG ranger districts prairie grouse census takes place within 10 blocks, about 16 square miles in size. Within the SNG, prairie grouse census counts occur across the entire grassland annually in conjunction with North Dakota Game and Fish since the late 1980's, mainly because SNG has 1 of the 2 populations of greater prairie chicken in the state of North Dakota.

MON-WLD-02A What is the current population status of 1) Greater Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

Greater Sage Grouse

No active sage grouse leks exist on DPG land, therefore no monitoring is done by the DPG. Sage grouse only exists in a small part of southwest North Dakota near the Medora RD. Recovery effort and surveys are done by North Dakota Game and Fish.

Sharp-tailed Grouse

The current population status of sharp-tailed grouse was down approximately 13% statewide according to the NDGF Census summary (2022); however, the density of male grouse counted on all census blocks in 2022 (4.0 males/mi^2) was slightly above the 10-year average (3.8 males/mi^2).

Greater Prairie Chicken

The prairie chicken population on and around the SNG has held on, despite small numbers, for the past 10 years. Although there is enough acreage on and around the SNG for a small prairie chicken population, the area is managed for multiple uses, which does not result in large blocks of grasslands free from woody encroachment. Prairie chickens are a specialized species requiring predominantly tallgrass prairie habitats, and although they occupy areas with fragmentation and woody encroachment, the long-term trend of those populations is usually downward. In 2022, numbers of male GPC were slightly higher than in 2021; however, higher rates of hybridization between sharp-tail grouse and prairie chicken is an ongoing concern for long-term viability of the species.

MON-WLD-02B - What is the current & potential habitat capability for 1) Greater Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

Visual Obstruction Readings (VOR) are an agency accepted protocol for collecting and monitoring vegetative structure. Vegetation structure, VORs are based on North Dakota State University's recommendations for monitoring VORs on biologically capable ecological sites for Major Land Resource Area (MRLA) 54 and 58c. VOR measures the height and density of vegetation including both standing live and dead plant material at the time of observation. VOR are measured throughout the DPG in the fall. A diversity of visual obstruction conditions provides for a diversity of grassland birds and wildlife. The DPG-LRMP (Chapter 2) established objectives for a diverse array of grassland vegetative structure. Based on monitoring prior to 2010 it was observed that the objective for moderate-structure vegetation was being achieved or exceeded. Additionally, pre-2010 data indicated the DPG was achieving the objective for short-structure vegetation. Dakota Prairie Grasslands was typically below objectives for high-structure vegetation so the remainder of this discussion will focus on high-structure vegetation. The limiting factor for prairie grouse is the availability of residual high-structure vegetation. On the LMNG and GRNG, at least 20% of the VOR should be in the "High" category (>3.5"). On SNG, 30% of the VOR should be in the "High" category (>6"). Methods for VOR are summarized in USFS 2013 and USFS 2015.

The DPG wildlife staff surveys transects grasslands-wide in biologically capable areas that have the conditions to support high structure vegetation. Documentation in Klempel (2015) estimates 42% of the LMNG, 63% of the SNG, and 67% of the GRRD have biologically capable soils. Recent definitions of the term "biologically capable" considers biomass production with a heavier weight than was considered in the past for biologically capable areas.

MON-WLD-02C - What management actions & naturally occurring events have influenced change to the status &/or habitat?

Precipitation and temperature can significantly influence the status and habitat of prairie grouse depending on annual and seasonal/inter-seasonal variations. Average annual precipitation data obtained from local weather stations near the LMNG Districts can be used to make general assumptions on how weather can influence prairie grouse on a given year.

Greater Sage Grouse

No sage grouse habitat improvement occurred in the reporting window.

Sharp-tail Grouse and Greater Prairie Chicken

Grazing management largely determines the vegetative structure available to nesting birds; therefore, grazing management is critical to prairie grouse management.

Prescribed burning and mowing can influence suitability of nesting and brooding habitat depending on the timing, location, and extent of these activities. Burning can help control development of undesirable woody vegetation in or near brooding, nesting, and roosting habitat. Increasing the amount of burning on the Sheyenne National Grassland has been recommended for prairie-grouse habitat enhancement, though care must be used to not further decrease nesting cover availability (Kobriger, et al. 1988).

Greater prairie chicken broods often prefer using areas that were previously burned or mowed (Svedarsky & Van Amburg, 1996) but they avoid areas mowed during the current year. To ensure that broods had a choice of habitats (Eng, et al 1988) suggested mowing only a third of a given pasture per year.

Sharp-tailed grouse and greater prairie-chickens are vulnerable to raptor predation. Scattered perch trees in large grassland expanses increase the efficiency of predators such as red-tailed hawks and great horned owls. The removal of these trees has been recommended by greater prairie chicken researchers (Svedarsky & Van Amburg, 1996), (USFS, 2014). Removing invasive shrubs and trees from prairie habitats would be expected to improve prairie chicken habitat quality.

Results

MON-WLD-02A – What is the current population status of 1) Greater Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

Data collected and presented cannot be used for trends in any grouse species due to variety and quality of data recording methods. Variables include things like residual vegetation obscuring grouse, thereby preventing an accurate count or gender determination from being made. Spring weather conditions can prevent monitoring (rain, fog, wind), poor driving conditions or fire danger concerns make access difficult, and low staffing availability to conduct surveys. Some observers have difficulty identifying gender. There is still some value in having the entire numbers of grouse per lek, even if the data isn't subdivided by gender.

Sage Grouse

For context, sage grouse numbers are presented here as supplied and surveyed by NDGF. No active leks currently occur on the LMNG. The last known active lek was in 2014.

Table 35. Number of Males by Year on Greater Sage Grouse Leks near Medora RD, Slope & Golden Valley Counties (data courtesy NDGF)

Year	Lek ID S12*	Lek ID S20*
2010	0	0
2011	0	0
2012	4	0
2013	1	0
2014	0	2
2015	0	0
2016	0	0
2017	0	0
2018	0	0
2019	0	0
2020	0	0
2021	0	0
2022	0	0

* Areas are traditionally on USFS lands. Leks off USFS are not reported.

Sharp-tailed Grouse & Greater Prairie Chicken

Table 36. Sheyenne National Grassland Sharp-tailed Grouse (STG) and Prairie Chicken (PC), Number of Leks containing Species/Number Male Birds by Year

Year	Active PC Leks	Total Number of PC Males	Active STG Leks	Total Number of STG Males
2010	14	79	41	372
2011	12	51	30	216
2012	12	52	24	235
2013	10	51	25	358
2014	14	60	24	285
2015	9	51	30	352
2016*	7	42	33	246
2017	5	62	24	274
2018	12	58 (5 UNK Sex)	34	489(17UNKSex)
2019	13	44	37	448(78 UNK Sex)
2020*	2	5	13	126
2021	6	24	31	372
2022	5	51	22(3 mixed)	162 (57 UNK Sex)(27 UNK mixed spp.)

PC, STG and Mixed Leks were surveyed. The only STG leks surveyed were ones w/in the vicinity of these leks. Leks may contain both PC & STG.

* Incomplete surveys

UNK=Unknown

Note - Active leks that contained PC have varied between 5-14 leks for years that leks were completely surveyed across SNG; average & median lek size was ~5 PC. When all leks across the SNG were counted (2010-2015, 2017-2019, 2021-2022) an average of ~53 Male PC were seen (range 24-79 PC, median 51 PC). The DPG LRMP states that a stable to increasing population of at least 250 Male greater prairie chicken should be reached; this currently has not been reached. There are more leks that contained STG, varying in # between 24-41 leks for years they were surveyed completely across SNG; average # of STG leks was ~29, median # of STG leks was ~30.

Table 37. McKenzie Sharp-tailed Grouse, Number of Leks / Number of Birds (both sexes combined) by Year

Year	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Total # Leks*	Total Number of Birds**
2015	6 / 86	~4 / ~74	1 / 26	4 / 116	3 / 68	7 / 172	25	426
2016	8 / 108	4 / 65	2 / 27	7 / 180	4 / 94	7 / 137	32	581
2018	2 / 25	--	None observed	5 / 67	--	--	--	--
2019	~9 / ~95	~5 / ~31	1 / 10	2 / 29	None observed	7 / 35	21	200
2020	5 / 64	6 / 104	--	8 / 71	--	--	--	--
2021	--	--	--	--	--	--	--	--

2022	7/77	0/3	1/3	2/20	N/A	8/137	18	237

* for years all blocked counted

** both sexes for years all blocks counted

Note - Data not available for 2017, 2021, or 2010-2014. For the 3 years that all blocks were surveyed (2015, 2016, 2019); there was an average of ~26 leks counted, w/a median of 25 leks. Likewise, the average # of STG (both sexes) counted across all blocks was ~402 STG, w/a median of 426 STG.

Table 38. Medora District Sharp-tailed Grouse, Number of Leks / Number of Birds (both sexes combined, unless otherwise noted) by Year

Year	Bell lake (8)	Boyce Crk (10)	N. Billings aka Ice Caves (7)	Upper Davis (9)	Total # Leks*	Total Number of Birds**
2010	--	6 / 69 M	3 / 16 M	--	--	--
2011	3 / 4	--	5 / 52	5 / 50	--	--
2012	4 / 50M	7 / 92 M	5 / 38 M	7 / 73 M	23	253
2013	--	--	~6 / ~51	--	--	--
2014	4 / 50M	6 / 86 M	6 / 65 M	7 / 102	23	303
2015	6 / 105	6 / 72 M	8 / >113	9 / ~97	29	285
2016	6 / 70M	6 / 116 M	4 / 87 M	6 / 11 M	22	388
2017	5 / 54	5 / 75 M	5 / >102	~810 M	~23	~337
2018	4 / 19M	3 / 31 M	3 / 22 M	4 / 37	14	109
2019	6 / 36	3 / 60	8 / 57	6 / 67	22	220
2020	4 / 34	3 / 70	4 / 49	4 / 67	15	220
2021***	3 / 47	4 / 24	--	2 / 39	9	110
2022***	2 / 40	--	--	3 / 7	5	47

* for years all blocked counted

** both sexes for years all blocks counted

***fire danger, access issues, and other factors led to a reduced count in 2021and 2022

Note - Active STG lek numbers have varied between ~14-29 leks for years that all the blocks were surveyed (2012, 2014-2020); the average # of leks was ~ 21 leks, w/a median of ~23 leks. M=Male

Table 39. GRNG ST Grouse Number of Leks / Number of Birds (both sexes combined, unless otherwise noted) by Year

Block	Pasture 6ES	Pasture 8	Pasture 9	Texley (Corson)	Total # Leks*	Total Number of Birds**
2010	4 / 48 M	4 / 60 M	9 / 78 M	1 / 24	18	210
2011	--	3 / 65 M	6 / 66 M	2 / 36	--	--
2012	4 / 55 M	5 / 77 M	8 / 126 M	2 / 51	19	309
2013	--	--	8 / 111	--	--	--
2014	3 / 27	3 / 64	7 / 82	None observed	13	173
2015	3 / 151	6 / 166	8 / 161	3 / 36	20	514
2016	6 / 105z	6 / 116	4 / 80	--	--	--
2017	None observed	2 / 25	5 / 78	1 / 25	8	128
2018	None observed	1 / 12	5 / 41	1 / 3	7	56
2019	5 / 49	5 / 69	7 / 97	2 / 9	19	224
2020	5 / 116	5 / 38	6 / 89	--	--	--
2021	--	--	7 / 72	--	--	--
2022	--	--	7 / 99	5 / 38	--	--

* for years all blocked counted

** both sexes for years all blocks counted

M=Male

Note - There was a range of ~7-20 leks counted for each year that all blocks were counted (2010, 2012, 2014-2015, 2017-2019); this came to an average of ~15 leks counted per year, with a median of ~18 leks. For years where STG of both sexes & all leks were counted across GRNG, the average # of STG counted was ~230 across all of the blocks, w/a median of ~210 STG.

MON-WLD-02B - What is the current & potential habitat capability for 1) Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

The current and potential habitat capability data for Grouse species of the DPG have been collected throughout the years in various intensities and locations. Different systems have been used to locate these transects over the years. For example, some monitoring data was only collected in the sharp-tailed grouse blocks, some data was collected for vegetation management planning (and not LRMP monitoring purposes), and, around 2017, some new transects were established across DPG. The most important percentage to note in the charts below is “high” VOR, which is the limiting factor for prairie grouse.

Visual Obstruction measurements can be impacted by precipitation, plant composition, hail, frost free days, temperature, and management practices. Lack of visual obstruction can also be due to a lack of plant species composition diversity/ or overabundance of invasive grassland resulting in uniform vegetative structure.

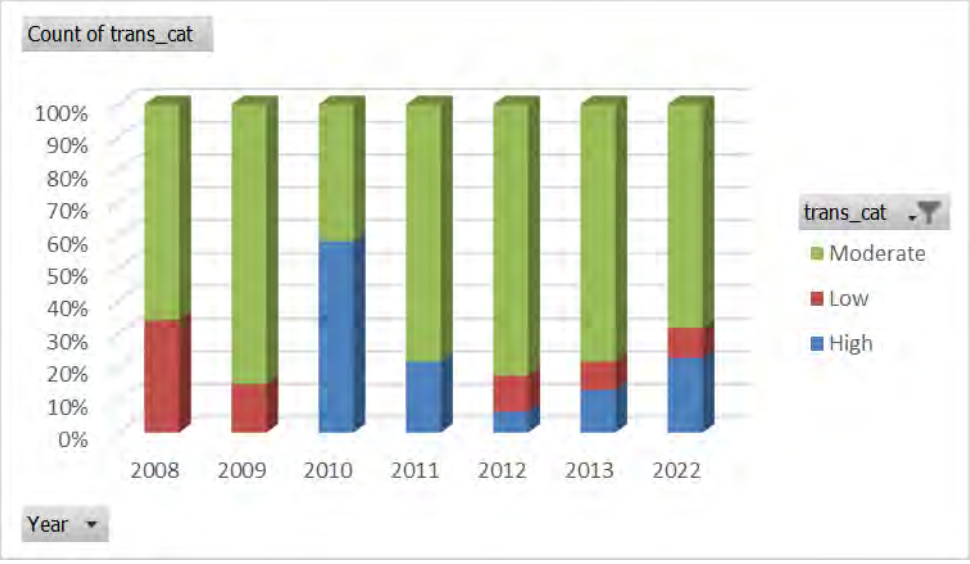


Figure 16. Visual Obstruction Readings, Sheyenne National Grassland, Area contains STG & PC (1/7 years had >30% of transects w/high VOR)

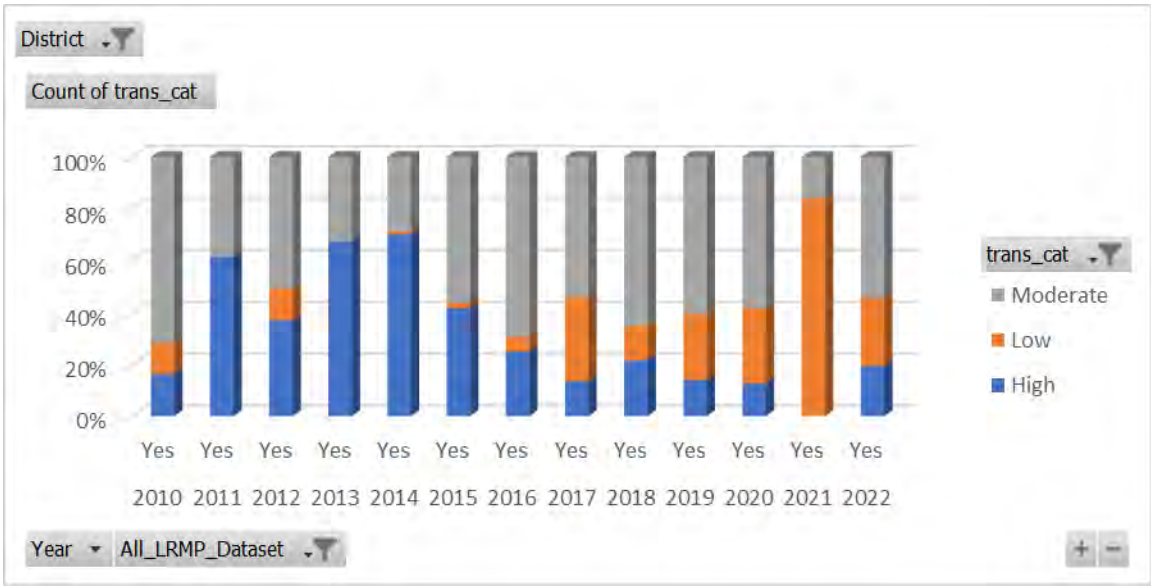


Figure 17. Visual Obstruction Readings, West DPG (GRNG & LMNG) (Area contains STG; Small Portion of Area contains Greater Sage Grouse. 6/13 years had > 20% of the transects w/high VOR)

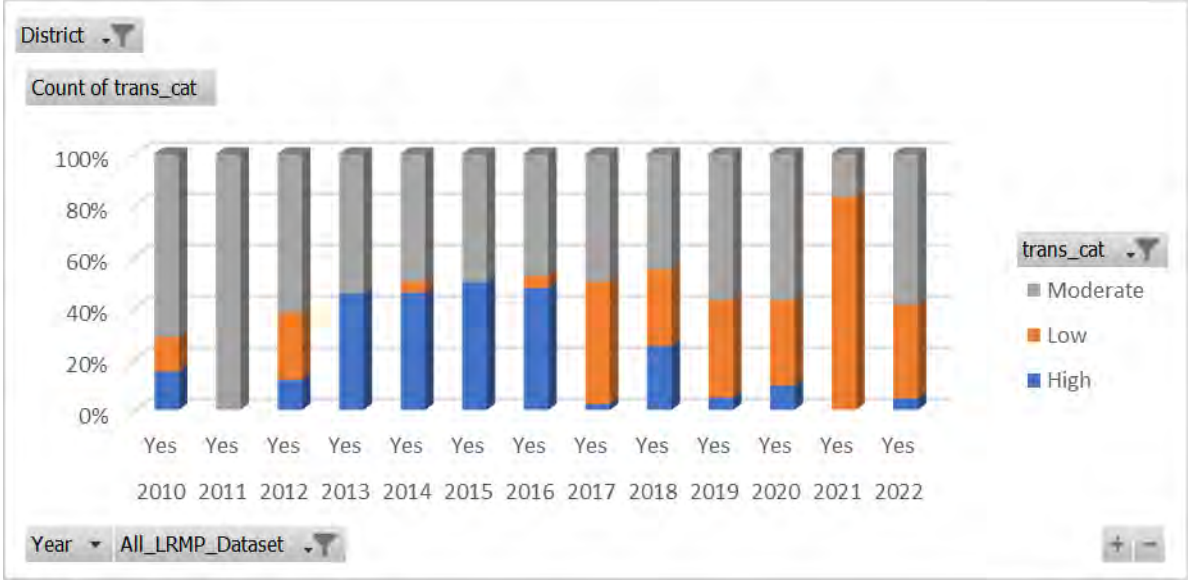


Figure 18. Medora District Visual Obstruction Readings (District contains STG, part of District Contains Greater Sage Grouse. 5/13 years had >20% of the transects w/high VOR)

Invasive Plant Control

Please refer to Monitoring Item MON-NOX-01 portion of the monitoring report for noxious weed treatment by district.

Habitat Improvements, Greater Prairie Chicken

Greater prairie chickens are not a tree tolerant grouse species; therefore, willow and sumac reduction restores current habitat that is shifting from open tall grass prairie to woodland. Prescribed burning improves current habitat by restoring or maintaining tallgrass prairie which greater prairie chickens rely on for quality nesting habitat. Mowing 1/3 of the sedge meadows in a pasture removes excess litter, improving brood rearing habitat for greater prairie chicken by ensuring broods have a choice of habitats (Eng, et al. 1988). Noxious weed treatments via ground and aerial application benefit prairie chickens by reducing undesirable species and promoting native plant growth.

Table 40. Sheyenne National Grassland Habitat Improvements for Prairie Chicken, from FACTS *(Acres of activity)*

Year	Mowing[1]	Aerator [2]	Diamond Mower [3]	Herbicide w/ ground equipment [4]	Herbicide w/ airplane [4]	Prescribed Fire
2015	3406	--	--	5239	2670	1359
2016	3526	93.1	--	5626	2964	2033
2017	3292	462	--	4150	0	2322
2018	1017	941	71	1934	218	1922
2019	289	--	200	4085	1297	2925
2020	2115	39.4	--	4198	1900	0
2021	3723	103	--	1876	5468.9	0
2022	3000	63	3205	1591	4911	815

[1] done in the wet meadows—vegetation removed is usually sedge or cattails
[2] done in the wet meadows to reduce willow
[3] reduces willow in wet meadows & sumac in the high dunes
[4] treatment of willow or sumac

Discussion

MON-WLD-02A What is the current population status of 1) Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

1. **Sage Grouse** are not currently monitored by DPG staff and are presumed to no longer occur on the LMNG. Future monitoring could be considered due to indications in the literature (Dyke et al. 2015) that sage grouse numbers are decreasing across North Dakota in general. Given the reintroduction efforts by North Dakota Game and Fish there is still hope of finding sage grouse within the DPG boundaries.
2. **Sharp-tailed Grouse** is a game species and not in danger of becoming rare on the DPG according to North Dakota Game and Fish. Despite survey effort variability, within Sheyenne National Grassland, there has been an upward general trend of sharp-tailed grouse numbers since 2011 (Table 36). A study researching habitat selection and survival of sharp-tailed grouse nests (2009-2015) and broods (2013- 2015) on the GRNG observed that there was a high nest and brood survival rate when compared to other studies on the Northern Great Plains (Geaumont & Graham 2015).
3. **Greater Prairie Chicken** numbers are dwindling in North Dakota according to outside sources (Dyke et al. 2015). The DPG LRMP states that: "a stable to increasing population of at least 250 male prairie chickens should be reached" this goal is not being met. New methods (other than the "block" method) should be investigated for DPG LRMP grouse monitoring in collaboration with State Game and Fish agencies to help protect this important species and answer monitoring questions. Hybridization between greater prairie chickens and sharp-tailed grouse continues to be a concern as well as out-competition from ring-necked pheasants.

Sheyenne National Grassland (SNG)

Sharp-tailed grouse & greater prairie chicken leks were counted across the SNG in 2010, 2012-2015, 2018-2022. An average of ~53 male prairie chickens were seen (range 24-79 prairie chickens, median 51 prairie chickens). The number of leks containing greater prairie chicken (average 9) have remained relatively stable across SNG since 2010. From 2002-2009, however, the average number of leks that had greater prairie chicken was 22 (range 18-26 leks, median 22 leks). In the context of this larger timeframe, greater prairie chicken numbers are not what they once were. The population decline coincided with a period of flooding within the SNG. The SNG-area population is isolated from other greater prairie chicken populations. Habitat connectivity to other populations is limited, putting the species at risk. The decline of the greater prairie chicken could be due to inter-species competition for resources between pheasants and sharp-tailed grouse. These trends could lead to the sharp-tailed grouse dominating the greater prairie chicken to their detriment, further decreasing greater prairie chicken populations. There are currently mixed leks (leks containing both greater prairie chicken and sharp-tailed grouse) on SNG. Hybrids have been seen between the two species on SNG. Possible sharp-tailed grouse and pheasant reduction in areas that greater prairie chicken occur could benefit greater prairie chickens by reducing competition for available resources. Tree, shrub and invasive weed encroachment have also contributed to the decline of greater prairie chickens on the SNG. By implementing woody species reduction through mowing, prescribed fire and invasive weed management we can improve the available habitat for greater prairie chickens.

MON-WLD-02B - What is the current & potential habitat capability for 1) Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

Visual Obstruction Readings (VOR) have not been consistently collected across the DPG, making it harder to detect relationships between prairie grouse and VOR. Across the DPG there have been fewer transects read in recent years than from 2010-2014, with more consistent and repeatable readings on the Medora RD in the last few years. At one time, LRMP VOR monitoring was focused on the block level, providing for some opportunities to correlate VOR readings with sharp-tailed grouse surveys. In recent years, however, VOR measurements for LRMP purposes have been done outside of blocks. To increase confidence, more data collection in a configuration that allows for detecting management patterns with prairie grouse numbers is needed.

Little Missouri National Grasslands/Grand River Ranger District

Six of 13 years had over 20% high structure VOR for western DPG, please refer to Figure 17. At least two of the years had low precipitation levels on the LMNG (less than 16 inches, which is the average for Bowman, ND). Seven of 13 years had over 20% high structure VOR for the Grand River Ranger District. At least four years had low precipitation levels (less than 17.25 inches which is the average for Lemmon, SD).
The above numbers do not consider the slightly differing definition of what constitutes biologically capable post-2015.

Medora Ranger District

The location of the Medora Ranger District, in Dickinson, ND, is the only district on the Grasslands with nearby sage grouse, although currently no known populations exist on the District. The Medora Ranger District has had 5 years with over 20% high structure VOR (notably, the listed data is district-wide). Refer to Figure 18 for more information. At least two of the years associated with not having over 20% high structure VOR had below average precipitation. The distribution and extent of sagebrush, particularly big sagebrush (*Artemisia tridentata*), is a key habitat component for sage grouse. Discussion of the big sagebrush community may merit further monitoring and analysis in future reports.

Sheyenne Ranger District

The habitat on the SNG is different than the western DPG units. Determining which areas are biologically capable of producing high structure vegetation is challenging due to the difficulty of mapping soils. Furthermore, not all of the high structure habitat is available to nesting prairie grouse in the spring because some of it may be flooded.

Visual Obstruction Readings (VOR) met the high structure thresholds one out of the six years sampled. The most recent VOR data on the SNG is from 2022 (Figure 16). Transects were sited, but not read, around 2018 on biologically capable areas. Recent VOR monitoring was prevented by early season snowfall. Another method on SNG, called polygon mapping, has been done to measure residual vegetation. In this method, trained observers sketch out polygons of vegetative structure on aerial maps. Each polygon is put in a structure category (i.e., 0-2”, 2-4”, 4- 6”, 8-10”, >10”). These polygons are in both biologically capable and non-biologically capable areas. To get a clearer idea of the vegetation structure on SNG, analysis of past polygon mapping data may be helpful.

MON-WLD-02C - What management actions & naturally occurring events have influenced change to the status &/or habitat for 1) Sage Grouse, 2) Sharp-tailed Grouse, & 3) Greater Prairie Chicken?

It’s hard to detect what management actions have influenced change to prairie grouse because the methods and consistency do not yield the appropriate data to fully identify answers. For example, not all Animal Unit Months (AUM) and VOR readings are completed in blocks, making it difficult to correlate trends. More analysis and better sampling/measuring methods may be helpful in increasing understanding between habitat management and prairie grouse. Future habitat evaluations could potentially incorporate Ecological Site Descriptions. New questions and methods should be discussed for the Grasslands Plan revision.

Weed control occurs every summer within the DPG, generally in woody draws, or snowberry patches within the draws. This would be an “incidental” habitat improvement not specifically done for improving grouse habitat.

Recent Vegetation Management Projects (VMPs) were completed to improve conditions on allotments (e.g., structure and composition objectives). This may not become evident for many years. Increased flexibility from updated VMPs may create opportunities for grazing regimes that can improve habitat. The Vegetation Plans create much greater flexibility in rotations, timing, and intensity of grazing, allowing the Grasslands to have more pastures within allotments. This means we can control utilization (and thus structure) much better.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS

Monitoring Question evaluating the above Plan Component(s)

MON-WLD-02A. What is the current population status of 1) sage grouse (*Centrocercus urophasianus*), 2) sharp-tailed grouse (*Tympanuchus phasianellus*), and 3) greater prairie chicken (*Tympanuchus cupido*)?

MON-WLD-02B. What is the current and potential habitat capability for 1) sage grouse, 2) sharp-tailed grouse, and 3) greater prairie chicken?

MON-WLD-02C. What management actions and naturally occurring events have influenced change to the status and/or habitat for 1) sage grouse, 2) sharp-tailed grouse, and 3) greater prairie chicken?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
MON-WLD-02A. (D) NO - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired; **MON-WLD-02B and MON-WLD-02C.** (C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s). (s)	Yes	Management Activities Monitoring Program

[1] See Box 1

Findings Rationale: Implementation of Plan Component(s) for prairie grouse are not trending, progressing, and/or conducted as desired. Although sharp-tailed grouse appear to be doing well on all Districts, greater prairie chickens and sage grouse continue to have downward trends and sage grouse are presumed to be absent since 2014 on the Medora Ranger District.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Activities: If Prairie Chicken & Sage Grouse are to persist, more focused management such as prescribed fire, tree reduction, invasive species management and native restoration will need to be done on the species habitat.

Monitoring Program: Visual Obstruction on SNG: Analyze past polygon mapping data. A more detailed assessment of Sage Grouse habitat is needed to evaluate future management options. Management Activities: Habitat Management data records need to be recorded at a scale that is sensitive to representative distribution of grouse monitoring sites.
RATIONALE FOR THE RECOMMENDATION
To meet Plan goals and objectives, management activities and monitoring programs should be altered in order to demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution of prairie grouse within the planning area.

Monitoring Item MON-WLD-03

Why the Plan Component(s) is monitored?

The Medora and McKenzie Ranger Districts have known occupancy of Dakota skipper (DASK), a prairie-obligate butterfly species which is listed as threatened under the Endangered Species Act (ESA). Additionally, the McKenzie and Sheyenne Ranger Districts each have two units of Designated Critical Habitat (DCH) for the Dakota skipper. The DPG LRMP states we will demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution for threatened and endangered species. Additionally, Section 7 of the ESA charges federal agencies to aid in the conservation of listed species and to also ensure their activities are not likely to jeopardize the continued existence of federally listed species or destroy or adversely modify designated critical habitat. The DPG LRMP contains the following guidelines specific to DASK:

- "Emphasize late fall (September or later) mowing, instead of prescribed burning, at sites of historic or existing populations of DASK, Poweshiek Skipper[ling], Prairie Skipper, or Arogos Skipper, if consistent with restoration objectives".
- "Rest areas with historic or existing populations of sensitive butterflies and skippers, particularly DASK. Such areas should be rested several years, if consistent with restoration objectives. Rested areas may need to encompass only a portion of a pasture".
- "Conduct butterfly and skipper surveys in areas with historic or existing populations of sensitive butterflies and DASK".

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)

What is the population and habitat status of the Dakota skipper (*Hesperia dacotae*) in high potential habitat?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Suitable habitat (*acres of modeled habitat determined to be suitable)*	Annual	DPG SO Records	Biology Program Manager
Occurrences (*# of individuals*)	Annual	DPG SO Records, Contracts, 3rd party	Biology Program Manager

		contracts, Visiting Researchers	
Forage use (*landscape appearance protocol*)	Annual	DPG SO Records	Biology Program Manager
Oil and gas activity (*acres of/# of activities in Critical Habitat*)	Annual	DPG SO Records	Biology Program Manager
Habitat improvements (*# or acres of habitat improvement actions*)	Annual	DPG SO Records	Biology Program Manager

Data and Evaluation History

MON-WLD-03	**Year**
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	**RECOMMENDATIONS FROM PREVIOUS BMERS**	**STATUS[1]**
FY21	None	N/A

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

No recommendation was made from the FY21 BMER. The DASK is a cryptic species and the status and distribution of this prairie butterfly across the LMNG is still being determined. Understanding the distribution of DASK populations at a landscape scale is key to planning recovery efforts. Survey efforts conducted prior to the listing of the DASK were conducted by a small group of surveyors primarily at known locations and the listing was driven primarily due to the decline of these known populations. Since listing, numerous new populations have been documented. These newly discovered populations show that the distribution and population structure of the species is still being established. Increased survey effort is needed in areas that have not yet been evaluated to continue to establish our understanding of the current population and distribution of this species.

Methods

Suitable Habitat

In order to help determine where potential DASK habitat may occur, a GIS tool was developed for the Sheyenne National Grassland (SNG). Categories for habitat were developed by analyzing various components and how they related to DASK habitat. GIS tool methods are summarized in SNG DASK Consultation Agreement USFS (2015b) for SNG. There was historically a DASK habitat model on McKenzie Ranger District; however, that model is currently invalid. Currently areas are identified by an initial desktop survey followed by field checks using methods outlined in the DPG LMNG Biological Survey & Reporting Guidelines. The United States Fish and Wildlife Service (USFWS) Ecological Services Staff and Habitat and Population Evaluation Team (HAPET) is also currently developing a habitat model expanding upon the recently developed potentially undisturbed grassland data layer. This model is still under development; once finalized it will be a valuable tool in determining potential DASK habitat that has not yet been identified through other methods and help prioritize future areas to be surveyed, as well as to guide future management actions and recovery efforts.

Occurrences

Since listing of DASK in 2014, there have been numerous butterfly surveys throughout the Sheyenne National Grassland and Little Missouri National Grassland. Surveys have been done under contract by third party contractors and researchers who have asked for permission to conduct their work on the Grasslands. Please see Fauske et al. 2015; SWCA 2017, 2018, Limb et al. 2018-2020, Beaver Creek Environmental 2020, Reiser & Reiser 2020, Runquist et al. 2019, Selby 2016, 2019, 2021, KC Harvey Environmental 2022 and USFS 2020 for methods.

Forage Use

Cattle grazing is allowed in potential, occupied, and Critical DASK Habitat areas at 0 to 40% utilization levels (USFS 2016a). To measure this utilization, the landscape appearance protocol is used (US Department of the Interior USDI- BLM 1996). This technique uses a visual estimate of forage utilization based on the general appearance of the rangeland. Utilization levels are determined by comparing observations with written descriptions of each utilization class. This method is adapted to areas where perennial grasses, forbs, and/or browse plants are present and to situations where utilization data must be obtained over large areas using only a few examiners.

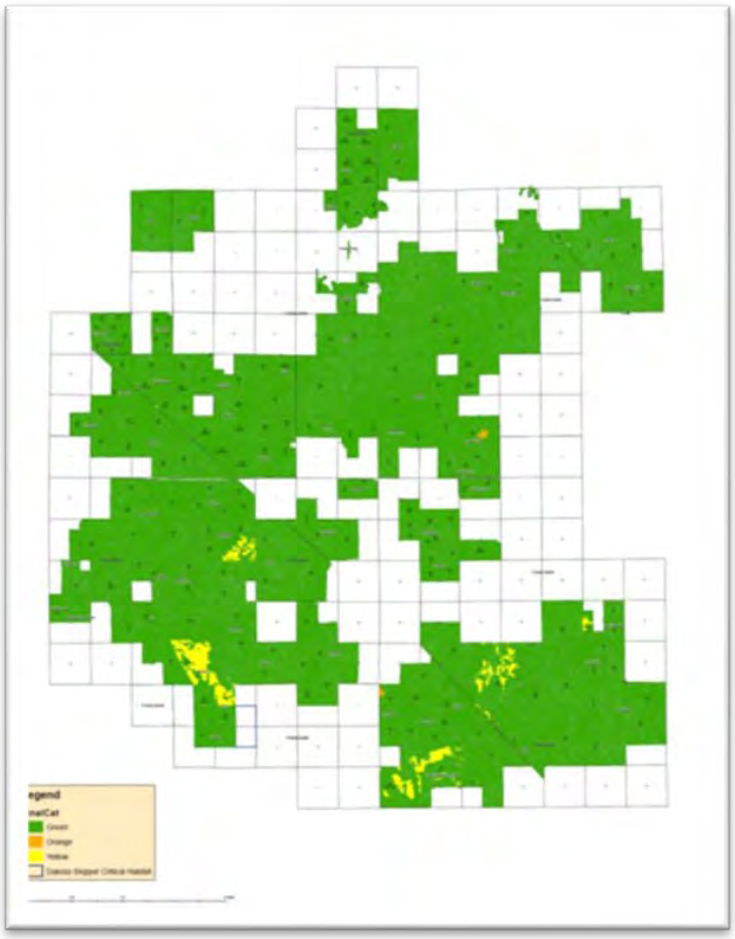
Oil & Gas Activity

Two crude oil pipelines were installed after completion of NEPA in 2018, along the edge of County Road 2 in McKenzie County, bordering Designated Critical Habitat. These pipelines were routed to avoid suitable habitat and/or utilized construction methods, such as Horizontal Directional Drilling (HDD) boring, that would avoid any surface disturbance. There has been no other oil and gas activity within Designated Critical Habitat for the DASK on the LMNG. Oil and gas activities outside of critical habitat on the LMNG are permitted to avoid direct impacts to suitable Dakota skipper habitat and are typically sited to be in road ditches or previously disturbed land.

Habitat Improvements

There have been weed control activities that could help improve DASK habitat. Please refer to MON-NOX-01 portion of this document for general noxious weed treatment information for SNG and McKenzie RD. In 2020, remediation efforts were taken after a company experienced an inadvertent return while installing a project via HDD bore along the edge of Designated Critical Habitat Unit 12 and County Road 2 in McKenzie County that impacted 0.36 acres of Designated Critical Habitat. The project was installed using bore methods in an effort to avoid surface disturbance to Designated Critical Habitat. The project proponent took efforts to remediate disturbance including restoration of a nearby well pad utilizing a seed mix specifically designed to benefit DASK and create additional habitat. Further details are provided in the report from Beaver Creek Environmental (2020).

Results



Color	Definition	Acres
Green	Not suitable for DASK	70,567
Orange	Areas contain the proper ecological sites for DASK & habitat has been field verified as moderate to good habitat. These areas need to have DASK surveys to verify occupation	30
Yellow	Ecological sites that potentially could support habitat that are currently dominated with invasive species	1,016

Figure 19. DASK GIS Tool 11/27/2020

Occurrences

DASK has been observed annually on McKenzie RD and in recent years on Medora RD. The species haven't been seen on the SNG since the early 2000s.

Forage Use

Utilization measurements were completed in DASK Critical Habitat. Notably, the Landscape Appearance protocol is limited because it is difficult to assess the precision of the subjective qualitative estimate. The Landscape Appearance protocol was determined to be the most appropriate assessment method because it is one of the USFS approved methods of monitoring annual herbivore use and accounts for the limited time and personnel resources available to complete these monitoring efforts. To mitigate subjectivity involved with this survey method, the surveyor compares their on-the-ground observations with accepted written descriptions of each available utilization class and applies their results appropriately.

SNG Forage Use

Table 41. SNG Forage Use, Landscape Appearance Protocol. Data courtesy SNG

Transect	Date	Utilization (%)
Milton Sr	3/12/2015	48.1
Gregor	3/12/2015	18.4

McKenzie RD Forage Use

Table 42. McKenzie RD Critical Habitat and Summer and Fall Utilization

Transect	Critical Habitat #	Summer Utilization (%) 7/15-7/16, 2015	February Utilization 2/23-2/25, 2016	Fall Utilization (%) 10/19-10/20, 2016	Summer Utilization (%) 6/27/2018	Fall Utilization (%) 10/23/2018	Summer Utilization (%) 7/25/2019	Fall Utilization (%) 10/23/2019	Summer Utilization (%) 6/30/2022	Fall Utilization (%) 10/19/2022
PHPT1	12	10	30	16.67	10	29	10	29	10	10
PHPT2	12	10	33.3	21.67	11	20	12	20	10	13
PHPT3	-	10	30	-	10	13	10	13	10	--
PHPT4	11	10	44	16.67	10	19	12	19	10	--
PHPT5	11			27.3	10	17	10	17	10	--

Data Sources:
USFS. 2015. Dakota Skipper Monitoring, McKenzie Ranger District, McKenzie Critical Habitat #11. USFS. 2015. Dakota Skipper Monitoring, McKenzie Ranger District, McKenzie Critical Habitat #12. USFS. 2018. Dakota Skipper Monitoring, McKenzie Ranger District, Critical Habitat Report.
USFS. 2019. Dakota Skipper Monitoring, McKenzie Ranger District, Critical Habitat Report.
USFS. 2022. Estimated Utilization – Landscape Appearance (Rangeland) Data Forms

Of the measurements taken, most of the utilization points fall below the 40% threshold with one exception of a measurement on SNG at 48% in 2015 out of 2 taken. On the McKenzie RD, of the years measured (2015- 2022), one measurement was higher than 40% at 44%.

Oil & Gas Activity

Oil wells have not been drilled in these areas; however, there have been two pipelines built in the road ditch on either side of County Road (CR) 2 in McKenzie County, in Critical Habitat 12 (Beaver Creek 2020).

Habitat Improvements

The DPG oversaw one native prairie rehabilitation effort specific to DASK. This was completed by a third party as part of a remediation for impacts from a pipeline inadvertent return in Designated Critical Habitat Unit 12 on the McKenzie RD. The mitigation efforts were completed on an abandoned well pad totaling 3.13 acres located near Designated Critical Habitat Unit 12. The third party completed construction efforts by recontouring the location with certified weed-free topsoil and planted a DASK-specific seed mix (Beaver Creek Environmental 2020).

Please refer to MON-NOX-01 portion of this report for invasive plant control for SNG and McKenzie RD.

Discussion

This question is also related to MON-WLD-05 (Poweshiek Skipperling).

Suitable Habitat

Habitat field check data from Oil & Gas 3rd party contractors could be compiled into a common GIS layer to use as a reference for further understanding DASK habitat distribution, although there are potential discrepancies between different 3rd party contractors. The USFWS Ecological Services Staff and Habitat and Population Evaluation Team (HAPET) is currently developing a habitat model expanding upon the recently developed

potentially undisturbed grassland data layer. This model is still under development; once finalized it will be a valuable tool in determining DASK habitat that has not yet been identified through other methods and help prioritize future areas to be surveyed, as well as target areas for potential habitat improvements or augmentation efforts.

Occurrences

Dakota Skipper has not been seen on the SNG since 2002 (Spomer 2004). Survey efforts the last several years indicate that the DASK is no longer present on this District of the DPG.

Surveys were completed by Selby in 2021 on pre-determined locations of potential habitat, confirmed DASK individuals on the McKenzie and Medora RD.. Five sites were surveyed on the LMNG, three including portions of Pastures 4, 13, and 14 on McKenzie RD and two in the Bell Lake and Ice Caves areas on Medora RD . DASKs were confirmed for the first time in the eastern part of Pasture 4, where unconfirmed male Dakota or Ottoe observations were the only past records. A single female was confirmed in the southern portion of Pasture 13, and an unconfirmed male was observed in Pasture 14. There were additional unconfirmed (Dakota or Ottoe) observations at other sites. A significant record documented during survey efforts included a female Dakota skipper near Fairfield, ND. The species had not been documented in this area previously. The lead surveyor indicated that the low numbers of DASKs observed, and skipper species in general, was concerning but could have been a factor of a very dry year.

In 2022, KC Harvey Environmental completed twelve days of surveys at several sites on the McKenzie, Medora, and Sheyenne Districts. No DASK were observed on the Sheyenne District. One occurrence was documented on the Medora District; in the same vicinity where a female DASK was observed in 2021 near Fairfield, ND. Two occurrences on the McKenzie District were determined to be potential observations by USFWS staff due to the lack of key diagnostic features in the photos taken during the surveys. The status of this potential occurrence is determined to be unverified based on the circumstances. Additional surveys should take place in this area to confirm if the species is present.

Survey efforts were completed by DPG staff in 2022; however, no DASKs were observed. Although there was a significant bloom of *Echinacea angustifolia* (a preferred nectar source for DASK) across the LMNG in 2022, it was apparent the drought in 2021 played a significant factor into the lack of species sightings in 2022 and is likely that reproductive success was very poor in both years.

Western North Dakota is the most poorly understood area for DASK distribution; it is believed there are populations yet to be found (USFWS 2018). Additional DASK surveys are planned near the shared boundary of the McKenzie and Medora RDs to further understand the distribution of the species.

During 2020, a known DASK population inside Critical Habitat 11 on the McKenzie RD, was augmented with offspring from individuals gathered from the site of a future well pad approximately 1 mile to the west on North Dakota state land. (USFWS 2020b). Subsequent surveys in 2021 and 2022 in this area documented little DASK activity and drought likely played a factor into the few observations. Continued survey efforts will be undertaken within this critical habitat unit.

Forage Use

Areas containing DASK beyond the Critical Habitat should be monitored for forage use. New methods that may not be as time efficient, yet are more quantitative than Landscape Appearance Protocol method, should be considered for monitoring.

Oil & Gas Activity

Oil and gas activity was permitted to avoid direct impacts to suitable DASK habitat and sited to be in road ditches or previously disturbed land. When direct impacts may occur infrastructure, such as new well pads, access roads, or pipelines, were designed to avoid suitable Dakota skipper habitat and HDD is used to bore pipelines through

these identified areas. Given the efforts to avoid direct disturbance to DASK habitat, it is determined that overall effects to DASK from oil and gas activity will be minimal. Potential long-term effects to the DASK due to factors such as fragmentation or disturbance of dispersal habitat, dust generated from long-term operation of oil and gas infrastructure, or invasion of noxious weeds or other undesirable species from soil disturbance and reclamation activities, is not fully understood and may require additional monitoring to understand how DASKs respond to these factors on the landscape.

One pipeline project occurred in Critical Habitat 11 on the McKenzie RD prior to Critical Habitat designation (Houston Engineering 2015).

Habitat Improvements

On DPG, invasive plant control occurs every summer. This is an "incidental" habitat improvement not specifically done for improving DASK habitat. Weed control data is not collected on a level that can be easily correlated with DASK occurrences.

Considering the species survey window (2-3 weeks annually) paired with the lack of full understanding of the species distribution on the DPG and limited number of qualified surveyors, it is expected that moving toward Objectives 2 and 4 may require a longer than 15 year timeline since species listing in 2014. Larger steps are being taken to move toward Objective 6 both internally and through a statewide recovery council with USFS representation. Presently, changes are not warranted, but acknowledgment of limitations moving forward is important. Areas that are invaded by cool-season invasive grasses or noxious weeds but still have components of suitable Dakota skipper habitat, should be prioritized for future management and restoration efforts. Understanding where to focus remediation will take additional time.

Past survey efforts on the Sheyenne RD indicate the species is no longer present. If the species is extirpated from this District, significant habitat improvements would need to occur coupled with reintroduction efforts as it is highly unlikely natural recruitment would occur. Cool season invasive grasses, woody vegetation, and noxious weeds continue to be an issue on this District and management tools such as prescribed fire, chemical applications, mowing/haying, brush reductions and grazing are all currently being used to help manage the landscape. Additional changes may be warranted in the future but not at this time.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)

What is the population and habitat status of the Dakota skipper (*Hesperia dacotae*) in high potential habitat?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)	No	N/A

[1] See Box 1

Findings Rationale: The DPG is still in the process of understanding the status and distribution of the Dakota skipper on the Little Missouri National Grasslands and continues to survey annually to develop a baseline of the status of the species.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
None
RATIONALE FOR THE RECOMMENDATION
N/A

Monitoring Item MON-WLD-04

Why the Plan Component(s) is monitored?

Due to significant population declines from white-nose syndrome (WNS), the northern long-eared bat (*Myotis septentrionalis*) was listed as threatened under the Endangered Species Act on April 2, 2015. A final 4(d) rule allowing the USFWS to promulgate special rules for species listed as Threatened that provide flexibility in implementing the ESA was published in the Federal Register on January 14, 2016. On November 29, 2022, the USFWS published a final rule to reclassify the Northern Long-eared Bat as endangered. The effected date of this final rule was delayed until March 31, 2023.

Prior to 2009, there had never been a statewide effort to document occurrences and distributions of bat species in North Dakota. Since then, a total of eleven species have been confirmed in the state, with the highest diversity of bats found in the badlands region, including the Little Missouri National Grassland (LMNG) (Nelson et al. 2015).

White-nose syndrome (WNS) is a disease caused by a fungal pathogen, *Pseudogymnoascus destructans* (Pd; formerly *Geomyces destructans*). First recorded in New York in 2006, WNS has killed millions of bats and spread to 38 states and eight Canadian provinces. In affected hibernacula, 90 to 100% mortality is common and total overall deaths so far are estimated at over 6 million bats. Twelve species of bat have been confirmed to be impacted from WNS and another 8 species have tested positive for the fungus but have not yet been found with the diagnostic signs of WNS. WNS was first documented in North Dakota in early 2019 on a live little brown bat (*Myotis lucifugus*) at the Knife River Indian Villages National historic Site along the Missouri River. In early May of 2020, six little brown bats found dead in Medora tested positive for WNS. Further information: https://www.whitenosesyndrome.org/

In North Dakota, cottonwood and green ash trees in riparian zones seem to be preferred summer roosts. Across the species distribution, winter habitat (hibernacula) are typically found in caves and mines. It is unknown if northern long-eared bats overwinter in ND although there are abundant potential hibernacula in the form of geologic “piping” which forms cave-like structures throughout the badlands. Occurrences of northern long- eared bats in ND have so far been limited to the Missouri River Valley and the Little Missouri River and associated badlands. Occurrences seem to be increasingly rare, which may be indicative of declining populations. While

these bats are considered to have a broad distribution, habitat suitability analysis predicts a much more restricted distribution in the state (see Figure 20). Notably, areas administered by the DPG are relatively moderate to higher for habitat suitability than the majority of the state.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)

What is the distribution and status of Northern long-eared bat (*Myotis septentionalis*)?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Occurrences (*presence/absence*)	Annual	DPG SO Records: Visiting Researchers, 3rd party contractors Cooperative Agreement	Biology Program Manager

Data and Evaluation History

MON-WLD-04	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Need to incorporate bat habitat considerations into management and develop a monitoring program	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The DPG has decided to implement the recommendation from the FY21 BMER and is in the process of developing a monitoring program for bats. Equipment has been secured but the monitoring components are still being determined. Additionally, a staff member is currently pursuing a 10(a)(1)(A) recovery permit from the USFWS to conduct mist netting and other activities which require handling of bats (collecting non-intrusive measurements, radio-transmitter attachments, etc). Some consideration is given to bat habitat for certain management activities. For example, tree removal activities do not occur during the Northern Long-Eared Bat summer roosting period (April 1 – September 30). Other bat habitat considerations are currently on standby until a monitoring program is implemented, and additional management recommendations are developed.

The following results, discussion, and findings are relatively unchanged from the FY21 BMER , aside from the addition of some acoustical monitoring and noted trends of recent surveys that were done within and adjacent to lands administered by the DPG. No Northern Long-Eared Bats were documented on the DPG since the FY21 BMER. The next anticipated updates to this monitoring item is FY25.

Methods

The DPG is in the process of developing a monitoring plan for bats which will help establish baseline trend surveys of populations, habitats, or ecological conditions that contribute to the viability of Northern Long-eared Bats (LRMP: Goal 1.b Objective 6). Sporadic mist net and/or acoustic surveys of bats have been conducted on or near DPG administered lands by various non-Forest Service entities over the years (See Results).

Results

Results reported here as occurrences will focus primarily on physical capture (occurrences) of bats. Surveys using only acoustic methods are addressed separately below. Bats have similar echolocation call characteristics, particularly in Myotis species, and this may lead to misidentification of species; this reduces the reliability of echolocation calls as sole indicators of species presence/absence. Further, Nelson et al (2015), noted misclassification specifically of Northern Long-eared Bat calls from bats captured in ND using automated classification methods.

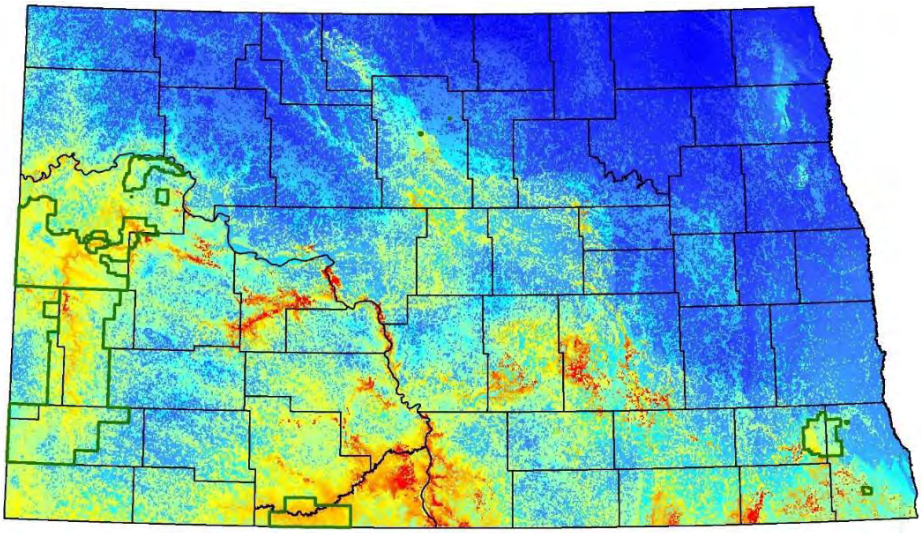


Figure 20. Modeled Habitat Suitability for Northern Long-eared Bats in ND (Areas of highest predicted suitability are shown in red, lowest in blue. The DPG administrative boundary is outlined in green)

Surveys Prior to 2015 Listing

The DPG contracted a survey report in 2006 from a third party named Tigner who reported the capture of three post-lactating female northern long-eared bats from one site (Section 15 Reservoir; T139 R103 section 15) on the Little Missouri National Grassland (LMNG) in central Golden Valley County. Bat surveys were conducted on the McKenzie Ranger District (RD), reported no occurrences of northern long-eared bats (Lenard (2010), Gillam and Students (2018)). Lenard (2010) and Gillam & students (2018), attempted to conduct the first comprehensive survey of bats for the state of North Dakota, starting in 2009. Multiple sites were surveyed on LMNG in Billings County with no occurrences of northern long-eared bats documented. However, five northern long-eared bats were captured in the North Unit of Theodore Roosevelt National Park which is encompassed by the McKenzie RD. Sites in the vicinity of the Sheyenne National Grassland (SNG) were also surveyed but no occurrences of northern long-eared bats were reported.

Surveys Post-Listing

In order to confirm species that had been acoustically identified, Trubitt (2017, 2019), conducted systematic acoustic surveys on the Sheyenne RD in 2016 that included sporadic mist netting. Guinn and Dragswolf (2017) conducted acoustic surveys in 2016 and 2017 and mist netting surveys at select sites in 2016 on the McKenzie RD. Gillam & students (2017) conducted 5 nights of mist net surveys at sites on the Medora and Sheyenne RD. Mist netting was also done during WNS survey work (Abernathy 2019) conducted in Theodore Roosevelt National Park. No northern long-eared bats were documented in any of these surveys; however, Bachen (2019) captured and genetically confirmed northern long-eared bats in 2016-2019 at multiple sites in eastern Montana bordering McKenzie County, ND and the McKenzie RD.

Acoustic Only Surveys

No northern long-eared bats were documented with acoustic monitoring in Theodore Roosevelt National Park (Licht 2017). Long term acoustic monitoring conducted by the Montana Natural Heritage Program (Bachen et al 2019, Bachen et al 2020) on the McKenzie RD also did not confirm northern long-eared bats. A survey conducted as part of a highway reconstruction project (KLJ 2016) did positively record northern long-eared bats adjacent to the North Unit of Theodore Roosevelt National Park and LMNG within the McKenzie RD administration boundary.

The North American Bat Monitoring Program (NABat) has coordinated ongoing acoustic survey efforts that also include sites in North and South Dakota. The data for these surveys can be requested from NABat at https://www.nabatmonitoring.org/

A recent study conducted by Erin Gillam in coordination with the North Dakota Game and Fish Department (Gillam 2022), that was primarily acoustic monitoring, concluded that white-nose syndrome has significantly impacted *Myotis* populations in North Dakota. During the study they were unable to assess trends for the northern long-eared bat as they only had four call sequences identified to that species across a four-year sampling period. Gillam concluded that even though their limited sample size prevented them from quantitatively assessing changes in population size for this species, strong declines in other states are likely also occurring amongst the small, but present, population of northern long-eared bats in North Dakota. Gillam concluded that state and federal government should develop conservation plans for the little brown bat and northern long-eared bat that direct how management actions can be used to aid the recovery of these species.

Discussion

Occurrences of northern long-eared bats on or near the DPG have been unsurprisingly rare given the species status. The DPG currently lacks systematic monitoring protocols for this species but is in the process of developing a monitoring plan for bats.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)
What is the distribution and status of Northern long-eared bat (*Myotis septentionalis*)?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: The DPG has identified the need for a monitoring program for bats and is currently in the process of developing one. Other species are likely to be listed in the future so developing a monitoring program will be essential to better understand species of bats across the DPG and to guide future conservation efforts and achieve Plan Components.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Need to incorporate bat habitat considerations into management and develop a monitoring plan, which is currently in development.
RATIONALE FOR THE RECOMMENDATION
The DPG does not have a monitoring plan for bats, and one is needed. Distribution of the northern-long eared bat is poorly understood, and additional species are likely to be listed in the next 5 years.

Monitoring Item MON-WLD-05

Why the Plan Component(s) is monitored?

The only district on Dakota Prairie Grasslands (DPG) that is historically associated with Poweshiek skipperling is Sheyenne National Grassland (SNG). Poweshiek skipperling is currently listed as endangered.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.
Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.
Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)
What is the presence of Poweshiek skipperling (*Oarisma poweshiek*) during Dakota skipper surveys?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Occurrence (presence/absence of Poweshiek skipperling during Dakota skipper surveys MON-WLD-03)	Annual	DPG SO Records	Biology Program Manager

Data and Evaluation History

MON-WLD-05	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	There is no data collection/compilation scheduled at this time.
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Pending confirmation of extirpated status, re- evaluate need for monitoring.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The recommendation from the FY21 BMER for MON-WLD-05 is on standby. The USFWS has not yet confirmed extirpated status of the species in North Dakota. The species has not been detected on the SNG since 2001 and recent surveys indicate the species is likely extirpated within the SNG. The following results, discussions, and findings are relatively unchanged from the FY21 BMER due to the fact the species does not occur on the SNG and is assumed extirpated based on survey efforts over the last twenty years. Additional surveys were completed in 2022 and no Poweshiek skipperlings were observed. The only updates below reflect the addition of surveys from KC Harvey Environmental (2022).

Methods

Since the listing of DASK in 2014, there have been general butterfly surveys and DASK/Poweshiek skipperling focused butterfly surveys on the SNG. Surveys have been completed under contract or through academic research. Please refer to Fauske et al. (2015); SWCA (2017, 2018) Limb et al. (2018, 2019, 2020), and KC Harvey Environmental (2022) for methods.

Results

Poweshiek skipperling butterflies have not been documented in recent surveys (Fauske et al. 2015; SWCA 2017, 2018; Limb et al. (2018, 2019, 2020; and KC Harvey Environmental (2022); and have not been documented within the SNG since 2001 (Spomer 2004). It's currently believed that Poweshiek skipperling may be extirpated from North Dakota (US Fish and Wildlife Service 2014b). Targeted surveys, in cooperation with the USFWS, need to confirm local extinction or "extirpation" of the Poweshiek skipperling within the SNG, before moving forward with additional monitoring or conservation plans. A draft recovery plan for the Poweshiek skipperling was published by the USFWS in June 2021. This document will help guide future survey and eventual recovery efforts of the species.

Discussion

The species is no longer known to occur on the SNG; therefore, the indicator is trending away from the target outlined in the LRMP.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Goal 1.b Objective 6. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitat, and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.

Monitoring Question evaluating the above Plan Component(s)

What is the presence of Poweshiek skipperling (*Oarisma poweshiek*) during Dakota skipper surveys?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Implementation of Plan Components are not trending, progressing, and/or conducted as desired based on the lack of detections during targeted surveys.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Pending confirmation of extirpated status, re- evaluate need for monitoring and consider dropping this monitoring question based on negative survey results.
RATIONALE FOR THE RECOMMENDATION
The species has not been detected in over 20 years on the SNG. The need to continue monitoring is unlikely and consideration should be given to drop the question for the next monitoring report.

Monitoring Item MON-WLD-06

Why the Plan Component(s) is monitored?

The DPG LRMP contains stipulations (see LRMP, Appendix D), to help protect wildlife from the adverse effects of oil and gas development, recreation and other surface use activities. Some stipulations were updated in the

LMNG oil and gas leasing SEIS Record of Decision (LMNG Oil and Gas Leasing ROD). This question is meant to assess the effectiveness of those stipulations.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Monitoring Question evaluating the above Plan Component(s)

Are management actions effective in protecting golden eagle nests?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Active territory (presence/absence within ½ mile following implementation)	survey as needed, post implementation	DPG SO Records	Biology Program Manager

Data and Evaluation History

MON-WLD-06	Year
Data last collected or compiled	N/A
Next scheduled data collection/compilation	N/A
Last BMER evaluation for this monitoring item:	N/A
Plan Implementation Status Finding from previous BMER	(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Reevaluate indicator and monitoring program. Monitoring efforts and indicator should be refocused on maintaining the inventory of Golden Eagle nests to ensure stipulations are effectively applied.	B

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The following results, discussion, and findings are unchanged from the FY21 BMER due to new personnel and turnover. Additional time is needed to reevaluate the indicator and monitoring program. The next anticipated updates to this monitoring item is FY2025.

Methods

The DPG keeps and updates GIS records on existing golden eagle nests as resources allow. When feasible and appropriate, nests within a half mile of proposed projects are surveyed during the same year as project implementation to determine timing of those operations so they do not impact nests. In order to monitor

nests post-project implementation, additional qualified personnel would be necessary. See results and discussion below.

Results

There are standards and guidelines in the LRMP to protect eagle nests and mitigate for potential impacts. Timing restrictions and buffer distances from project activities protect active nests. Golden Eagles have large territories and may use multiple nests across years. There is no clear way to determine if a nest is avoided or simply not chosen in subsequent seasons post-implementation of a project. However, pooled data on nest occupancy post implementation of projects could provide insights into the effectiveness of management stipulations.

Discussion

Current monitoring indicators are not adequate to assess the status or progress of the above Plan Components. The DPG may need to reevaluate the indicator and develop an improved monitoring plan.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Monitoring Question evaluating the above Plan Component(s)

Are management actions effective in protecting golden eagle nests?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(C) Uncertain - The indicator is not adequate to help understand the status of the Plan Component.	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: The indicator is not adequate to help understand the status of the Plan Component.

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Reevaluate indicator and monitoring program. Monitoring efforts and indicator should be refocused on maintaining the inventory of Golden Eagle nests to ensure stipulations are effectively applied. Additional post-project monitoring efforts should be implemented to evaluate the effectiveness of stipulations

RATIONALE FOR THE RECOMMENDATION
The indicator is not adequate to help understand the status of the Plan Component.

Monitoring Item MON-WLD-07

Why the Plan Component(s) is monitored?

The DPG Land and Resource Management Plan (LRMP) contains standards, guidelines, and stipulations, defined as: "a condition or requirement that is specified or demanded as part of an agreement" to help protect wildlife from the adverse effects of oil and gas development, recreation, and other surface use activities. Some stipulations were updated in the LMNG oil and gas leasing SEIS Record of Decision (LMNG Oil and Gas Leasing ROD). This monitoring question is meant to assess the effectiveness of the DPG-LRMP stipulations in protecting bighorn sheep lambing.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Monitoring Question evaluating the above Plan Component(s)

Are management actions effective in protecting bighorn sheep lambing?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Timing restrictions of projects/permits with timing stipulations	N/A	DPG SO Records	Biology Program Manager
Lambing periods during year of activity	N/A	State wildlife records for lambing periods	Biology Program Manager

Data and Evaluation History

MON-WLD-07	Year
Data last collected or compiled	N/A
Next scheduled data collection/compilation	N/A
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Develop an effective indicator and adjust Plan timing limitation to extend through July 15. An appropriate indicator should involve evaluating Bighorn Sheep populations against timing limitations at the extent of the species' location within the LMNG administrative boundary.	B

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The determination to implement the recommendation has not occurred due to new personnel and staff turnover. Additional time is needed by staff to develop an effective indicator.

The following results, discussion, and findings are unchanged from the FY21 BMER due to additional time needed for new staff to determine and develop an effective indicator. The next anticipated update to this monitoring item is in FY25.

Methods

There are timing restrictions and stipulations in the DPG-LRMP to monitor and track the number of projects and permits impacting areas of bighorn sheep lambing. This data is coordinated with the North Dakota Game and Fish Department (NDGFD) to assess the suitability of the timing limitation dates in comparison to actual recorded lambing dates.

Results

Timing Restrictions

The DPG has not tracked the number of projects/permits where timing stipulations have been applied. Tracking projects with applied stipulations is not a sensitive enough indicator to assess achievement of the Plan Component intent. Some projects where stipulations have been applied may not yet be, or may never be, implemented. Others may be implemented outside of the lambing season regardless of the timing stipulation. A new indicator or alternative monitoring plan may need to be developed.

Lambing Periods

The timing stipulation for bighorn sheep lambing in the LRMP is not consistent with the timing recommended by the NDGFD. Stipulations for oil and gas were revised in the LMNG Oil and Gas Leasing SEIS (LMNG Oil and Gas Leasing ROD). The North Dakota Bighorn Sheep Management Plan states that "Construction activities and other sources of disturbance that are temporary (e.g., pipelines, water developments, road construction) [should] not occur within 660 yards of lambing habitat from April 1 to July 15 – a period when lambs are most dependent on escape terrain but also most likely to flee." (Wiedmann and Hosek 2013) The DPG currently uses the NDGFD recommended timing as mitigation as appropriate. A Plan amendment or Plan revision will be needed to further address this issue.

Discussion

Currently it is unknown if management actions are effective in protecting bighorn sheep lambing. There are differences in the timing stipulation in the DPG LRMP and NDGFD recommendations. The DPG currently uses NDGFD recommended timings where appropriate, but a Plan amendment or Plan revision will be needed to ensure the Plan incorporates the recommended timing stipulations and to avoid confusion over the differences in dates. Recommendations from the FY21 BMER have not been implemented and more time is needed for staff to understand how the timing stipulations protect bighorn sheep lambing.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.b Objective 2. Within 15 years, for threatened, endangered, sensitive, and MIS, demonstrate positive trends in population viability, habitat availability, habitat quality, and population distribution within the planning area.

Goal 1.b Objective 4. Within 15 years, conserve populations of species at risk and rare communities by demonstrating positive trends in habitat availability and quality or any other applicable factors affecting species at risk.

Monitoring Question evaluating the above Plan Component(s)
Are management actions effective in protecting bighorn sheep lambing?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: While timing limitations are in place to protect bighorn sheep populations during critical lambing periods, there is no data contributing to our knowledge of these limitations impacting populations.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Develop an effective indicator and adjust Plan timing limitation to extend through July 15. An appropriate indicator should involve evaluating bighorn sheep populations against timing limitations at the extent of the species' location within the LMNG administrative boundary.
RATIONALE FOR THE RECOMMENDATION
To avoid confusion and misuse of language regarding timing stipulations between the current DPG LRMP language and North Dakota Game and Fish Departments recommendations and to understand how bighorn sheep respond to timing limitations.

VEGETATION

Monitoring Item MON-NOX-01

Why the Plan Component(s) is monitored?

Noxious weed infestations are a challenge to the goal of increasing the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from disturbance processes, both natural and human-controlled. Once certain species of noxious weeds have gotten a foothold in the vegetative community, it's difficult to nearly impossible to remove the undesirable species from the ecosystem. A wide variety of noxious weeds occur on the Dakota Prairie Grasslands (DPG) including but not limited to leafy spurge (*Euphorbia esula*), Canada thistle (*Cirsium arvense*), several knapweeds (*Centaurea spp.*), houndstongue (*Cynoglossum officinale*), and a couple of toadflaxes (*Linaria spp.*).

Since 2001, the DPG has entered into partnership agreements with multiple grazing associations and county weed boards to address control of noxious weeds, as well as build a better inventory of weeds treated through the years. Funding has been made available towards these agreements every year. In cooperation with our weed control partners, a better handle on what noxious weeds are being treated, which inventories are trending up or

down, and where new infestations are taking place has been obtained. Continued treatment is necessary to control noxious weeds as climatic extremes change from year to year and funding needs increase.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.c Objective 4. Within 5 years, develop and maintain cooperative noxious weeds and invasive species management plans in consultation with appropriate partners and agencies.

Goal 1.c Objective 6. Within 10 years, limit further expansion of areas affected by noxious weeds.

Goal 1.c Objective 7. Within 10 years, implement an integrated prevention and pest control management program for noxious weeds and invasive plant species.

Monitoring Question evaluating the above Plan Component(s)

To what extent has the integrated prevention and pest control management for noxious weeds been implemented?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Acres of treatment types (biocontrol, herbicide cultural – sheep grazing, or other types)	Annual	FACTS, treatment data	Range Program Manager
Partners (number of partners with cooperative agreements)	Annual	DPG SO Records, NRM- grants and agreements	Range Program Manager

Data and Evaluation History

MON-NOX-01	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) YES - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Develop a strategy on monitoring effects of treatments to align with Goal 1.c Objective 6 - Within 10 years, limit further expansion of areas affected by noxious weeds.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The DPG has national invasive species program direction to report monitoring of at least 51% of acres treated on a yearly basis in the FACTS database. This effort is a collaboration between Forest Service personnel and our weed control partners' observations on previous years' treatment effects. Through allotment inspection monitoring, personnel will record new weed inventory locations, and comment on treatment needs and effectiveness of known treatments. These observances will continually be shared with our weed control partners for the current year's treatment plan or future years. In addition, through our participating agreements our weed partners are required to provide agreement performance reports. Until the DPG can have a group discussion with

a dedicated program manager in place to discuss the need to develop a more detailed monitoring protocol, we will continue monitoring as mentioned above.

Methods

The Dakota Prairie Grasslands has developed and maintained noxious weed participating agreements with each grazing association and county that has federal land within its boundaries. Typically, spring meetings and continued communication through the treatment season with each weed control partner occurs to discuss the areas to focus treatment on from year to year.

All pesticide or biological control applications are tracked through the US Forest Service program called Natural Resource Manager (NRM). Data entries have been made in these programs from 2006 to present. Data collection and entry comply with the USDA Forest Service National Forest System Data Recording Protocols and Requirements for Invasive Species Survey, Inventory, and Treatment (2014). Areas and acreages infested with noxious weeds and acres treated for noxious weeds were calculated from NRM invasive species national database of record.

An integrated prevention and pest control management program for noxious weeds and invasive plant species has been achieved through the 2007 Dakota Prairie Noxious Weed FEIS and the 2013 Silvicide Environmental Assessment

Results

The following is a list of agreements within each District of the Dakota Prairie Grasslands: Grand River District – Grand River Coop. Grazing Association; McKenzie District – McKenzie County Grazing Association; Medora – Golden Valley County Weed Board, Billings County Weed Control Board, Little Missouri Grazing Association, Horse Creek Coop. Grazing Association; Sheyenne – Ransom County, Richland County, Sheyenne Valley Grazing Association.

Table 43. Treatment Method (Acres) on each District of the Dakota Prairie Grasslands from 2006-2022

Year	Activity	Sheyenne (acres)	Grand River (acres)	Medora (acres)	McKenzie (acres)	Total (acres)
2006	Invasive - Pesticide Application	11793	199.7	252.4	1236	13481.1
2006	Invasive - Biocontrol, Classic	35		165		200
2006	Invasive - Biocontrol, Livestock	8000				8000
2006	**Total**	**19828**	**199.7**	**417.4**	**1236**	**21681.1**
2007	Invasive - Pesticide Application	6244	46.6	613.8	233.4	7137.8
2007	Invasive - Biocontrol, Classic			60		60
2007	Invasive - Biocontrol, Livestock	9600				9600
2007	**Total**	**15844**	**46.6**	**673.8**	**233.4**	**16797.8**
2008	Invasive - Pesticide Application	10712.5	144.6	815.6	357.2	12029.9
2008	Invasive - Biocontrol, Classic	40		55		95
2008	Invasive - Biocontrol, Livestock	5920				5920
2008	**Total**	**16672.5**	**144.6**	**870.6**	**357.2**	**18044.9**
2009	Invasive - Pesticide Application	8831	117	1056.9		10004.9
2009	Invasive - Biocontrol, Classic	205	25	155		385
2009	Invasive - Biocontrol, Livestock	9360				9360
2009	**Total**	**18396**	**142**	**1211.9**		**19749.9**
2010	Invasive - Pesticide Application	6553	144.5	1469.9	289.9	8457.3
2010	Invasive - Biocontrol, Classic	455	20	95		570
2010	Invasive - Biocontrol, Livestock	6002				6002
2010	**Total**	**13010**	**164.5**	**1564.9**	**289.9**	**15029.3**
2011	Invasive - Pesticide Application	5212	106	1544.2	341.6	7203.8
2011	Invasive - Biocontrol, Classic	160	15	175		350
2011	Invasive - Biocontrol, Livestock	5607				5607
2011	**Total**	**10979**	**121**	**1719.2**	**341.6**	**13160.8**
2012	Invasive - Pesticide Application	8645	93.9	1194.9	167.6	10101.4
2012	Invasive - Biocontrol, Classic		7.8	90		97.8
2012	Invasive - Biocontrol, Livestock	9559				9559
2012	**Total**	**18204**	**101.7**	**1284.9**	**167.6**	**19758.2**
2013	Invasive - Pesticide Application	6267	204.8	1134.1	332.2	7938.1

Year	Activity	Sheyenne (acres)	Grand River (acres)	Medora (acres)	McKenzie (acres)	Total (acres)
2013	Invasive - Biocontrol, Livestock	8437				8437
2013	**Total**	**14704**	**204.8**	**1134.1**	**332.2**	**16375.1**
2014	Invasive - Pesticide Application	7893	393.5	697.6	258.1	9242.2
2014	Invasive - Biocontrol, Livestock	12932				12932
2014	**Total**	**20825**	**393.5**	**697.6**	**258.1**	**22174.2**
2015	Invasive - Pesticide Application	7867.1	421.2	1672.2	482.3	10442.8
2015	Invasive - Biocontrol, Classic			215		215
2015	Invasive - Biocontrol, Livestock	16421.6				16421.6
2015	**Total**	**24288.7**	**421.2**	**1887.2**	**482.3**	**27079.4**
2016	Invasive - Pesticide Application	8094.2	554.8	2037.6	685.5	11372.1
2016	Invasive - Mechanical/Physical			2.1		2.1
2016	Invasive - Biocontrol, Classic			370		370
2016	Invasive - Biocontrol, Livestock	19676.2				19676.2
2016	**Total**	**27770.4**	**554.8**	**2409.7**	**685.5**	**31420.4**
2017	Invasive - Pesticide Application	4338.2	696.9	2509.8	726.9	8271.8
2017	Invasive - Biocontrol, Classic			48		48
2017	Invasive - Biocontrol, Livestock	19657				19657
2017	**Total**	**23995.2**	**696.9**	**2557.8**	**726.9**	**27976.8**
2018	Invasive - Pesticide Application	2547.6	678.5	2552.8	640.3	6419.2
2018	Invasive - Biocontrol, Classic			90	67	157
2018	Invasive - Biocontrol, Livestock	17516				17516
2018	**Total**	**20063.6**	**678.5**	**2642.8**	**707.3**	**24092.2**
2019	Invasive - Pesticide Application	4909.7	459.3	2398.3	462.5	8229.8
2019	Invasive - Biocontrol, Classic		1.7			1.7
2019	Invasive - Biocontrol, Livestock	21349				21349
2019	**Total**	**26258.7**	**461**	**2398.3**	**462.5**	**29580.5**
2020	Invasive - Pesticide Application	5964.3	478.4	1288	716.3	8447
2020	Invasive - Biocontrol, Livestock	22944.3				22944.3
2020	**Total**	**28908.6**	**478.4**	**1288**	**716.3**	**31391.3**
2021	Invasive - Pesticide Application	7235.3	440.9	1184.8	436.5	9297.5
2021	Invasive - Biocontrol, Classic			45	18	63
2021	Invasive - Biocontrol, Livestock	5439				5439
2021	**Total**	**12674.3**	**440.9**	**1229.8**	**454.5**	**14799.5**
2022	Invasive - Pesticide Application	6465.8	625.3	1205	745.6	9041.7
2022	Invasive - Biocontrol, Classic			13		13
2022	Invasive - Biocontrol, Livestock	6579				6579
2022	**Total**	**13044.8**	**625.3**	**1218**	**745.6**	**15633.7**
2006-2022	Total Acres Treated	325466.8	5875.4	25206	8196.9	364745.1

Discussion

To have an integrated prevention and pest control management program it is essential to coordinate and plan treatments with the appropriate partners and agencies. Since 2001, nine funded noxious weed participating agreements have been established with our partners to assist in the treatment of noxious weeds across the DPG.

The DPG encompasses 1,265,217 acres total. The DPG has implemented an integrated prevention and pest control management program for noxious weeds. This is shown in Table 43 by the number of acres that are treated annually on the DPG. From 2006 to 2022, 364,745 reported acres of noxious weeds have been treated with pesticide, leafy spurge beetles, sheep, or goats across the DPG. The acres of noxious weeds treated each year is highly dependent on funding received for this program, as well as climatic conditions in the given growing season. On average, we have treated 21,456 acres on the DPG. Due to the great involvement of our partners, we're always looking for more dollars and so are our partners; a very large percent of money received goes to treatment vs. management. The DPG treats as many acres as possible (dependent on funding) to reduce further expansion of areas affected by noxious weeds. In addition, the DPG prevents the spread of noxious weeds by requiring weed free hay at campgrounds, washing vehicles after visiting other districts and requiring equipment to be washed before and after construction projects. Handouts are available in our offices that are used to educate the public and our partners on noxious weeds and how to identify them.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.c Objective 4. Within 5 years, develop and maintain cooperative noxious weeds and invasive species management plans in consultation with appropriate partners and agencies.

Goal 1.c Objective 6. Within 10 years, limit further expansion of areas affected by noxious weeds.

Goal 1.c Objective 7. Within 10 years, implement an integrated prevention and pest control management program for noxious weeds and invasive plant species.

Monitoring Question evaluating the above Plan Component(s)

To what extent has the integrated prevention and pest control management for noxious weeds been implemented?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Until the DPG can have a group discussion with a dedicated program manager in place to discuss the need to develop a more detailed monitoring protocol, we will continue monitoring as mentioned above.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Develop a strategy on monitoring effects of treatments to align with Goal 1.c Objective 6 - Within 10 years, limit further expansion of areas affected by noxious weeds.
RATIONALE FOR THE RECOMMENDATION
Until the DPG has a permanent program manager in place to have a group discussion on the need to develop a more detailed monitoring protocol, we will continue monitoring through Forest Service personnel and weed control partner observations.

Monitoring Item MON-VEG-01

Why the Plan Component(s) is monitored?

On December 3, 2013, the Grasslands Supervisor issued a memorandum (Neitzke, 2013) to formally complete the transition from DPG LRMP direction, with objectives for seral stage percentages across the landscape by geographic area, to use of state-and-transition models. These models define ecological site descriptions for vegetative composition objectives across the DPG. The memorandum notes that information in the ecological

site descriptions, including state-and-transition diagrams, will help identify where plant community states and phases are moving toward desired conditions and what actions may be required to move towards desired condition. The change from using seral stages to ecological site descriptions for vegetative composition was also highlighted in *The Livestock Grazing Record of Decision 2006*.

Rangeland plant communities are dynamic with their composition changing in response to climatic conditions and disturbance regimes. USDA Natural Resources Conservation Service personnel and their cooperators have developed ecological site descriptions to describe the composition and ecological function of these plant communities (Sedivec and Printz, 2012).

Included in the ecological site descriptions are state-and-transition diagrams which illustrate the current understanding of how these plant communities respond to various disturbance regimes (ecological site descriptions for the LMNG can be found at: EDIT (nmsu.edu).

The state-and-transition diagrams and narratives identify and describe different plant communities found within a similar soil type. Those descriptions, and departure from what would be considered potential under natural disturbance regimes are categorized into ecological states, i.e., Reference, Native/Invaded, and Invaded. Within these states are groupings of unique plant communities called phases. Between states are pathways called "transitions" that indicate probability of one state transitioning to another through disturbance or input. Understanding these dynamics helps us predict how a plant community will respond to changes in management (Sedivec and Printz, 2012).

Baseline data presented below fall into two Major Land Resource Areas (MLRA). MLRAs are geographically associated land resource units, which are characterized by a particular pattern of soils, climate, water resources, vegetation, and land use (Sedivec and Printz 2012). Geographically, MLRA 54 is situated in a way that is very similar to the Grassland Plan Rolling Prairie Geographic Area; and MLRA 58C is similar to the Badlands Geographic Area. This document provides descriptions of each MLRA: Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin; USDA Agriculture Handbook 296.

MLRA 54's natural prairie vegetation is characterized by western wheatgrass (*Pascopyrum smithii*), needle and thread (*Hesperostipa comata*), green needlegrass (*Nassella viridula*), and blue grama (*Bouteloua gracilis*). Little bluestem (*Schizachyrium scoparium*), prairie sandreed (*Calamovilfa longifolia*), and sideoats grama (*Bouteloua curtipendula*) are also important species on shallow soils. Prairie rose (*Rosa arkansana*), leadplant (*Amorpha canescens*), and patches of western snowberry (*Symphoricarpos occidentalis*) are interspersed throughout the area. Green ash (*Fraxinus pennsylvanica*), chokecherry (*Prunus virginiana*), and buffaloberry (*Shepherdia argentea*) occur in draws and narrow valleys (USDA NRCS, 2006).

MLRA 58C's natural prairie vegetation is characterized by western wheatgrass, needle and thread, green needlegrass, blue grama, and threadleaf sedge (*Carex filifolia*). Little bluestem and sideoats grama are important species on sloping, shallow soils. Big bluestem (Andropogon gerardii) and sideoats grama, along with scattered green ash, chokecherry, and western snowberry, are important species in swales which are lower depressions than the surrounding areas. North-facing slopes support Rocky Mountain juniper (*Juniperus scopulorum*), green ash, and chokecherry and an understory of little bluestem, porcupinegrass (*Hesperostipa spartea*), and needle and thread (USDA NRCS, 2006).

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.c Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from disturbance processes, both natural and human-controlled.

Goal 2.c Improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Monitoring Question evaluating the above Plan Component(s)

On December 3, 2013, the Grasslands Supervisor issued a memorandum (Neitzke, 2013) to formally complete the transition from Dakota Prairie Grasslands LRMP direction, with objectives for seral stage percentages across the landscape by geographic area, to use of state-and-transition models. These models describe ecological site descriptions for vegetative composition objectives across the Dakota Prairie Grasslands. The memorandum notes that information in the ecological site descriptions, including state-and-transition diagrams, will help identify where plant community states and phases are moving toward desired conditions and what actions may be required to more towards desired condition. The change from using seral stages to ecological site descriptions for vegetative composition was also highlighted in *The Livestock Grazing Record of Decision 2006*.

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Similarity index and state transition: MON-SOIL-01	10 to 15 years	Forest Service	Soil/Hydrology Program Manager

Data and Evaluation History

MON-VEG-01	Year
Data last collected or compiled	Collected: FY22, Compiled: FY20
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Land Management Plan: When land management plan revision is initiated: Update the LRMP with new desired conditions, goals, and objectives that include the state and transition models for individual ecological site within the MLRA's across the DPG. Identify desired state and community phases and if transition between existing and desired states can occur.	B

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

During the summers of 2009-2020, North Dakota State University (NDSU) collected baseline vegetative data on 2,039 plots, in cooperation with the Grazing Associations and Forest Service, within 15 vegetation management project areas on the LMNG. Baseline data was used to determine the existing condition on 881,607 acres of National Forest System (NFS) Land. The NDSU protocol included the following methods: landscape photos, vegetation structure, annual production clippings, basal cover, grass frequency, forb and shrub density, and the indicators of rangeland health protocol. Each state and community phase of the 2,039 individual plots was determined based on the ecological site description. The ecological site state-and-transition diagrams can be used to determine the existing condition and how the rangeland vegetation is expected to respond to proposed management. https://efotg.sc.egov.usda.gov/#/details

The vegetation plot data collected were randomly located across the dominant/co-dominant ecological sites of allotments within the 15 vegetative management project areas, per NDSU protocol. Each site was summarized

into the following: Reference state (Native state), Native/Invaded state, and Invaded state. The Reference (Native) plant community state describes the plant community that would have occupied the site under the historic disturbance regime. This is the plant community that would have had the highest ecological function in terms of hydrology, species diversity, and nutrient cycling. The "historic" plant communities are referred to as the "Reference State (Native state)". The Native/Invaded state describes plant communities dominated by native cool-season grasses, warm-season grasses, or both, and less than 20 to 30% of the plant community is noxious or invasive species. The Invaded state describes plant communities with less than 40% native grasses and greater than 30% noxious or invasive species. All ecological site descriptions explain the different states and the community phases within those states.

The similarity index for each plot was calculated using the annual production data. Similarity index compares how similar the present vegetation on an ecological site is compared to the potential reference plant community of that ecological site. Evaluation of the similarity index provides existing condition compared to potential. Changes in plant community composition can be monitored over time to determine whether management goals are being met.

Results

A total of 2,039 plots were sampled on 19 different ecological sites, by NDSU, over an 11-year period. Of the 2,039 plots, 31% were Loamy, 18% Thin Loamy and 11% Clayey ecological sites. Which indicates that these three ecological sites are the most dominant ecological sites within the 881,607 acres of NFS land sampled (Figure 21).

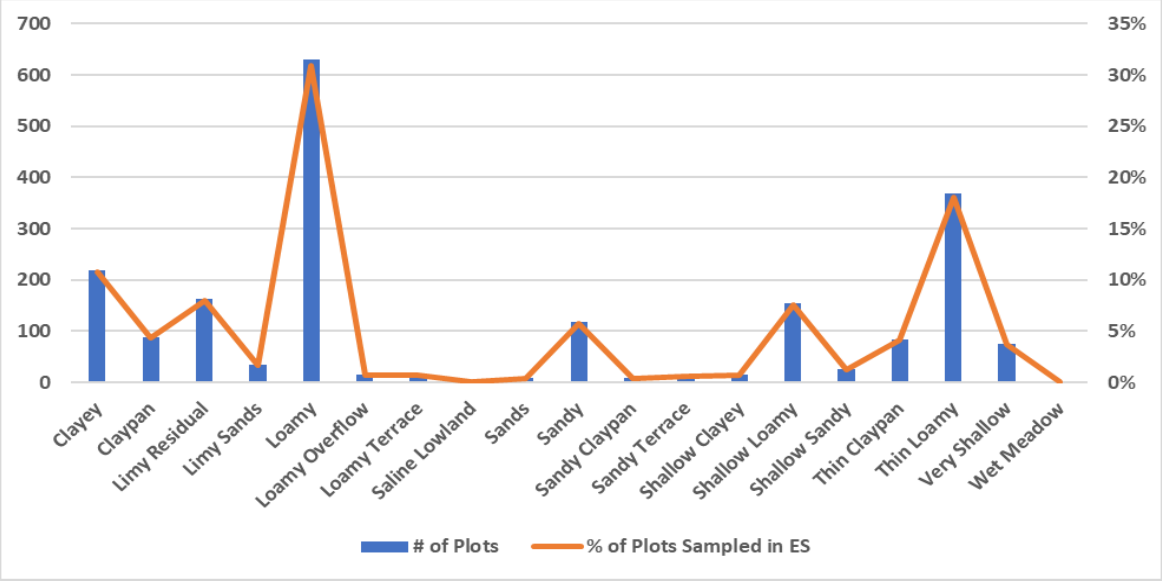


Figure 21. The Number of Plots within Each Ecological Site and Percentage of Each Ecological Site with 2039 plots collected on the Little Missouri National Grassland

The 2,039 plots sampled by NDSU were broken down into 6 different states (Figure 22). 72% (1,399 plots) of the ecological sites sampled are either in a Native/Invaded or an Invaded state. This indicates that noxious or invasive species are commonly found within plant community phases within 19 ecological sites sampled. The plant community phases in the Native/Invaded state are very similar to the Native State in both appearance and function. However, the presence of noxious or invasive species (exotic species) are altering ecological processes and preventing a return back to the Native State and their plant community phases. Future management goals of these sites are to keep the plant communities within this state and not transition into Invaded State.

As described in the methods section, the invaded state plant communities have less than 40% native grasses and greater than 30% noxious or invasive species (exotic species). This state is the result of invasion and dominance of introduced cool-season grasses such as Kentucky Bluegrass, Crested Wheatgrass, and/or Smooth Brome. This state is characterized by these species and an increasing thatch layer that effectively blocks introduction of other plants into the system. Once the invaded state is well established, single disturbance events such as high- intensity fires or severe grazing will not result in more than a short-term reduction of these species. These events may reduce the dominance of sod grasses, but due to the large amount of rhizomes in the soil, there is no opportunity for the native species to establish and dominate before the sod grasses rebound and again dominate the system NRCS 2018: https://efotg.sc.egov.usda.gov/#/details.

Much of the 15 vegetation management project areas were privately owned at one point. In the 1930s, many of the privately-owned lands were abandoned and became part of the "land utilization project." When the land utilization project lands were transferred to the Soil Conservation Service, much of the ground that had been farmed was seeded to crested wheatgrass (*Agropyron cristatum*). Depending on the ecological site, areas dominated by crested wheatgrass typically fall into the Go-Back state, unless the ecological site description identifies a specific community state and phase for crested-wheatgrass-dominated sites. Areas dominated by greater than 70% crested wheatgrass would be managed as crested wheatgrass units and grazed early in the season to rest native graminoid species unless allotment-specific restoration activities are identified. Other nonnative, invasive grasses found in the three project areas include Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), and Japanese brome (*Bromus japonicus*). Over time, with management, these communities can transition into an Invade or Native/Invaded state.

Nineteen percent of the ecological sites sampled were in the Native state which indicates that community phases within those ecological sites are under the historic disturbance regime. These communities would have the highest ecological function in terms of hydrology, species diversity, and nutrient cycling.

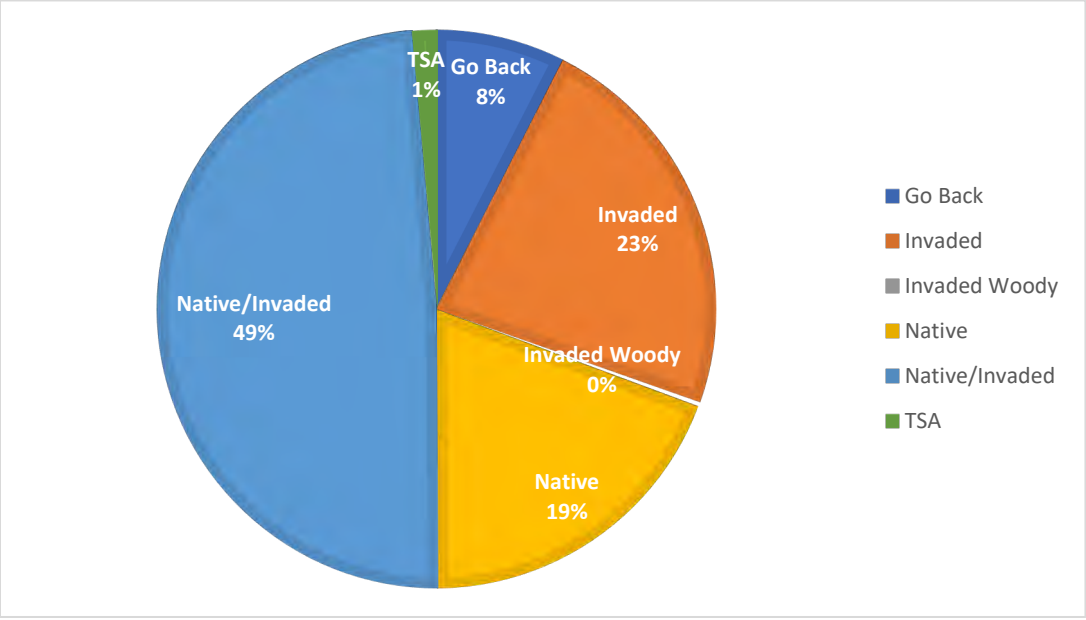


Figure 22. Six Different States and the Percentage of the Ecological Sites Sampled within those States

Discussion

On December 3, 2013, the Grasslands Supervisor issued a memorandum (Neitzke, 2013) to formally complete the transition from LRMP direction (with objectives for seral stage percentages, across the landscape by geographic area), to use of state-and-transition models (S&TM). These models are described in ecological site descriptions for vegetative composition objectives across the DPG. The use of ecological site, ecological site

descriptions, and the baseline data NDSU has collected, have identified the existing plant community state, and phases plant communities are in, within the 15 vegetation management projects on the Little Missouri National Grassland. The baseline data identifies past management and what actions are needed to move towards desired condition. This baseline data collection effort is nearing completion within the next 1 to 2 years. Once completed, the DPG will have the ability of doing subsampling of the NDSU plots to determine if the implementation of vegetation management tools is moving vegetation composition towards the desired conditions or if management techniques need to be adjusted.

The use of ecological sites, ecological site descriptions and the NDSU baseline data has allowed the DPG to see what the existing conditions are because of past management and where changes need to be made. The State and Transition Models, using the state and community phases, allows the DPG staff and grazing associations identify what pathways or transitions are needed to reach the desired conditions. Along with how the ecological sites are functioning ecologically. The similarity index allows individuals to see the departure from the reference communities and what species are missing, along with the biomass of each individual species.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.c Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from disturbance processes, both natural and human-controlled.

Goal 2.c Improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Monitoring Question evaluating the above Plan Component(s)

What is the status of rangeland conditions relative to site potential?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred	Yes	Land and Resource Management Plan

[1] See Box 1

Findings Rationale: More baseline data collection is still ongoing.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Land Management Plan: When land management plan revision is initiated: Update the LRMP with new desired conditions, goals, and objectives that include the state and transition models for individual ecological site within the MLRA's across the DPG. Identify desired state and community phases and if transition between existing and desired states can occur.
RATIONALE FOR THE RECOMMENDATION

Once completed, the DPG will have the ability of doing subsampling of the NDSU plots baseline data to determine if the implementation of vegetation management tools is moving towards the desired conditions or if management techniques need to be adjusted.

Monitoring Item MON-VEG-02

Why the Plan Component(s) is monitored?

The DPG LRMP contains standards and guidelines and monitoring requirements for vegetative treatments which include but are not limited to prescribed fire and mowing.

Prescribed fire and mowing are discussed throughout the LRMP and Geographic areas as a tool for vegetative management. Monitoring of these actions will track how the DPG is moving toward desired conditions.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.c Objective 1. Within 10 years, implement management practices, including prescribed fire, that will move landscapes toward desired vegetation composition and structure as described in Geographic Area direction.

Monitoring Question evaluating the above Plan Component(s)

What management actions have occurred that contribute to the ability of plant communities to retain function or regain function after disturbance?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Prescribed fire (acres of Rx fires that maintain or improve community function)	Annual	FACTS	Range Program Manager
Mowing (acres)	Annual	FACTS	Range Program Manager
Prescribed grazing	Annual	NRM, RIMS	Range Program Manager

Data and Evaluation History

MON-VEG-02	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: One of the most widely used vegetation management tools used on the grasslands is prescribed grazing which is not accounted for as an indicator. Include prescribed grazing as an indicator for MON-VEG-02 in the monitoring program.	D

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

The DPG implements yearly vegetative treatment across the Grasslands, which can include all four geographic areas. The four geographic areas identified in the LRMP include the Grand/Cedar, Badlands, Rolling Prairie, and Sheyenne. These treatments include a variety of tools including prescribed fire, prescribed grazing and mowing.

Data collection and entry comply with the USDA Forest Service National Forest System Data Recording Protocols and Requirements for fuels and vegetation treatments. Acres treated were calculated from NRM hazardous fuels reduction and integrated vegetation treatments national database of record.

Results

Table 44. Treated Acres on Districts of the Dakota Prairie Grasslands

Year	Activity	Sheyenne (acres)	Grand and Cedar River (acres)	Medora (acres)	McKenzie (acres)	Total (acres)
2007	Broadcast Burning - Covers a majority of the unit			70		70
2007	Underburn - Low Intensity (Majority of Unit)	6035				6035
2007	Burning of Piled Material			19.6		19.6
2007	Compacting/Crushing of Fuels - Mowing	1545				1545
2007	Thinning for Hazardous Fuels Reduction			60		60
2007	**Total**	**7580**		**149.6**		**7729.6**
2008	Broadcast Burning - Covers a majority of the unit	820				820
2008	Underburn - Low Intensity (Majority of Unit)	6097				6097
2008	Compacting/Crushing of Fuels – Mowing	2170				2170
2008	Thinning for Hazardous Fuels Reduction			102		102
2008	**Total**	**9087**		**102**		**9189**
2009	Broadcast Burning - Covers a majority of the unit	1701	1094			2795
2009	Underburn - Low Intensity (Majority of Unit)			220		220
2009	Thinning for Hazardous Fuels Reduction			268		268
2009	Range Cover Manipulation - Mowing	1020				1020
2009	**Total**	**2721**	**1094**	**488**		**4303**
2010	Broadcast Burning - Covers a majority of the unit	3048	879			3927
2010	Underburn - Low Intensity (Majority of Unit)			192		192
2010	Thinning for Hazardous Fuels Reduction			210		210
2010	Range Cover Manipulation – Mowing	395				395
2010	**Total**	**3443**	**879**	**402**		**4724**
2011	Broadcast Burning - Covers a majority of the unit		808			808
2011	Burning of Piled Material			180		180
2011	Piling of Fuels, Hand or Machine	178		180		358
2011	Thinning for Hazardous Fuels Reduction	178		180		358
2011	Range Cover Manipulation – Mowing	620	130			750
2011	**Total**	**976**	**938**	**540**		**2454**
2012	Broadcast Burning - Covers a majority of the unit	5910	829			6739
2012	Range Cover Manipulation – Mowing	3230				3230
2012	**Total**	**9140**	**829**			**9969**
2013	Broadcast Burning - Covers a majority of the unit		203			203
2013	Burning of Piled Material			200		200
2013	Range Cover Manipulation – Mowing	3562		68		3630
2013	**Total**	**3562**	**203**	**268**		**4033**
2014	Broadcast Burning - Covers a majority of the unit	27				27
2014	Jackpot Burning - Scattered concentrations	320				320
2014	Burning of Piled Material			41.3		41.3
2014	Piling of Fuels, Hand or Machine			111.1		111.1
2014	Thinning for Hazardous Fuels Reduction			69.7		69.7
2014	Range Cover Manipulation – Mowing	3373.3		89		3462.3

Year	Activity	Sheyenne (acres)	Grand and Cedar River (acres)	Medora (acres)	McKenzie (acres)	Total (acres)
2014	**Total**	**3720.3**		**311.1**		**4031.4**
2015	Broadcast Burning - Covers a majority of the unit	2729				2729
2015	Thinning for Hazardous Fuels Reduction	140.6				140.6
2015	Range Cover Manipulation – Mowing	3406.1	40	21	15.5	3482.6
2015	**Total**	**6275.7**	**40**	**21**	**15.5**	**6352.2**
2016	Broadcast Burning - Covers a majority of the unit	3136				3136
2016	Rearrangement of Fuels	9.3	4.2	73.2	25.1	111.8
2016	Piling of Fuels, Hand or Machine			65.6		65.6
2016	Range Cover Manipulation – Mowing	3668	30			3698
2016	**Total**	**6813.3**	**34.2**	**138.8**	**25.1**	**7011.4**
2017	Broadcast Burning - Covers a majority of the unit	2322				2322
2017	Burning of Piled Material	21.6		259.7		281.3
2017	Rearrangement of Fuels	2.1		29.3	21.1	52.5
2017	Range Cover Manipulation – Mowing	3291.4		86		3377.4
2017	**Total**	**5637.1**		**375**	**21.1**	**6033.2**
2018	Broadcast Burning - Covers a majority of the unit	1922.3				1922.3
2018	Burning of Piled Material			116.7		116.7
2018	Piling of Fuels, Hand or Machine			52.3		52.3
2018	Thinning for Hazardous Fuels Reduction			52.3		52.3
2018	Range Cover Manipulation – Mowing	4715.7		378	37	5130.7
2018	**Total**	**6638**		**599.3**	**37**	**7274.3**
2019	Broadcast Burning - Covers a majority of the unit	2944.6				2944.6
2019	Burning of Piled Material			36.2		36.2
2019	Grazing and Range Mgt. for Hazardous Fuels Reduction		1636.4			1636.4
2019	Piling of Fuels, Hand or Machine			99.8		99.8
2019	Thinning for Hazardous Fuels Reduction			31		31
2019	Range Cover Manipulation – Mowing	1754.1		68.1	52.5	1874.7
2019	**Total**	**4698.7**	**1636.4**	**235.1**	**52.5**	**6622.7**
2020	Burning of Piled Material	18.4		51.6		70
2020	Grazing and Range Mgt. for Hazardous Fuels Reduction		2683.5			2683.5
2020	Rearrangement of Fuels			34		34
2020	Piling of Fuels, Hand or Machine			107.4		107.4
2020	Thinning for Hazardous Fuels Reduction			107.4		107.4
2020	Range Cover Manipulation – Mowing	2949.8	76.1	70.5	34	3130.4
2020	**Total**	**2968.2**	**2759.6**	**370.9**	**34**	**6132.7**
2021	Burning of Piled Material			57.4		57.4
2021	Grazing and Range Mgt. for Hazardous Fuels Reduction		2885.3			2885.3
2021	Compacting/Crushing of Fuels			254.8		254.8
2021	Piling of Fuels, Hand or Machine			35.9		35.9
2021	Thinning for Hazardous Fuels Reduction			35.9		35.9
2021	Range Cover Manipulation – Mowing	4045.6		71.8	31.2	4148.6
2021	**Total**	**4045.6**	**2885.3**	**455.8**	**31.2**	**7417.9**
2022	Broadcast Burning - Covers a majority of the unit	816.2				816.2
2022	Burning of Piled Material			86.8		86.8
2022	Grazing and Range Mgt. for Hazardous Fuels Reduction		1771.3			1771.3
2022	Compacting/Crushing of Fuels			789.5		789.5
2022	Piling of Fuels, Hand or Machine			25.7		25.7
2022	Thinning for Hazardous Fuels Reduction			25.7		25.7
2022	Range Cover Manipulation – Mowing	3914.9	65.8	70.5	58.9	4110.1
2022	**Total**	**4731.1**	**1837.1**	**998.2**	**58.9**	**7625.3**
2007 - 2022	Total	82037	13135.6	5454.8	275.3	100902.7

Discussion

The results of yearly implementation activities are measured by number of acres treated as well as visual observation of results. Over the last 16 years, there is an average of 6,306 acres treated annually across the DPG. The majority of these treatments are prescribed fire and mowing. The Grand River District is also doing range management for hazardous fuels. . These treatments are moving towards the objective to implement management practices, including prescribed fire, that will move landscapes toward desired vegetation composition, and structure, as described in Geographic Area direction within 10 years.

Sheyenne Geographic Area has an objective to burn 40,000 acres per decade to reduce Kentucky bluegrass, increase native grasses, reduce shrub and tree encroachment, increase palatability of grasses, and reduce fuels. With an average of 4,000 acres or greater burned per year to meet this objective, this has been accomplished three of the 16 years as displayed in Table 44. The average acres burned per year is 2,367 acres, with a range of zero to 6,917 treated annually. The variability in the acres treated is due to weather conditions and available funding. The majority of the Sheyenne National Grassland is in Management Area 3.66 Ecosystem Restoration; therefore the majority of the on the ground treatment across the Dakota Prairie Grasslands has occurred there. In the 16 years of treatment data reflected in this report, the Sheyenne has had 82,037 of the total 85,880 acres treated or approximately 95%.

The Grand/Cedar Geographic Area has an objective to burn 5,000 acres per decade to enhance native cool season grasses, improve vegetation palatability and facilitate noxious weed management. With an average 500 acres or greater burned to meet the objective, this objective has been accomplished four out of the 16 years. The average acres burned per year has been 238 acres, with a range of zero to 1,094 treated annually. The Badlands and Rolling Prairie Geographic Areas have an objective to burn 8,000 and 12,000 acres per decade, respectively, to stimulate shrub growth in woody draws, increase cool season grasses, reduce vigor of invasive species, reduce fuel load, improve palatability of crested wheatgrass, and reduce pine and juniper encroachment. There have been no prescribed burns in the Grand/Cedar, Badlands, or Rolling Prairie Geographic Areas since 2012 due to political and social reasons.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.c Objective 1. Within 10 years, implement management practices, including prescribed fire, that will move landscapes toward desired vegetation composition and structure as described in Geographic Area direction.

Monitoring Question evaluating the above Plan Component(s)

What management actions have occurred that contribute to the ability of plant communities to retain function or regain function after disturbance?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	No	N/A

[1] See Box 1

Findings Rationale: There is a trend of moving towards the objective of managing plant communities to maintain vigor, which allows them to retain or regain function after disturbance. For prescribed fire treatments, not all objectives are being achieved at the desired rate due to weather conditions and funding constraints.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
None
RATIONALE FOR THE RECOMMENDATION
N/A

Monitoring Item MON-VEG-03

Why the Plan Component(s) is monitored?

Regional Forester, Brad Powell, signed the Record of Decision (ROD) for the DPG's Land and Resource Management Plan (LRMP) on July 31, 2002. The ROD identified the need for a Scientific Review Team (SRT). The primary purpose for creation of the SRT is to address a concern that the Final Environmental Impact Statement (FEIS) needed additional scientific analysis, specifically regarding livestock and wildlife issues. The SRT addresses those concerns by providing an outside independent review of the FEIS through sample Allotment Management Plans and looking at their baseline data, analysis procedures and predicted outcomes. One of the issues identified in the review was the lack of records documenting historical trends in woody communities. They also indicated the lack of measurable objectives and recommended developing quantitative objectives for each woody community type (Report of The Scientific Review Team, Dakota Prairie Grasslands, May 2005). As a result of the SRT concerns, the 2013 memorandum (Neitzke, 2013), and the DPG transitioning to state and transition models, a group consisting of Natural Resource Conservation Services, Forest Service, Rocky Mountain Research Station (RMRS), and National Park Service individuals took a harder look at woody community trends. These groups started developing ecological site descriptions for woody draw communities. In 2016, the group finished three provisional ecological site descriptions and as a result, Dr. Jack Butler (RMRS) developed a protocol that would assist in placing woody draws into a state and community phase based on the data collected in the field.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 1.c. Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from disturbance processes, both natural and human-controlled.

Goal 1.a Objective 2. Move at least 80% of riparian areas and woody draws toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability.

Monitoring Question evaluating the above Plan Component(s)

What is the status of woody draw condition relative to site potential?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Number of woody draws in each state/transition per ecological site (by project)	Interval of visits dependent on project NEPA decision	LMNG Staff (interval of visits dependent on project NEPA decision)	LMNG Botanist/ Biology PM

Data and Evaluation History

MON-VEG-03	Year

Data last collected or compiled	2022
Next scheduled data collection/compilation	2024
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Activities: Identify sites having pathways that will move them to the desired state. Prioritize in near future management actions to shift the community to desired site potential, as only 27% have pathways back to desired conditions	B

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The information below is a continuation of baseline data being collected on wooded draws on the Little Missouri National Grassland (LMNG). The FY21 BMER report provided baseline data on 171 plots sampled on the LMNG (2016-2020). An additional 159 plots were sampled since the FY21 BMER (2021/2022). The discussion below indicates that only 12% of the sampled plots have pathways back to desired conditions, which is a change decrease of 15% from the baseline of 27%. The recommendations from the FY21 BMER have not occurred yet because vegetation management projects are either in the initial stages of analysis or will be included in future vegetation management projects.

Methods

Forest Service staff sampled 330 woody draw plots throughout the LMNG during the growing seasons of 2016 through 2022. The data collected is baseline data and additional plots will be sampled in the future for upcoming vegetation management projects on the LMNG.

Eighty-eight plots sampled were old North Dakota Game and Fish plots and the data was collected using the Protocol for Determining Community Phases of Wooded Draws on the LMNG Using Ecological Site Descriptions. An additional 242 plots were sampled using 1997 and 1998 woody draw polygons sampled during the development of the LRMP, with a subsample of 25% of the woody polygons. The number of plots per polygon was determined by the size of the polygon. The following conditions were used: 0-5 acres = 1 plot, 6 to 10 acres = 2 plots, 11 to 15 acres = 3 plots, etc. Each plot sampled used the Protocol for Determining Community Phases of Wooded Draws on the LMNG Using Ecological Site Descriptions (Figure 23 (Butler 2016)). Three provisional woody draw ecological site descriptions were used to describe the existing condition of the woody draws (NRCS 2016).

Plot placement: Select the center of the most representative section of the draw and establish plot #3. Plots 1 and 2 should be 30 to 75 m downslope from plot # 3 while plots 4 and 5 should be 30 to 75 m from plot # 3. Distances between plots can be adjusted according to the length of the draw, but each plot should be at least 30 m apart. For larger draws, consider sampling more than 1 set of 5 plots by dividing the draw in half, or thirds, or more for really large draws. For multiple sets of 5 plots in larger draws, evaluate each series of 5 plots separately (portions of the large draws could be disturbed differentially).

Date: _____ Crew: _____

Ecological Site (circle): LO FB SS Name of draw: _____

Slope: _____ Aspect: _____ Distance between plots: _____

Comments:

For green ash and American elm trees, record number of individuals in each 3 m radius plot (28.3 m^2). Reference values are provided for each plot up to 5 plots. Keep a running sum of trees for each series of plots. For exotic grasses (Kentucky bluegrass, smooth brome, and crested wheatgrass) estimate percent foliar cover for each species in a 1 m radius plot using 4 cover classes: 1 = trace to 25%, 2 = 26 to 50%, 3 = 51 to 75%, 4 = > 75%. Record presence of Juniper (any size) and Green ash seedlings less than 45 cm (18 inches) tall in each plot. 10 cm ≈ 4 inches.

	Exotic Grasses	Chokecherry	Juniper	Green ash < 45 cm tall	Trees (Green ash and American elm)[1]			
Plots	Cover Class	Cover Class (CC)	Record + if present, 0 if absent	Record + if present, 0 if absent	< 10 cm dbh	**Reference < 10 cm**	≥ 10 cm dbh	**Reference > 10 cm**
1						**5**		**1**
2						**11**		**2**
3						**16**		**4**
4						**22**		**5**
5						**27**		**6**
Total (average CC for cover)								
Reference	Absent	Avg. CC > 1	Absent					

[1]Reference values were developed for green ash only.

Reference values for green ash trees ≥ 10 cm dbh were calculated using data from Nelson (1961; Table 1, page 33) and Butler (1983; Table 15, page 65, lightly grazed site). Reference values for green ash trees < 10 cm dbh were calculated using data from Butler (1983; Table 11, page 60, and Table 13, page 62, lightly grazed site. Values for shrubs and saplings were averaged and used as reference values for green ash < 10 cm dbh).

Figure 23. Example of the Woody Draw Sampling Protocol

The desired diversity and desired conditions within the DPG LRMP would be representative of a flat bottom and steep sided woody ecological site in a reference state and community phase of 1.1 (USDA NRCS, 2016). For a loamy overflow ecological site reference state and community phase, 1.4 community phase would be the desired diversity and desired condition, since this ecological site can have either an herbaceous plant community, shrub community, or a woody community (USDA NRCS, 2016),

https://efotg.sc.egov.usda.gov/references/public/ND/flat_bottom_wooded_draw_R058CY102ND.pdf, https://efotg.sc.egov.usda.gov/references/public/ND/steep_sided_wooded_draw_R058CY101ND.pdf https://efotg.sc.egov.usda.gov/references/public/ND/loamy_overflow_RO58CY074ND.pdf

Below is an example of Loamy Overflow, Steep Sided, Flat Bottom ecological sites state and transition models (Figure 24, Figure 25, Figure 26).

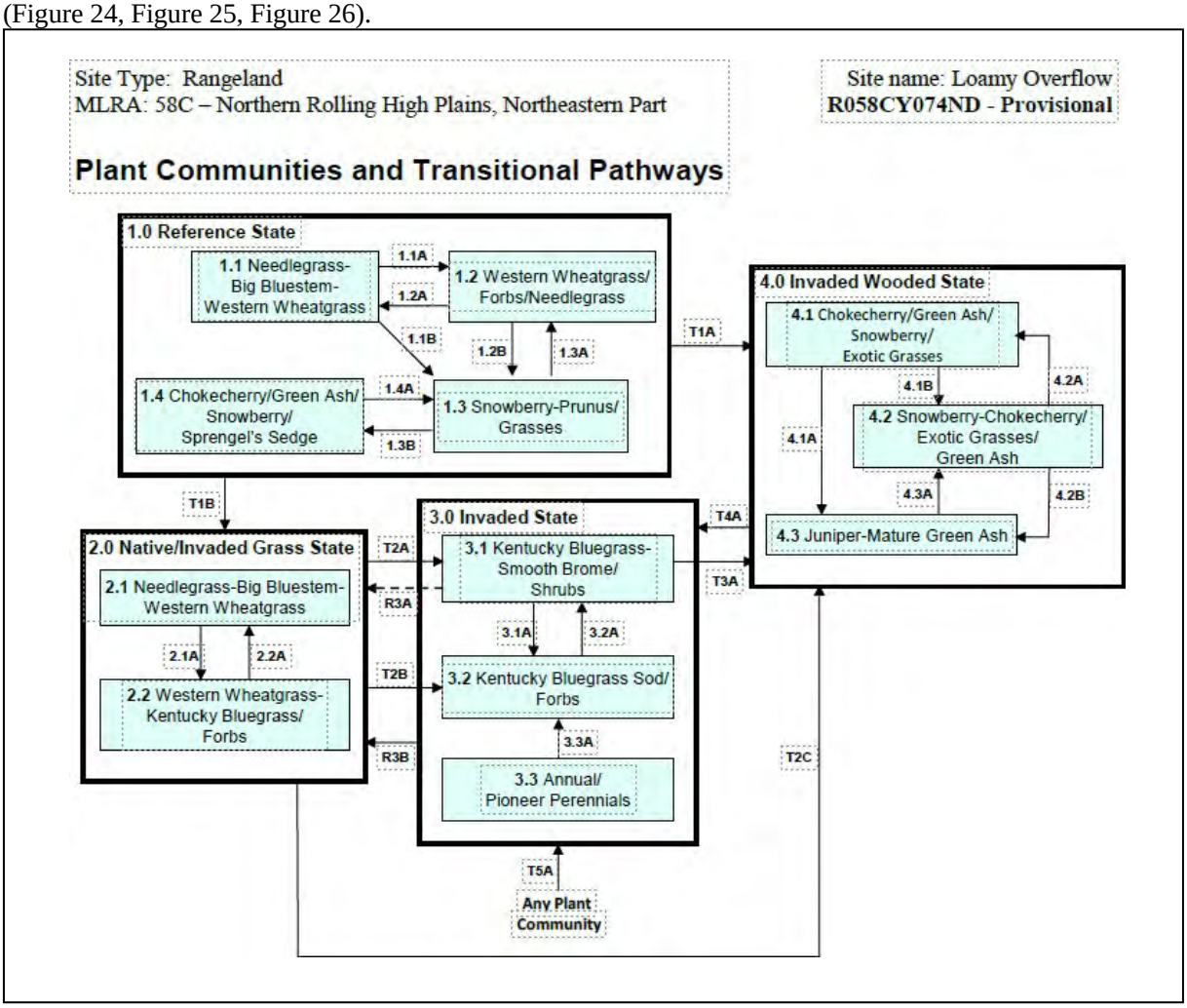


Figure 24. Loamy Overflow State and Transition Model

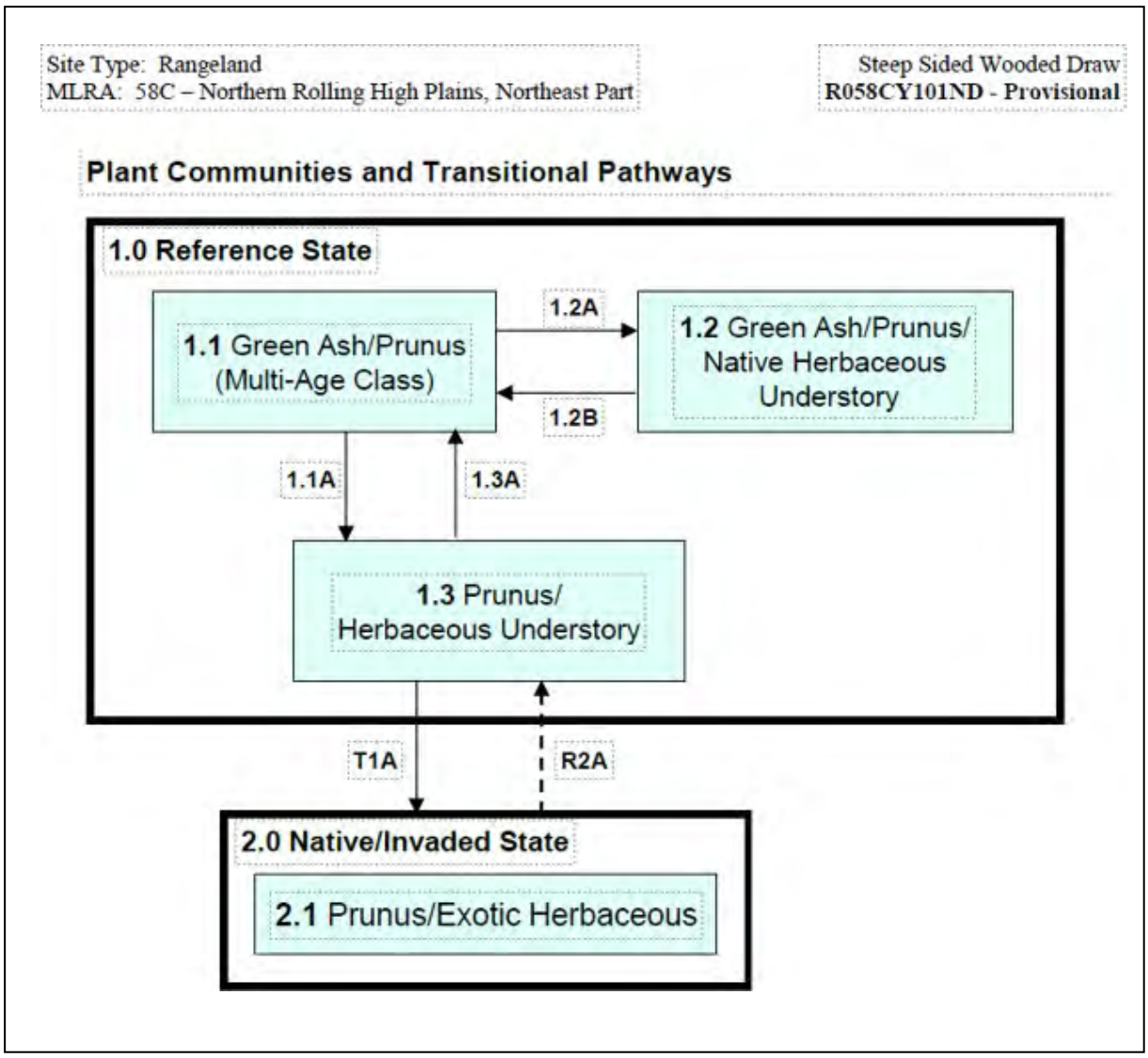
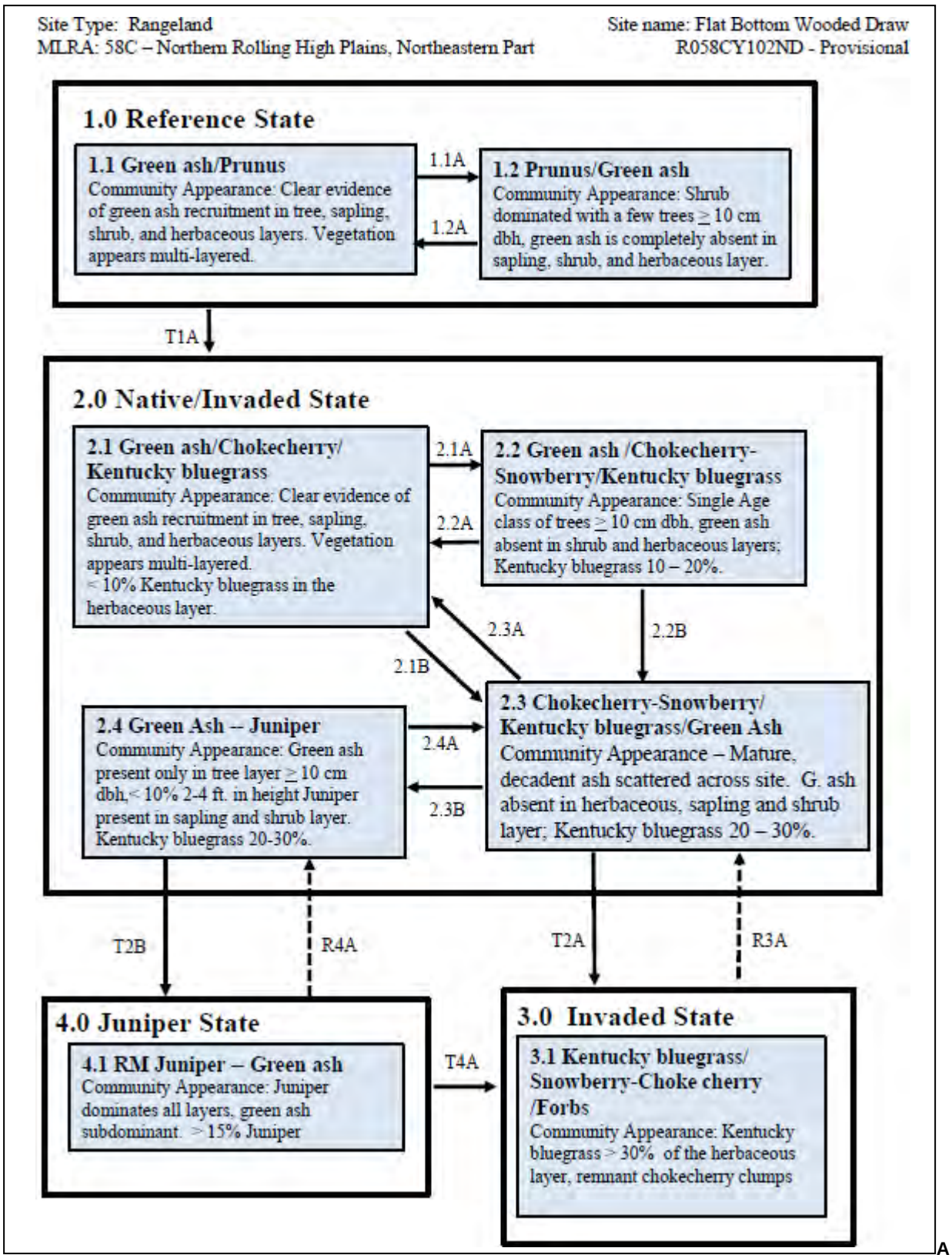


Figure 25. Steep Sided Wood Draw State and Transition Model



A

Figure 26. Flat Bottom Wooded Draw State and Transition Model

Results

About 79% of the woody draws sampled are not meeting desired conditions. Thirty-three woody draw plots, approximately 10% of the plots sampled from 2016 through 2022, achieve the desired diversity and desired conditions within the LRMP. Approximately 12% of the woody draw plots sampled have pathways back to the desired community phases. Eventually, woody draws may be impacted by emerald ash borer (*Agrilus planipennis*), which is currently not on LMNG. Its presence may negatively impact the desired green ash species and its community, further reducing the woody draws meeting desired conditions and/or those pathways back to the desired community phases? Table 45 illustrates the number of plots collected by ecological site, and corresponding state and community phase.

Table 45. Woody Draw Plots by Ecological Sites Sampled from 2016 – 2022 on the Little Missouri National Grasslands

Ecological Site	State and Community Phase	Number of Plots
Flat Bottom	1.1 Green Ash/Prunus	3
Flat Bottom	1.2 Prunus/Green Ash	6
Flat Bottom	2.1 Green Ash/Chokecherry/Kentucky bluegrass	5
Flat Bottom	2.2 Green Ash/Chokecherry/Snowberry/Kentucky bluegrass	4
Flat Bottom	2.3 Chokecherry – Snowberry/Kentucky bluegrass/Green Ash	12
Flat Bottom	2.4 Green Ash - Juniper	12
Flat Bottom	3.1 / Kentucky Bluegrass/Snowberry-Chokecherry/Forbs	37
Flat Bottom	4.1 / Western Snowberry/RM Juniper- Green Ash	9
Loamy Overflow	1.3 Snowberry-Prunus/Grasses	7
Loamy Overflow	1.4 Chokecherry/ Green Ash/Snowberry/Sprengel's Sedge	15
Loamy Overflow	3.1 Kentucky Bluegrass-Smooth Brome/Shrubs	10
Loamy Overflow	4.1 Chokecherry/Green Ash/Snowberry/Exotic Grasses	35
Loamy Overflow	4.2 Snowberry-Chokecherry/Exotic grasses/Green Ash	47
Loamy Overflow	4.3 Juniper-Mature Green Ash	6
Other[2]	Other	25
Steep Sided	1.1 Green Ash/Prunus (Multi-Age Class)	15
Steep Sided	1.2 Green Ash/Prunus/Native Herbaceous	24
Steep Sided	1.3 Prunus/Native Herbaceous Understory	9
Steep Sided	2.1 PR/EX Prunus/Exotic Herbaceous	36
Steep Sided	Other[1]	9
Very Shallow[3]	Other	2
Total Woody Draw Points		**330**

[1]*Other means it didn't fit any of the community phases w/in the states in steep sided ecological site.*
[2]*Didn't fit any of the 3 ecological sites w/woody draw components.*
[3]*The site keyed out to a very shallow ecological site & at the time there was no community phase with a woody component.*

Discussion

The data presented is baseline data that was collected from 2016 to 2022. Additional plots will be sampled in the future for upcoming vegetation management projects on the LMNG. A combination of what has been collected and what will be collected will give the DPG an understanding of what the existing conditions are and what management tools can be used to improve the woody draw communities that are not meeting desired conditions. Past management, exotic species, insects, and disease all have influenced woody draws.

The DPG LRMP will undergo revision in the near future. Best science to evaluate future desired conditions will be applied when conducting the assessment for revision. The following recommendations could be considered for future revision efforts:

- Desired conditions, goals, and objectives that consider the state and transition models for individual ecological sites within the MLRA's across the DPG.
- Identify state and community phases that are desired and identify if transition between states can occur. This would guide the DPG in management of this resources.
- Assessment of woody draws and riparian areas to be separated from one another. This is based on plant communities, soils, hydrology, and ecological function.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.c. Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from disturbance processes, both natural and human-controlled.

Goal 1.a Objective 2. Move at least 80% of riparian areas and woody draws toward self-perpetuating plant and water communities that have desired diversity and density of understory and overstory vegetation within site capability.

Monitoring Question evaluating the above Plan Component(s)

What is the status of woody draw condition relative to site potential?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired	Yes	Management Activities

[1] See Box 1

Findings Rationale:

Approximately 79% of the woody draws sampled are not meeting desired conditions within the DPG LRMP. Only 10% of the woody draw plots sampled are meeting desired conditions and 12% of the woody draw plots sampled have pathways back to the desired community phases.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Activities: Identify sites having pathways that will move them to the desired state and community phase. Prioritize management actions such as improving livestock grazing management, removal of undesirable species such as conifers, reintroduction of fire, and treatment of noxious and invasive species to shift the community to desired site potential, as only 12% of the sampled woody draw plots have pathways back to desired conditions. Plots within the desired states should also be monitored to assure that management does not transition them into a native/invaded or invaded state.
RATIONALE FOR THE RECOMMENDATION

Woody draw plots that are meeting desired conditions or have pathways back to the desired condition have not yet been influence by exotic graminoids. Once exotic graminoids invade these sites recruitment of green ash seedlings is curtailed by competition. Once this transition occurs restoration will be difficult, requiring either a coincidence of increasingly unlikely biological and environmental conditions or large expenditures of time and money.

RECREATION

Monitoring Item MON-REC-01

Why the Plan Component(s) is monitored?

The Dakota Prairie Grasslands (DPG) maintain 267.4 miles of non-motorized National Forest System Trails. Users can recreate on trails through hiking, biking, horseback riding, and winter activities. In addition, the DPG offers 18 miles of water trails, providing paddlers and anglers a unique water-based recreation opportunity. Trails traverse a multitude of landscapes ranging from rocky badlands, grassy ridgelines, rolling prairie, riparian lowlands, and oak savannahs. Additionally, unique areas like 31 miles of the North Country National Scenic Trail and Denbigh Experimental Forest Trails pass through the DPG. The question of, "To what extent are trails managed to meet regional standards" is important to analyze to provide users with satisfactory recreation opportunities, as well as identify areas we can improve management of the DPG trail system. Trails are an important aspect of federal public lands by contributing factors into the Recreation Opportunity Spectrum (ROS) and improving multiple use opportunities on the landscape.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 2.a Objective 1. Annually, maintain or reconstruct 20% of national grassland trails to regional standards.

Goal 2.a Objective 6. Provide nonmotorized and motorized trails for a wide variety of uses and experiences.

Monitoring Question evaluating the above Plan Component(s)

To what extent are trails managed to meet regional standards?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Trails maintained (*miles of*)	Annual	INFRA/Partner Reporting	Trails Manager/Recreation Specialist
Trails improved (*miles of*)	Annual	INFRA/Partner Reporting	Trails Manager/Recreation Specialist
Maintenance needs (*number of miles of needing maintenance*)	Annual	INFRA/Public Reporting	Trails Manager/Recreation Specialist
Trail regional standards (*miles of trails meeting and not meeting regional standards*)	Annual	INFRA	Trails Manager/Recreation Specialist
Non-motorized trails (*miles of*)	Annual	INFRA	Trails Manager/Recreation Specialist

Data and Evaluation History

MON-REC-01	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23

Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Activities: Attempt to increase trail Improvements annually across the DPG	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

The Plan Component consists of two objectives: Objective 1) Annually, maintain or reconstruct 20% of National Grasslands trails to regional standards. Objective 6) Provide non-motorized and motorized trails for a wide variety of uses and experiences. To identify if the objectives are being met, the data for trail use and maintenance is collected daily by the seasonal trail crew and recorded into the Forest Service INFRA database annually at the end of each season. An annual report of trail accomplishments is then generated to provide the number of trail miles maintained, improved, meeting standards, or needing improvements.

Additional methods for data collection are obtained through volunteer groups while performing trail maintenance. The volunteer groups provide a list of maintenance needs submitted by trail users through https://mdhta.com/contact/ (Maah Daah Hey Trail Association website). These maintenance requests are forwarded to the Forest Service Recreation Specialist to categorize priority needs. The volunteer group leader coordinates a work schedule for the volunteers over the season. An annual report of volunteer achievements is reported to the Forest Service at the end of each season.

Results

During the 2021 and 2022 field seasons, the DPG, assisted by volunteers and agency partners, completed the trail improvement projects depicted in Table 46.

Table 46. Trail Improvement Projects Completed in 2021 & 2022

Project	Miles	Year
Maah Daah Hey Trail Restoration 69.5	1.5	2021
Sully Creek Restoration	0.5	2021
Coal Creek Restoration	2.5	2021
125.5 Trail Reroute	0.25	2021
China Wall Reroute	0.28	2021
Total 2021	5.03	
Pioneer Gulch Trail Reroute	1.5	2022
Sheyenne River Water Trail Access Improvements	0	2022
Maah Daah Hey Trail North Restoration	4.35	2022
Buffalo Gap Trailhead & Spur Trail	0.25	2022

Magpie Bridge Trail Reroute	0.25	2022
Coal Creek Surfacing	1.8	2022
Total 2022	8.15	
2021 and 2022 Total	13.18	

These projects were designed and implemented to address trail maintenance issues identified though annual trail condition surveys, and from feedback provided by trail users, trail associations, and agency partners. Projects were funded though Recreation and Trails Program grants and completed by contractors, volunteers, and agency staff. A 30-mile resurfacing project on the North Country National Scenic Trail is scheduled to begin summer of 2023. This project will contribute significantly to miles of trail improved in 2023, 2024, and 2025.

Table 47. Dakota Prairie Grasslands Annual Trail Accomplishments in miles.

Year	Activity	Sheyenne	Grand River	Medora	McKenzie	DPG Total
2021	NFST Miles Maintained	41.67	0	77.57	46.65	165.89
2021	Non-NFST Miles Maintained					
2021	NFST Miles Improved	0	0	6.1	0	6.1
2021	Non-NFST Miles Improved					
2021	NFST Miles Meeting Standard	44.7	0	2.56	1	48.26
2021	Non-NFST Miles Meeting Standard					
2021	% NFST Miles Meeting Standard	100	0	1.88	1.59	19.27
2022	NFST Miles Maintained	52.7	0	0	0	52.7
2022	Non-NFST Miles Maintained					
2022	NFST Miles Improved	0	0	0	0	0
2022	Non-NFST Miles Improved					
2022	NFST Miles Meeting Standard	33.7	0	0	0	33.7
2022	Non-NFST Miles Meeting Standard					
2022	% NFST Miles Meeting Standard	54.61	0	0	0	12.6

Table 48. Dakota Prairie Grasslands Annual Volunteer and Partner Trail Accomplishments in miles.

Year	Activity	Sheyenne	Grand River	Medora	McKenzie	DPG Total
2021	NFST Miles Maintained	25	0	41.86	60.14	127
2021	NFST Miles Improved	0	0	0	0	0
2022	NFST Miles Maintained	25	0	41.86	60.14	127
2022	NFST Miles Improved	0	0	.5	0	.5

Trails within the Dakota Prairie Grasslands

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Figure 27. Mountain Bike Rider, Maah Daah Hey Trail - Little Missouri National Grassland (2019, Rob Schilling)

Figure 28. Volunteer trail improvement, Sheyenne Water Trail - Sheyenne National Grassland (2022, Aaron Gaither).

Together, Forest Service trail crews and recreation staff and volunteer partners have maintained on average 127 miles of trails in the last two years. An increased enthusiasm for outdoor recreation opportunities has inspired volunteer groups to reach out to the DPG for trail improvement opportunities. Users have helped improve the North Country Trail for hiking and non-profit organizations like “Save the Maah-Daah-Hey” have made impressive moves to improve the Maah Daah Hey Trail and adjacent trail systems. Additionally, The Maah Daah Hey Trail Association has donated engineer and trail design services to the DPG and has hired private contractors to complete trail improvement projects along the Maah Daah Hey and Buffalo Gap Trails. The North Dakota Chapter of Back Country Hunters and Anglers removed brush and constructed rope ladders to improve watercraft access along the Sheyenne River Water Trail. Strong relationships between the groups has enhanced user

experience during these last two years. These groups are integral to the continued use and maintenance of trails across the DPG and recreation program.

On average 41.87%, or 109.29 miles, of trail have annual maintenance needs. Maintenance needs can include impacts caused by erosion due to overland water flow, encroachment of noxious weeds, damage caused by cattle grazing and wildlife, damage to trails from motor vehicle use, and vandalism to trail infrastructure. The DPG continues to monitor the issues and strives to reduce the total maintenance needs through funding opportunities like the Recreational Trails Program, the Great American Outdoors Act, and continued involvement with volunteer partners.

Figure 29. Volunteers mow the North Country Trail, Sheyenne National Grassland (2022, Aaron Gaither)

Figure 30. Trail surfacing, Maah Daah Hey Trail – Little Missouri National Grassland (2022, Curt Glasoe)

Figure 31. Sheyenne River Water Trail – Sheyenne National Grassland (2019, Aaron Gaither)

Discussion

The data for this report has been collected over the past two years by the trail crew, recreation staff, and volunteers; however, trail accomplishment reporting suffered due to vacancy and turnover of a DPG Trails Manager.

On average, 47.49%, or 127 total miles, of trail have been maintained annually to regional standards; exceeding the 20% objective outlined in Goal 2.a Objective 1 or the DPG-LRMP. INFRA data reports that only 15.93% of the trails have been maintained to regional standards but does not account for volunteer accomplishment reporting. The capacity to maintain regional trail standards requires a continued effort by the trail crew, recreation staff, partners, and volunteers. The complexity of trail maintenance includes trail planning, trail design, mitigation of surface water and natural forces, trail foundations, tread maintenance, crossing streams/rivers and wet areas, signage, and tool proficiency.

The DPG has maintained about 50% of trails to standard but lacks resources to improve existing trails, so , less than 7% National Forest System Trails have been improved over the past 2 years. Low data availability is a result of late accomplishment reporting into the INFRA database and does not provide a complete representation of the trail improvement projects completed on each district. The DPG strives to maintain consistency in data collection for the Trails and Recreation Program, however, high turnover and limited program capacity has resulted in years of no data collection or a fluctuation in accuracy of 2021 and 2022 field data. The DPG Recreation and Trail program will strive to improve the collection, reporting, and management of data for future monitoring reports.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 2.a Objective 1. Annually, maintain or reconstruct 20% of national grassland trails to regional standards.

Goal 2.a Objective 6. Provide nonmotorized and motorized trails for a wide variety of uses and experiences.

Monitoring Question evaluating the above Plan Component(s)
To what extent are trails managed to meet regional standards?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Management Activities

[1] See Box 1

Findings Rationale: The DPG completed 11 trail projects designed to maintain and improve the trails system to regional standards. These projects resulted in 50% of trails maintained to regional standards.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Activities: Attempt to increase trail Improvements annually across the DPG
RATIONALE FOR THE RECOMMENDATION
The Dakota Prairie Grasslands needs to improve the timeliness and accuracy of project reporting, to better representant the maintenance and improvements results of completed trail projects. Improving data collection and reporting will provide a clear nexus to identifying trails meeting regional standards.

Monitoring Item MON-REC-02

Why the Plan Component(s) is monitored?

The USDA Forest Service manages its lands under a multiple use approach that includes many different recreation opportunities for public use. The DPG is an aggregate of four national grasslands that cover much of the far western region of North Dakota, with the Little Missouri National Grassland, a small region of southeast-North Dakota, with the Sheyenne National Grassland, and a small area of northwestern-South Dakota with the Grand River and Cedar River National Grasslands. Each National Grassland provides unique opportunities for recreational use, appealing to a wide demographic across the state.

Understanding the monitoring question, "To what extent are recreational opportunities meeting public interests?" will help the USDA Forest Service align with its mission statement "*to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations*." Management goals and objectives are formed by the immediate and long-term needs of users and are unique to specific recreation opportunities.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 2.a. Improve the capability of the Nation's forests and grasslands to provide diverse, high-quality outdoor recreation opportunities.

Monitoring Question evaluating the above Plan Component(s)

To what extent are recreational opportunities meeting public interests?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Visitor use (number and type of visit)	1 season every 5 years	National Visitor Use Monitoring	Recreation Specialist
Fee collections (number or amount of fees collected)	daily/week/month	e-Collections Retail System (ERS)	Recreation Specialist
Recreation use and needs	1 season every 5 years	North Dakota State Comprehensive Outdoor Recreation Plan (SCORP)	Recreation Specialist
Social media hits (comments and suggestions from website on how to improve or new needs)	Periodically	DPG SO Records	Public Affairs Officers
Public outreach events	Periodically	DPG SO Records	Public Affairs Officers

Data and Evaluation History

MON-REC-02	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Activities: maintain developed recreation and improve dispersed recreation opportunities across the DPG	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The following results, discussion, and findings have minimal change from the FY21 BMER due to the collection schedule of National Visitor Use Monitoring Survey. The next anticipated update to this monitoring item is in 2025. Campground fee analysis and E-collection Retail System (ERS) reports were reviewed for 2022 and 2023.

Methods

The DPG has many different resources available to help answer DPG-LRMP MON-REC-02: To what extent are recreational opportunities meeting public interests?

The first method used to collect visitor use data is done by identifying the number and type of visits through the National Visitor Use Monitoring Program (NVUM). The NVUM surveys are conducted every five years on each National Grassland for one calendar year. A detailed overview of sampling methods is described by the NVUM Program from 10/2/2019: "*To define the sampling frame, staff on each forest classify all recreation sites and areas into five basic categories called "site types": Day Use Developed Sites (DUDS), Overnight Use Developed Sites (OUDS), Designated Wilderness Areas (Wilderness), General Forest Areas (GFA), and View Corridors (VC). Only the first four categories are counted as National Forest recreation visits and are included in the visit estimates. The last category is used to track the volume of people who view National Forests from nearby roads*

and, since they do not get onto agency lands, they cannot be counted as visits. For the entire sampling year, each day on each site was given a rating of very high, high, medium, low, or no use according to the expected level of recreational visitors who would be observed leaving that location for the last time (last exiting recreation use) on that day. The combination of a calendar day, and a site or area, is called a site day. Site days are the basic sampling unit for the NVUM protocol." See Table 49 for a definitions of terms used by the NVUM.

Visitation is estimated through a combination of traffic counts and surveys of exiting visitors. Both are obtained on a random sample of locations and days distributed over an entire forest for a year. All the surveyed recreation visitors are asked about their visit duration, activities, demographics, travel distance, and annual usage. About one-third were also asked a series of questions about satisfaction. Another one-third were asked to provide information about their income, spending while on their trip, and the next best substitute for the visit (National Visitor Use Report FY2018).

The second method to track visitation analyzes fee collections through the number or amount of fees collected. Campground fees are collected weekly by recreation staff from each developed campground on-site. Visitor passes are also sold in-person at each Ranger District office. All fees are processed through the e-Collections Retail System (ERS) weekly. Annual sales summary reports are generated for the DPG and compared to each consecutive year for noticeable trends in sales or visitor use. It is important to note that the annual sales summary report does not distinguish between campground fees and visitor use passes, but rather a total sales summary and number of transactions.

The third method analyzes recreation use and needs by using the North Dakota State Comprehensive Outdoor Recreation Plan (SCORP). The SCORP was prepared by the North Dakota Parks and Recreation Department (NDPRD) and is a guide for managing and developing North Dakota's non- consumptive outdoor recreation infrastructure. To determine the demand for, and supply of, non- consumptive outdoor recreation in North Dakota, two distinct surveys were undertaken in 2017.

The fourth method analyzes social media 'hits' for comments and suggestions from websites about how to improve or discovering any new needs.

The fifth method identifies how many and what type of public outreach events DPG employees attended to educate the public on recreation opportunities. A list from each Ranger District is compiled annually and compared to each consecutive year for any trends or an increase or decrease of events over 2 years. This information identifies the DPG's efforts to engage with the public on relevant or new recreation opportunities.

National Visitor Use Monitoring Program definition of terms:

Table 49. National Visitor Use Monitoring Program (NVUM) definition of terms:

Term	***Definition***
National forest visit	The entry of one person upon a national forest or grassland to participate in recreation activities for an unspecified period of time. A National Forest or Grassland visit can be composed of multiple site visits. The visit ends when the person leaves the national forest to spend the night somewhere else.
Site visit	The entry of one person onto a national forest site or grassland area to participate in recreation activities for an unspecified period of time. The site visit ends when the person leaves the site or area for the last time on that day.
A confidence interval	The range of values that is likely to include an unknown population value, where the range is calculated from a given set of sample data. Confidence intervals are always accompanied by a confidence level, which tells the degree of certainty that the value lies in the interval. Used together, these two terms define the reliability of the estimate, by defining the range of values that are needed to reach the given confidence level. For example, the 2008 national visitation estimate is 175.6 million visits, with a 90% confidence interval of 3.2%. In other words, given the NVUM data, our best estimate is 175.6 million visits, and given the underlying

	data, we are 90% certain that the true number is between 170.0 million and 181.2 million.
Recreation trip	The day that a recreation site or area is open to the public for recreation purposes.
Site day	A day that a recreation site or area is open to the public for recreation purposes.
Proxy	Information collected at a recreation site or area that is directly related to the amount of recreation visitation received. The proxy information must pertain to all users of the site and it must be one of the proxy types allowed in the NVUM pre-work directions (fee receipts, fee envelopes, mandatory permits, permanent traffic counters, group reservations, ticket sales, and daily use records).
Nonproxy	A recreation site or area that does not have proxy information. At these sites a 24-hour traffic count is taken to measure total use for one site day at the sample site. Use level - for each day of the year, for each recreation site or area, the site day was categorized as very high, high, medium, or low last exiting recreation traffic, or no exiting use. No Use could mean either that the location was administratively closed, or it was open but was expected to have zero last exiting visitors. For example, a picnic area may be listed as having no use during winter months (120 days), high last exiting recreation volume on all other weekends (70 days) and medium last exiting recreation use on the remaining midweek days (175 days). This accounts for all 365 days of the year. This process was repeated for every site and area on the forest.

Results

The NVUM survey results remain unchanged since the FY21 BMER. The DPG is currently completing the 2022/2023 NVUM survey and anticipate the survey results will be available in 2024. Updated NVUM data will be available and presented for the FY25 BMER.

Table 50. 2018 Site Days and Percentage of Days Sampled by Stratum

Stratum* Site Type†	Stratum* Use Level‡ or Proxy Codes§	Days Sampled	Site Days# in Use Level/Proxy Population	Sampling Rate (%)
DUDS	High	10	25	40.0
DUDS	Medium	12	214	5.6
DUDS	Low	16	1,003	1.6
DUDS	DUR4	8	285	2.8
OUDS	High	10	251	4.0
OUDS	Medium	10	861	1.2
OUDS	Low	16	1,977	0.8
OUDS	DUR4	8	365	2.2
GFA	High	24	1,499	1.6
GFA	Medium	41	6,609	0.6
GFA	Low	72	15,402	0.5
Total		227	28,491	0.8

Table 51. 2013 and 2018 Annual Visitation Estimate

Visit Type	Visits (1000) 2013	Visits (1000) 2018	2013[2]	2018[2]
Total Estimated Site Visits[1]	95	141	±25.0	±33.2
Days Use Developed Site Visits	20	5	±57.5	±58.6
Overnight Use Developed Site Visits	18	32	±49.0	±39.8
General Forest Area Visits	58	105	±32.9	±43.0
Total Estimated National Forest Visits	77	96	±26.9	±35.0
Special Events and Organized Camp Use	0	3	±0.0	±0.0

[1] A site visit is the entry of one person onto a National Forest site or area to participate in recreation activities for an unspecified period of time.
[2] 90% Confidence Level

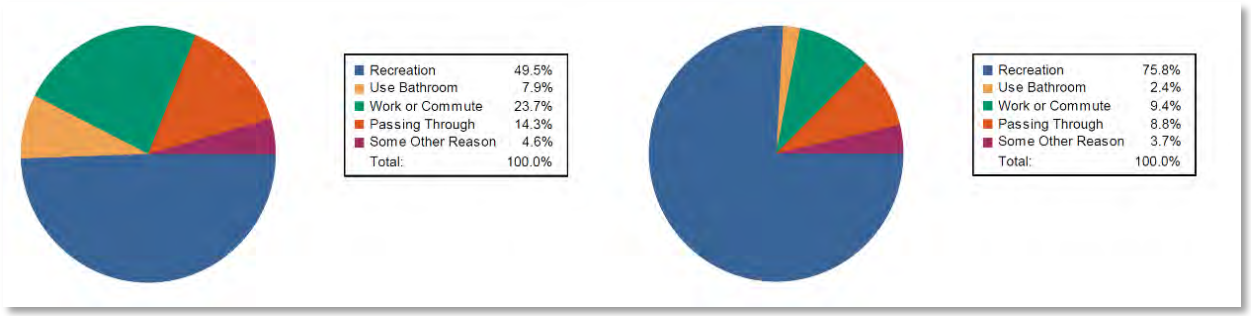


Figure 32. Purpose of Visit by Visitors Who Agreed to be Interviewed (https://www.fs.usda.gov/about- agency/nvum/)

Table 52. 2013 and 2018 Activity Participation

Activity	Participation (%) 2013	Participation (%) 2018	Main Activity (%) 2013	Main Activity (%) 2018	Average Hours Doing Main Activity 2013	Average Hours Doing Main Activity 2018
Viewing Natural Features	44.0	41.1	24.7	15.0	0.0	3.4
Hiking/Walking	32.8	53.0	21.4	20.5	2.3	2.8
Viewing Wildlife	31.2	47.7	1.3	3.7	5.0	15.3
Bicycling	19.8	26.5	16.8	21.8	3.3	5.0
Hunting	17.1	24.1	15.9	23.1	9.9	8.6
Driving for Pleasure	16.7	29.3	4.3	1.8	6.0	4.5
Visiting Historic Sites	14.8	7.2	0.9	2.6	2.0	3.4
Developed Camping	10.2	12.6	3.9	1.7	39.0	21.0
Fishing	7.1	0.3	6.8	0.0	4.3	0.0
Relaxing	6.7	31.0	1.8	1.8	6.1	21.9
Non-motorized Water	4.0	0.3	0.0	0.0	0.0	0.0
Nature Center Activities	4.0	4.8	0.0	0.0	0.0	0.0
Horseback Riding	1.6	4.8	1.4	4.2	6.4	4.7
Picnicking	1.3	4.9	0.0	1.2	0.0	1.1
Motorized Trail Activity	0.8	4.4	0.0	0.1	0.0	2.0
Primitive Camping	0.8	3.7	0.0	1.0	0.0	16.0
Some Other Activity	0.5	1.9	0.5	1.3	1.0	4.5
Cross-country Skiing	0.5	0.3	0.0	0.0	0.0	0.0
Nature Study	0.2	7.2	0.2	0.9	30.0	1.0
Other Non-motorized	0.2	1.0	0.0		0.0	

Activity	Participation (%) 2013	Participation (%) 2018	Main Activity (%) 2013	Main Activity (%) 2018	Average Hours Doing Main Activity 2013	Average Hours Doing Main Activity 2018
Gathering Forest Products	0.2	1.0	0.0	0.0	0.0	0.0
OHV Use	0.1	2.2	0.0	0.0	0.0	0.0
Resort Use	0.0	0.3	0.0	0.0	0.0	0.0
Snowmobiling	0.0	0.0	0.0	0.0	0.0	0.0
Motorized Water Activities	0.0	0.2	0.0	0.0	0.0	0.0
Other Motorized Activity	0.0	0.0	0.0	0.0	0.0	0.0
Downhill Skiing	0.0	0.0	0.0	0.0	0.0	0.0
No Activity Reported	0.0	0.0	0.0	0.0	-	-
Backpacking	0.0	1.0	0.0	0.0	0.0	0.0

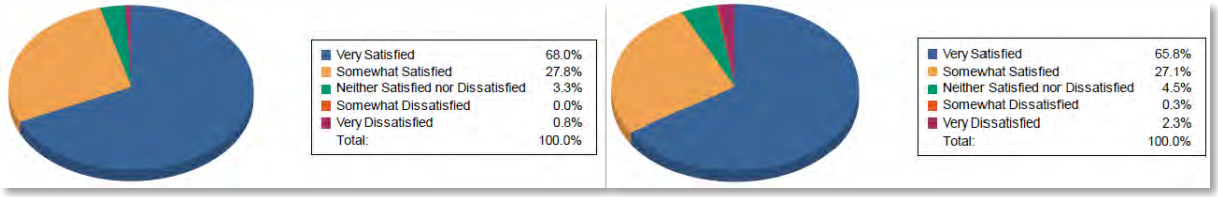


Figure 33. Percent of Dakota Prairie Grasslands Visits by Overall Satisfaction Rating, 2013 and 2018

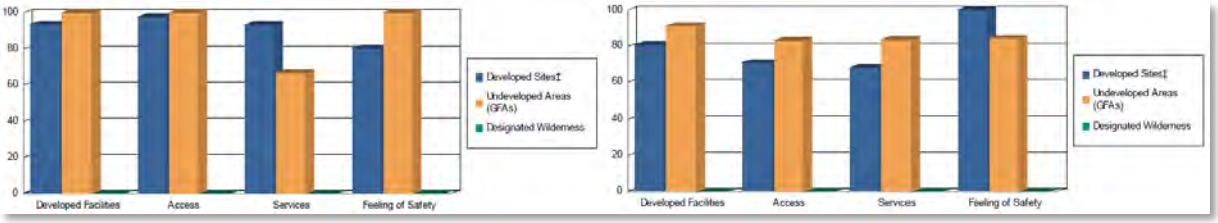


Figure 34. Percent Meets Expectation Scores, 2013 and 2018

Table 53. 2021 & 2022 Recreation Fee Collected from DPG Campgrounds

Campground	2021	2022
Bennett	$3,472.00	$2,779.00
Buffalo Gap	$31,200.72	$28,057.90
Burning Coal Vein	$2,519.00	$2,977.00
CCC	$6,242.55	$6,190.96
Coal Creek	$3,755.65	$4,919.15
Elkhorn	$3,002.00	$3,689.62
Magpie	$4,923.10	$4,875.00
Sather	$4,182.01	$4,252.04
Wannagan	$2,931.00	$3,240.00
Jorgen's Hollow	$5,638.75	$4,789.00
Hankinson Hills	$2,020.89	$2,674.00
TOTAL	**$69,887.67**	**$68,443.67**

Discussion

The estimated annual visitation has increased across the DPG in four out of five visit types from 2013 to 2018. It is important to note the confidence level for all visit types is between 33.2% and 58.6%. These values are very high accompanied by the 90% confidence interval. For example, the total estimated site visits for the DPG in 2018 is 141,000 visits, with a 90% confidence interval of 33.2%. In other words, given the NVUM data, our best estimate is 141,000 visits and, given the underlying data, we are 90% confident that the true number is between 94,200 and 187,800. We should understand that according to observations from field going personnel, the actual visitations are most likely significantly lower than that.

These reports show recreation to be the main reason for visitation on the DPG. The Medora Ranger District constructed a new multi-use trailhead in 2022, providing non-motorized and motorized trail users access to district trails and National Forest System Roads. Starting in the spring of 2023, the McKenzie Ranger District plans to significantly improve their Civilian Conservation Corps (CCC) era campground thus increasing recreation opportunities for grassland visitors.

The overall satisfaction survey results are modest. Only about 65% of people visiting indicated they were very satisfied with their overall recreation experience, and 27% were satisfied. The results for the composite indices were mostly good. Satisfaction ratings for perception of safety were over 90% for all types of sites. Ratings for services were under 70% for all settings.

The North Dakota State Comprehensive Outdoor Recreation Plan (SCORP) was prepared by the North Dakota Parks and Recreation Department (NDPRD) and is a guide for managing and developing North Dakota's non-consumptive outdoor recreation infrastructure. Examples of non-consumptive outdoor recreation include wildlife viewing, hiking, canoeing, or any other activity in which the user does not remove or harvest resources from the environment. Examples of consumptive recreation include fishing, hunting, foraging, or other activities in which the user harvests resources from the environment. Table 54 , Figure 35 and Figure 38 represent North Dakota's primary needs to meet user demands. The DPG offers mostly semi-primitive recreation opportunities with the exception a few developed campgrounds offering more comfort amenities than others. The DPG recreation program has identified what recreation needs presented by the SCORP align with the program objectives on the DPG to meet visitor use needs appropriately.

Table 54. Statewide Facility Priorities

Primary Needs	Secondary Needs	Tertiary Needs
Non-motorized Trails	Swimming/Water Facilities	Shooting Sport Facilities
Playgrounds/Picnic Areas/Open Space Parks	Recreation Boating Facilities	Canoeing/Kayaking Facilities
Campgrounds	Winter Sports Facilities	Sports Courts/Fields
		Motorized Trails

Primary Needs	Secondary Needs	Tertiary Needs
Campgrounds	Sports Courts/Fields	Winter Sports Facilities
Non-Motorized Trails	Playgrounds/ Picnic Areas/Open Space Parks	Swimming/Water Facilities
		Specialty Facilities
		Shooting Sport Facilities
		Recreational Boating Facilities

Primary Needs	Secondary Needs	Tertiary Needs
Campgrounds	Shooting Sport Facilities	Motorized Trails
Non-Motorized Trails	Sports Courts/Fields	Specialty Facilities
Swimming/Water Facilities	Recreational Boating Facilities	Winter Sports Facilities
Playgrounds/ Picnic Areas/Open Space Parks		Canoeing/ Kayaking Facilities
		Golf Courses

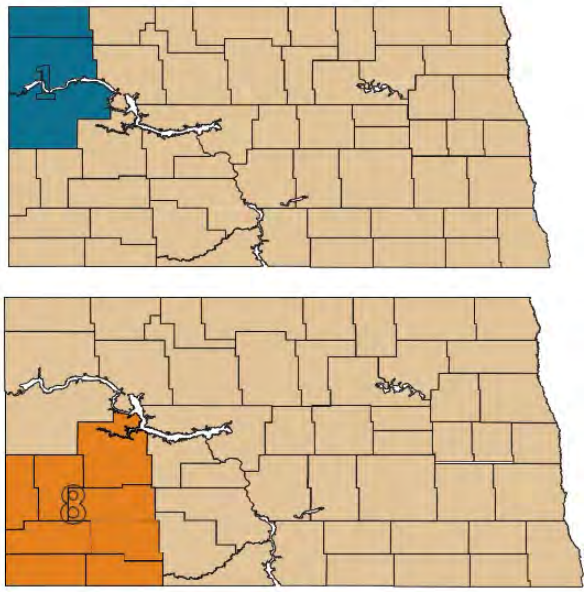


Figure 35. North Dakota's Region 1 & 8 Facility Priorities

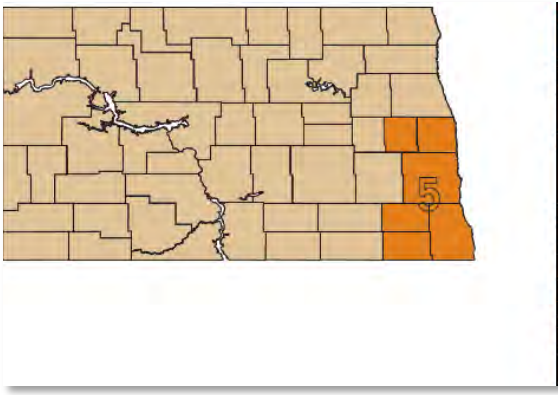
Camping within the Dakota Prairie Grasslands

Camping is of interest to 55% of North Dakota households in Region 1 (Figure 35), particularly in modern campgrounds (51%), with campers or RVs (47%) and at group campsites (44%). Rental cabins or yurts at campgrounds or parks, semi-modern campgrounds and tent camping sites are primary weaknesses in the Region. Providers report demand exceeds supply for many camping facilities: semi-modern campgrounds (29%), tent/RV/ camper sites without electricity/water hookups (29%), RV/ camper sites with electricity/water hookups (22%) and RV dump stations (22%). 42% of providers report electricity/water hookups and RV/camper sewer hookups are important to enhance user experiences in campgrounds.

Using trails for walking, running, bicycling, or horseback riding is of interest to 55% of North Dakota households in Region 1, with 47% interested in modern trails. Modern trails, semi-modern trails, and unpaved multi-use trails are a primary weakness for the Region. 29% of providers report demand exceeds supply for paved multiuse trails and exercise trails, while 22% say the same for hiking trails.

Figure 36. Buffalo Gap Campground, Little Missouri NG (Rob Schilling 2020)

Figure 37. Whitetail Campground, Little Missouri NG (Rob Schilling 2021)



Primary Needs	Secondary Needs	Tertiary Needs
Non-Motorized Trails	Winter Sports Facilities	Sports Courts/Fields
Campgrounds	Recreational Boating Facilities	Shooting Sport Facilities
Swimming/Water Facilities	Canoeing/ Kayaking Facilities	Specialty Facilities
Playgrounds/ Picnic Areas/Open Space Parks		

Figure 38. North Dakota's Region 5 Facility Priorities

Trails for walking, running, bicycling, or horseback riding are of interest to 61% of North Dakota's Region 5 (Figure 38) households with 51% interested in modern trails. 51% are interested in using paved multi-use trails while 44% are interested in unpaved multi-use trails. Hiking trails, semi-modern trails, modern trails, and unpaved multi-use trails are primary weaknesses.

61% of the Region 5 households are interested in camping. 55% are interested in camping in modern campgrounds, 44% in renting cabins or yurts at campgrounds or parks, 44% in using campers or RVs and 42% in group campgrounds. Primary weaknesses are rental cabins or yurts at campgrounds or parks, semi-modern campgrounds, modern campgrounds, camper or RV camping sites, group campground sites and tent camping sites. According to providers, 35% of group campsites in the Region are in poor condition.

Swimming outdoors is of interest to 56% of North Dakota households in Region 5, while 51% are interested in going to designated swimming beaches at lakes or rivers and 48% are interested in going to regular pools. Designated swimming beaches along lake shorelines, or riverbanks, and specialty pools, are primary weaknesses in terms of availability. Providers report 25% of regular swimming pools in the Region are in poor condition.

Canoeing and kayaking are of interest to 43% of households in North Dakota's Region 5. Designated paddling trails and waterways for canoeing or kayaking are primary weaknesses.

The Sheyenne National Grassland has 31 miles of the North Country National Scenic Trail (NCT) passing from west to east within the north portion of the district. The trail is an unpaved, non-motorized use trail for horseback, biking and hiking. The Sheyenne also has a 4-mile loop trail surrounding Jorgen's Hollow Campground; and an 8-mile loop surrounding the Hankinson Hills Campground. Each loop trail has the same specifications as the North Country Trail. The NCT trail has been maintained to national standards, but the recreation program plans to use GAOA funding to resurface with gravel to trail specs, the entire 31 miles of the NCT to improve non-motorized used recreation opportunities over the next five years. There are no paved trails on the Sheyenne and no plans to develop any.

Developed Recreation Campgrounds

The Little Missouri National Grassland offers eight developed campgrounds ranging from semi-primitive to modern camping. There is also one lake access site providing day use activities and fishing opportunities. In addition to camping, there are 200 miles of non-motorized trails for hiking, biking, and horseback riding opportunities. Based on the SCORP data, the Little Missouri has facilities in place to meet the primary needs of North Dakota citizens. With the help of the Great American Outdoors Act (GAOA), the Little Missouri National Grassland plans to improve both developed campgrounds and non-motorized trails over the next five years.

The Sheyenne National Grassland offers two developed campgrounds providing semi- primitive amenities. Users can camp with horse trailers; and access both trails, and off- trail, horseback riding from the campgrounds. Users can also camp with Recreational Vehicle's and tents in designated campsites. These two campgrounds do not offer cabin or yurt rentals; however, local private and state campgrounds offer those more modern camping amenities. The campgrounds also do not offer large group camping in a single site; however, groups may occupy several adjacent campsites. Dispersed camping is allowed on the district for up to 75 people in an area without a special use permit.

A review of campground revenue from 2021 and 2022 indicate that use of developed campgrounds remained steady, with less than 2% in decline of use. In addition, there is a coloration between the amount of use and the number of amenities offered in each campground. For example, The Buffalo Gap Campground received 2.5 times more use than CCC Campground; our second most used developed recreation site on the DPG. This data aligns with region one recommendations outlined in the SCORP and supports the addition of modern amenities at the CCC Campground.

The Recreation Program identified the public's interest in canoeing and kayaking through information gleaned from the SCORP. Paddling and waterway opportunities are lacking and considered a weakness in the North Dakota Region 5. The Sheyenne River Water Trail was started in 2017 and finalized in 2018. The Sheyenne River Water Trail continued to expand in 2021 and 2022 with the addition of improve access points for watercraft and information kiosks. The trail is located on the north portion of the Sheyenne National Grassland.

The water trail provides access to many recreation opportunities in the area to include canoeing, kayaking, boating, camping, hunting, and fishing. All four of the access sites provide information on proper hand launch and retrieval, dispersed camping on public lands by practicing a "leave no trace" guiding principle, water trail safety, and aquatic invasive species control. All aspects of the Sheyenne River Water Trail help to provide access to public lands and positive public lands stewardship.

Figure 39. Hankinson Hills Campground, Sheyenne NG *(Aaron Gaither 2020)*

Figure 40. DPG Trail Crew first river float, Sheyenne NG *(Aaron Gaither 2020)*

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 2.a. Improve the capability of the Nation's forests and grasslands to provide diverse, high-quality outdoor recreation opportunities.

Monitoring Question evaluating the above Plan Component(s)

To what extent are recreational opportunities meeting public interests?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Management Activities

[1] See Box 1

Findings Rationale: The DPG continues to expand and improve the extensive outdoor recreation opportunities offered on the national grasslands.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Activities: maintain developed recreation and improve dispersed recreation opportunities across the DPG
RATIONALE FOR THE RECOMMENDATION
The DPG continues to provide high quality outdoor recreation across the North Dakota and South Dakota. This is evident by the expansion of the non-motorized trail system, addition of the Sheyenne River Water Trail, and the new amenities being installed in the developed campground.

Monitoring Item MON-REC-03

Why the Plan Component(s) is monitored?

The following Plan Component is evaluated to understand the effects current management activates have on wilderness characteristics, primitive recreation opportunities, and availability of solitude.

The DPG has identified 38,828.16 acres of Suitable for Wilderness (Management Area (MA) 1.2A), within the Little Missouri National Grassland. DPG Land and Resource Management Plan (DPG LRMP) states:
The Forest Service has identified these areas as being suitable for wilderness recommendations to Congress for inclusion in the National Wilderness Preservation System. The Forest Service is not recommending these areas for wilderness at this time because of a lack of current Congressional and Gubernatorial support for wilderness. This delay is intended to allow time for consensus on this issue to develop. Although these areas will not be recommended to Congress for wilderness designation at this time, their wilderness character will be protected. In the event these areas are threatened by future development that would degrade the wilderness character, the Forest Service would then officially recommend them to Congress for wilderness designation. Livestock grazing will be continued, however, management activities, which do not protect wilderness characteristics, will be prohibited or restricted. If consensus is not reached within the life of this plan, a wilderness recommendation will be reconsidered in the next round of plan revision.
These areas are managed to protect wilderness characteristics. Vegetation is managed within the range of natural variability which include natural processes such as: fire, insects, disease, rest, grazing control, vegetation composition, and structure. Large pasture size and unobtrusive structural developments promote an open, natural-appearing landscape. Generally, opportunities for primitive recreation are provided, with a moderate degree of solitude available.
There is some evidence of past and present human use, such as fences, trails, water developments, and primitive roads. Existing two-track roads and old roads are evident but will diminish through lack of use. Some of these may become designated trails. Bridges or other structures may exist to protect resources or provide safe stream crossings during normal water flow.
Use of mechanized equipment for administrative purposes will continue. Opportunities to remove or relocate structural range improvements (fences and water developments), to achieve resource management goals and objectives, will be pursued. Both directional and resource protection signs may be present (Dakota Prairie Grasslands Land and Resource Management Plan, 2001).

The standards and guidelines for Suitable for Wilderness (MA 1.2A) are listed below:

1. Forest Plan Standard: Allow uses and activities only if they do not degrade wilderness characteristics.
2. Forest Plan Standard: Reclaim disturbed lands to a near natural resource condition.
3. Forest Plan Standard: Limit all motorized use to administrative purposes (e.g., grazing administration, invasive plant control, and fire suppression) and that deemed necessary to provide public trailhead facilities on public land within these areas.
4. Forest Plan Guideline: Control natural insect and disease outbreaks only when they threaten resource values outside of the management area boundary.
5. Forest Plan Standard: Do not allow new road construction.
6. Forest Plan Standard: Recreation - Prohibit snowmobile use in this management area.
7. Forest Plan Standard: Allow development of necessary trailhead facilities on public land to provide public parking in these areas.

Refer to Chapter 1, Grassland-Wide Direction, Section K, of the LMRP for additional recreation direction.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 1.2A. Allow uses and activities if they do not degrade wilderness characteristics.

Monitoring Question evaluating the above Plan Component(s)
To what extent do management activities influence the features important to suitable wilderness (MA 1.2A)?

Monitoring Question Indicators	Data collection interval	Data Source / Partner	Point of Contact
Non-conforming uses (number of permits/authorizations that are non-conforming to characteristics of suitable wilderness)	Periodically	DPG SO Records	Recreation Manager
Permit applications (number of permit applications received/denied within the suitable wilderness)	Periodically	DPG SO Records	Recreation Manager
Permitted roads (number of off-road permits authorized in suitable wilderness)	Periodically	DPG SO Records	Recreation Manager

Data and Evaluation History

MON-REC-03	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Land Management Plan: Consider reviewing why CCC campground is in management area 1.2 as it does not promote solitude and requires infrastructure	B
FY21	Monitoring Program: The monitoring item refers to suitable for wilderness as MA 2.1A, however the correct MA for suitable for wilderness is MA 1.2A. Error will be corrected.	D (FY21)

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The DPG LRMP in scheduled to be updated in 2025. A review of Management Area designations and a correction of MA 1.2A boundary will be completed during Plan revision.

Methods

The DPG has multiple resource methods available to help determine the status of MON-REC-03:

1. The first method analyzes non-conforming uses by identifying the number of permits/authorizations that are non-conforming to characteristics of suitable wilderness (MA 1.2A). Forest Service land use requests are processed through a special use permit or authorization. An operating plan for use requests is present in the special use permit. Periodic field inspections are completed before, during and after the defined use request to ensure appropriate usage is followed on the landscape. A review of special use permits is completed annually and before any repeat of requested use is done on the landscape. Data is pulled from a special use tracker spreadsheet.

2. The second method analyzes permit applications from the previous 2 years. The total number of permit applications received/denied within the suitable wilderness (MA 1.2A) has been compiled to determine if

appropriate screening of special use permit applications is being followed to align with LRMP objectives. Data is pulled from a special use tracker spreadsheet.

3. The final method analyzes permitted roads by identifying the total number of off-road permits authorized in suitable wilderness (MA 1.2A) from the previous 2 years.

Results

The trend is the trajectory of the data over time and is identified by a + sign in the four quadrants below. Color is used to represent the trend of data in reference to the desired condition as described in the LRMP. Indicators are as follows; green is good, yellow is marginal, red is bad.

Table 55. Monitoring Indicator Status Summary of Non-conforming uses

Non-conforming uses (*Number of permits/authorizations that are non- conforming to characteristics of suitable wilderness*)		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target		+ -
	Outside Target		

Table 56. Monitoring Indicator Status Summary of Permit Applicatoins

Permit applications *(number of permit applications received/denied within the suitable wilderness)*		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target	++	
	Outside Target		

Table 57. Monitoring Indicator Status Summary of Permitted Roads

Permitted roads *(number of off-road permits authorized in suitable wilderness)*		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target	++	
	Outside Target		

Discussion

The focus area for this monitoring question about non-conforming uses is relevant only to the McKenzie and Medora Ranger Districts, which together comprise the Little Missouri National Grassland (LMNG). From 2021 to 2022 a total of 15 special use permit application were submitted for various recreation events on the LMNG. Event descriptions included ultra-marathon foot and bike races that travel up to 150 miles along designated trails, winter fat-tire bike race, snowshoe and cross-country ski events, archery tournaments, Outfitter and Guide permits for mountain bike and horseback riding, filming permits, and Jeep/off-road trail rides.

Out of the 15 applications submitted to the LMNG, 8 were accepted and approved within the Suitable for Wilderness area (MA 1.2A). The event descriptions included ultra-marathon foot and bike races along designated trails, fat-tire, snowshoe and cross-country ski events, outfitter and guides for mountain biking, and a commercial filming permit. Most of the events have little to no impact on the landscape and conform to MA 1.2A guidelines. The running, snowshoe, skiing, and biking events promote solitude activities and do not require permanent structures on the landscape. The filming permit requires compliance to USDA Forest Service policy, including leave no trace and does not allow manipulation of the environment for filming.

The mountain bike events do currently follow all guidelines for MA 1.2A. These events are currently some of the largest on the DPG and follow the Maah Daah Hey, Buffalo Gap, and Long X trails. If the area becomes a designated Wilderness Area, a decision will need to be considered to remove these events from this area. According to the Wilderness Act of 1964, mechanical transport, including bicycles, is prohibited within all wilderness areas.

Out of the 15 applications submitted to the LMNG, 1 was denied. A portion of the event occurred in MA 1.2A, but denial was due to timing limitation within Bighorn Sheep Habitat, MA 3.51. The proposed event would have followed all guidelines for MA 1.2A and would have been approved if scheduled later in the year or relocated outside of MA 3.51.

Figure 41. Foot race event, Maah-Daah-Hey Trail – Little Missouri National Grassland (2018, Rob Schilling)

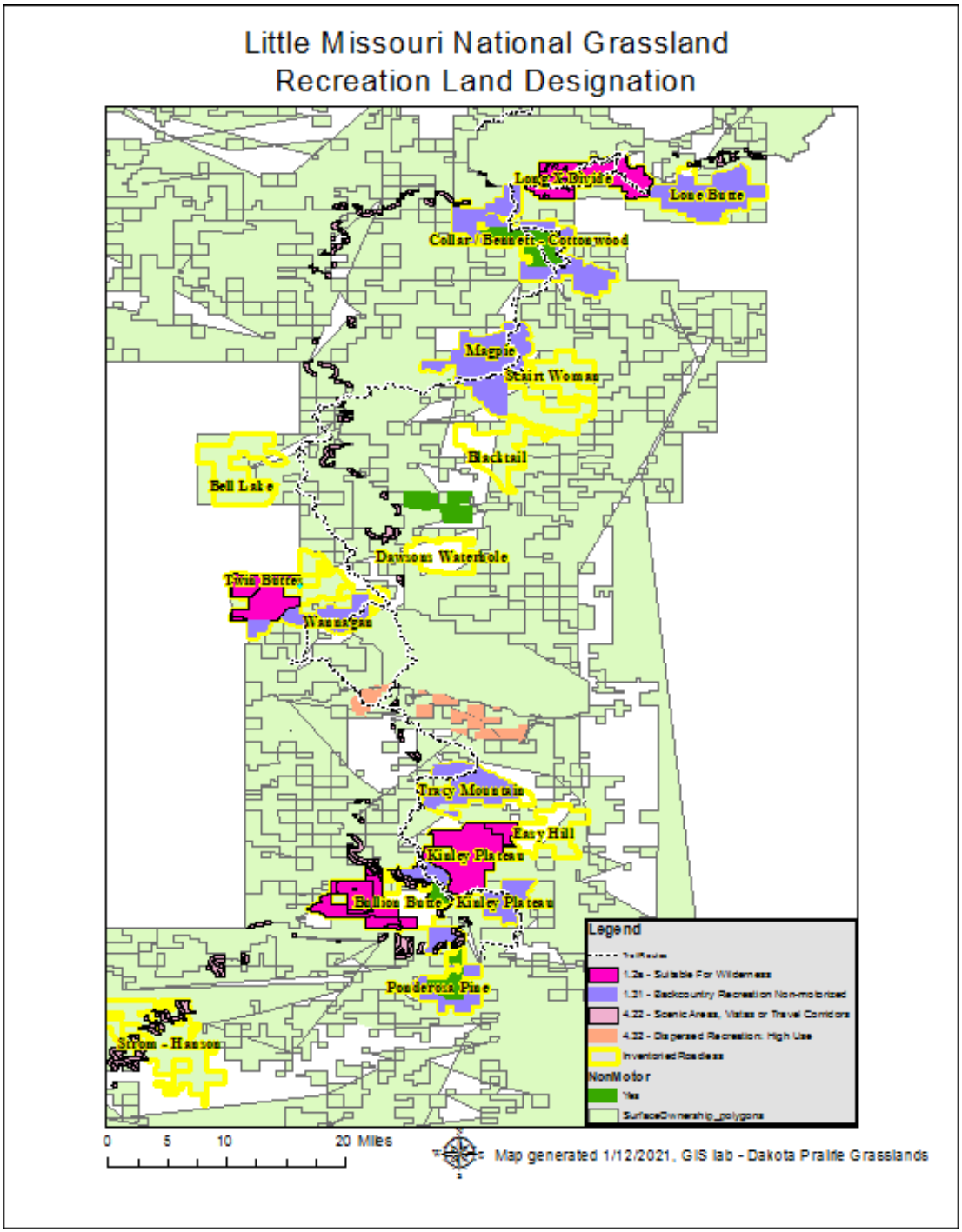


Figure 42. Little Missouri National Grassland Recreation Land

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 1.2A. Allow uses and activities if they do not degrade wilderness characteristics.

Monitoring Question evaluating the above Plan Component(s)
To what extent do management activities influence the features important to suitable wilderness (MA 1.2A)?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Land and Resource Management Plan

[1] See Box 1

Findings Rationale: The approval of recreation events and commercial guided recreation activities did not degrade wilderness character. The CCC campground is within MA 1.2A. The CCC Campground provides a large space for gathering of people and offers complex infrastructure to aid in the camper's experience; neither of which promote solitude and protect wilderness characteristics.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Land Management Plan: consider reviewing why CCC campground is in management area 1.2A.
RATIONALE FOR THE RECOMMENDATION
The CCC campground is within management area 1.2A. The CCC Campground provides a large space for gathering of people and offers complex infrastructure to aid in the camper's experience; neither of which promote solitude and protect wilderness characteristics. A consideration to remove the CCC Campground from management area 1.2A should be reviewed.

Monitoring Item MON-REC-04

Why the Plan Component(s) is monitored?

Monitoring Scenic Integrity provides land managers an understating of the state of naturalness or, conversely, the state of disturbance created by human activities or alteration. Monitoring Scenic Integrity providing an awareness and understanding of how management activities and projects have alerted the existing landscape character.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 2.c Objective 1. Implement practices that will meet, or move the landscape character toward, scenic integrity objectives consistent with Geographic Area direction.

Monitoring Question evaluating the above Plan Component(s)
To what extent has the Unit progressed with scenic integrity objectives?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact

Scenic Integrity Objectives (number of projects that are moving or not moving toward SIO)	Periodically	DPG SO Records	Recreation Specialist
Actual scenic integrity (acres and location of desired versus actual scenery integrity condition)	Periodically	DPG SO Records	Recreation Specialist

Data and Evaluation History

MON-REC-04	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Provide capacity for all program managers to provide data on projects for scenic integrity objectives for 2023 report.	C
FY21	Monitoring Program: Change monitoring question to "To what extent has the unit progressed with scenic integrity objectives?"	D (FY21)

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Eleven photo points were established in 2021 in the Red Wing Creek area of the McKenzie Ranger District following recommendations from the FY21 BMER. These photo points were established to monitor impact of motorized recreation on scenic integrity and wildlife habitat and provide managers a baseline for future analysis.

The following results, discussion, and findings are unchanged from the FY21 BMER due to minimal data being available from the photo points, restricting analysis efforts for this report.

Methods

The DPG's scenery management policy is described in the Dakota Prairie Grasslands Land and Resource Management Plan, 2001 (DPG LRMP). The DPG LRMP identifies the number and types of projects, within a specific management area, to determine if the DPG is moving towards scenery objectives and, whether those projects meet the scenery management guidelines.

Scenery Management

Dakota Prairie Grasslands Land and Resource Management Plan (DPG-LRMP) Guidelines: Our goal with scenery management on the DPG is to manage activities to be consistent with the scenic integrity objective(s), as referenced by the Adopted Scenic Integrity Objective map of the DPG-LRMP (Scenic Integrity Objective).

Chapter 3 of the DPG-LRMP describes management area directions to include scenic integrity objectives. A Management Area (MA) is defined as a parcel of land, a point, or a linear path, within the Grasslands, that is managed for a particular emphasis. Management areas may comprise very small points, linear paths, or large or small parcels. Each management area has a prescription that outlines the desired conditions and the standards and guidelines that apply to it (in addition to the Grassland-wide standards and guidelines).

For this revision, linear, point, and small management areas were combined into other management areas or are handled through discrete standards and guidelines. This includes campgrounds and picnic grounds (developed

recreation sites), utility corridors, woody draws, and riparian areas. Management areas devoted to a particular wildlife species were consolidated into "special wildlife areas."

Except for Congressionally established boundaries or special administrative boundaries, management area boundaries are not firm lines and do not always follow topographic features, such as ridges or drainages, or administrative boundaries. The boundaries represent a transition from one set of opportunities and constraints to another with management directions established for each. The boundaries are flexible to assure that the values identified are protected and to incorporate additional information gained from further on-the-ground reconnaissance and project level planning. Boundaries can be adjusted up to ¼ mile (with Grasslands Supervisor approval) to facilitate management.

Prescriptions have been broken into six major categories which range from least evidence of disturbance to most evidence of disturbance: For example, Suitable Wilderness (MA 1.2A) would have the least amount of facilities and Rangeland with Broad Resource Emphasis (MA 6.1) would show the greatest evidence of facilities, including things like roads, oil wells, pipelines, and water developments (DPG-LRMP).

The following are the LRMP Guidelines for scenic integrity objectives for the DPG "Management Areas" (areas defined in chapter 3 of the LRMP for certain activities). These objectives apply only to prescription categories one through six within designated management areas.

Land and Resource Management Plan Guideline:
There is a need to rehabilitate areas that are not moving towards the scenic integrity objectives specified for the prescription category. Consider the following when setting priorities for rehabilitation:

1. FP Objective: Relative importance of the area and the degree of deviation from the scenic integrity objectives.
2. FP Objective: Length of time it will take natural processes to reduce the visual impacts so that they move towards the scenic integrity.
3. FP Objective: Length of time it will take rehabilitation measures to move towards scenic integrity. LRMP Guideline: Benefits to other resource management objectives to accomplish rehabilitation.

Scenic Integrity (Existing or Objective) – The state of naturalness or, state of disturbance created by human activities or alteration impacts scenic integrity over time. Integrity is stated in degrees of deviation, or difference, from the existing landscape character within National Forest System (NFS) lands, which include grasslands like DPG, under USDA Forest Service management.

The scenic integrity levels are:

1. Very High (Unaltered): Preservation: This level refers to landscapes where the valued landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level.
2. High (Appears Unaltered): Retention: This level refers to landscapes where the valued landscape character appears intact. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.
3. Moderate (Slightly Altered): Partial retention: This level refers to landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.
4. Low (Moderately Altered): Modification: This level refers to landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.
5. Very Low (Heavily Altered): Maximum Modification: This level refers to landscapes where the valued landscape character appears heavily altered. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, vegetative type changes or

architectural styles within or outside of the landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as roads, and structures do not dominate the composition.

6. Unacceptably Low: This level refers to landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little if any form, line, color, texture, pattern, or scale from the landscape character. Landscapes at this level of integrity need rehabilitation.

Results

No information was compiled on the indicators for this monitoring question (1) number of projects that met scenic integrity objectives, (2) and the acres and location of desired versus actual scenery integrity condition.

Table 58 provides the MA and its intent for scenic integrity objective. For example, MA 1.2A is designated as area suitable for wilderness. The scenic integrity objective is high, meaning it should appear unaltered. Management objectives should include preservation of the area where landscape characteristics remain intact with only minute, if any, deviations.

Table 58. Management Areas Classified by Scenic Integrity Objectives

Management Area	Very High	High	Moderate	Low	Very Low	Unacceptably Low
1.2A Suitable for Wilderness		X				
1.31 Nonmotorized Backcountry Recreation		X				
2.1 Special Interest Area		X				
2.2 Research Natural Area		X				
2.4 Identified American Indian Traditional Use Area		X				
3.51 Bighorn Sheep Habitat	X	X	X	X	X	
3.51A Bighorn Sheep Habitat with Non- Federal Mineral Ownership	X	X	X	X	X	
3.63 Black Footed Ferret Reintroduction Habitat			X	X		
3.64 Special Plant and Wildlife Habitat	X	X	X	X	X	
3.65 Rangelands with Diverse Natural- Appearing Landscapes	X	X	X	X	X	
3.66 Ecosystem Restoration (Sheyenne Tall Grass Prairie)			X	X		
4.22 River and Travel Corridors		X				
4.32 Dispersed Recreation: High Use		X	X			
5.31 Experimental Forests			X	X		
6.1 Rangeland with Broad Resource Emphasis			X	X		
1.2A Suitable for Wilderness		X				
1.31 Nonmotorized Backcountry Recreation		X				
2.1 Special Interest Area		X				
2.2 Research Natural Area		X				

Discussion

This monitoring item was not completed due to insufficient records of scenic integrity objectives for each project. To accurately identify if all projects on the DPG are moving toward scenic integrity objectives, an in-depth analysis of each project, categorized by each management area, should be administered by the appropriate program manager. This level of analysis may require an extensive amount of time and perhaps an additional category of planning on project proposals.

Since the FY21 BMER, the DPG has established photo points and updated the Conditions of Approval (COAs) for Surface use Plan of Operations for oil and gas infrastructure located on federal lands. These COA assist managers in meeting Scenic Integrity Objectives by outlining construction, operation, and reclamation standards intended to minimize impacts to landscape character.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item
Goal 2.c Objective 1. Implement practices that will meet, or move the landscape character toward, scenic integrity objectives consistent with Geographic Area direction.

Monitoring Question evaluating the above Plan Component(s)
To what extent has the Unit progressed with scenic integrity objectives?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Grassland mangers need to develop better tools for data collection and standards for monitoring Scenic Integrity Objectives.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Provide capacity and tools for program managers to provide data on projects for scenic integrity objectives for FY25 BMER.
RATIONALE FOR THE RECOMMENDATION
Utilize the United States Forest Service Visual Resource Inventory Process and the Scenery Management System to inventory and analyze scenery on the Dakota Prairie Grasslands, and to develop a monitoring program for scenic resources.

Monitoring Item MON-REC-05

Why the Plan Component(s) is monitored?

This Plan Component is monitored to help land managers understand the effects of off-highway vehicle use on grassland resources. Identifying non-conforming use of off-highway vehicles across the DPG helps program managers implement best management practices to protect grassland resources.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 4.a Objective 1. Within 5 years, identify travel opportunities and restrictions; including designating motorized travel-ways and areas, to meet land management objectives.

Goal 4.a Objective 2. Provide reasonable access for use of the national grasslands.

Goal 4.a Objective 4. Identify the minimum Forest Service road system for administration, utilization, and protection of national grasslands resources using a science-based roads analysis process. Provide safe and efficient travel and minimize adverse environmental effects.

Monitoring Question evaluating the above Plan Component(s)

To what extent is off-road vehicle use (permitted and unpermitted) damaging grassland resources and causing erosion, sedimentation, and vegetation loss?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Unauthorized use (number of and acres of incidents)	Periodically	DPG SO Records, opportunistic reports as observed, LEO/FPO incident reports	Recreation Manager and Law Enforcement
Cited incidents (number of unpermitted incidents)	Periodically	LEO incident reports	Law Enforcement Officer
Photo interpretation (change in resource conditions as seen in plot points)	Periodically	DPG SO Records	GIS Coordinator

Data and Evaluation History

MON-REC-05	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(D) No - Implementation of Plan Component(s) ARE NOT trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Activity: Develop travel management plan on Little Missouri National Grassland	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

The Dakota Prairie Grasslands (DPG) has started the planning process for Travel Management on the Little Missouri National Grassland (LMNG). The goal of this planning effort is to identify a transportation system that is environmentally and financially suitable while meeting public needs.

Under the travel management rule, each unit of the National Forest System (NFS) is required to identify the minimum road system (MRS) needed for safe and efficient travel and for administration, utilization, and

protection of NFS lands. In determining the MRS, the NFS unit must incorporate a science-based roads analysis at the appropriate scale to identify NFS roads that are no longer needed to meet forest resource management objectives. This collaborative travel planning process must emphasize public involvement and coordination with state, local, and tribal governments.

DPG Program Managers and Staff Officers are currently establishing the project timeline, with a vision of starting in 2023.

Methods

The Dakota Prairie Grasslands (DPG) has many different resources available to help answer MON-REC-05: To what extent is off-road vehicle use (permitted and unpermitted) damaging grassland resources and causing erosion, sedimentation, and vegetation loss?

The first method identifies travel opportunities and restrictions on the DPG to move toward land management objectives. A summary of roads maintenance and improvement projects were reviewed to determine if travel opportunities improved, diminished, or remained the same. Additionally, travel management plans are intended for providing reasonable access to National Forest System Lands.

The second method uses photo interpretation to show the change in resource condition. The areas identified range from significant reoccurring damage yearly, to new sites discovered periodically. The analysis shows different methods used to deter off-road use and its effectiveness over time. An analysis of unauthorized use and citations from the previous 5 years show the importance of addressing the travel issues.

Results

The trend is the trajectory of the data over time and is identified by a + sign in the four quadrants below. Color is used to represent the trend of data in reference to the desired condition as described in the Land and Resource Management Plan. Indicators are as follows; green is good, yellow is marginal, red is bad.

Table 59. Monitoring Indicator Status Summary

Unauthorized use (*numbers of and acres of incidents)*		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target		
	Outside Target	+	

Table 60. Monitoring Indicator Status Summary

Unauthorized use (*numbers of unpermitted incidents)*		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target		
	Outside Target	+	

Table 61. Monitoring Indicator Status Summary

Photo interpretation (Change in resource conditions as seen in plot points)		**Recent Trend**	
		Towards Target	**Away from Target**
Current Status	Within Target		
	Outside Target		+

Discussion

The Sheyenne National Grassland (SNG) has seen an increase in user activity over the past 5 years. The increased use is accompanied by a rise in motor vehicle activity throughout the district. Most users adhere to the motor vehicle travel restrictions by means of accessing public lands. As part of improving access to public lands, the Forest Service roads system requires additional maintenance and improvements.

45 miles of roads were maintained/improved across the DPG. The ability to maintain and improve the DPG Forest Service Road system has a large impact on the natural landscape. It allows users to safely use existing roads and infrastructure while providing adequate access to public lands. It also deters users from misusing the landscape by providing designated water crossing, access to appropriate entrance locations for recreation, and preserves sensitive landscapes features. Road improvements also generate a positive public perception of the Forest Service by allocating funds to public lands access. The inverse of road improvements, degradation, may influence users to defy travel management plans and cause natural resource damage.

Figure 43. Resource Damage caused by Non-permitted ATV Use, Little Missouri National Grassland (Tyler Sherman 2021)

Figure 44. Resource damage caused by non-permitted, off-highway vehicles, Allotment Rse, Sheyenne National Grassland. 2020. (Aaron Gaither 2020)

Figure 45. Resource Damage Reclaimed caused by Non-permitted, Off-highway Vehicles, Along FSRD1212, Sheyenne National Grassland (Aaron Gaither 2020)

Off-road motor vehicle use has been prevalent throughout the DPG, and more specifically on the Sheyenne and McKenzie Ranger Districts (RD) in the past 2 years. Contrary to the LMNG, the SNG has a travel management plan in place to identify existing Forest Service roads for permitted motor vehicle travel; and provide users with a motor vehicle use map (MVUM). The travel management plan allows for detailed records of maintenance and improvements over time. Additionally, the plan supports enforcement of prohibited off-road vehicle use to protect the natural environment and separate motorized vehicle users from visitors seeking quiet and solitude.

Hankinson Hills Recreation Area on the Sheyenne RD has been a challenging location to reduce the off-road all-terrain vehicle (ATV) activity and reclaim the sandy soils from erosion damage. There are numerous locations throughout Hankinson Hills that agency personnel have identified as "racetracks" over the years which are ATV or dirt bike user created trails. The tracks are usually located in choppy sandhills adjacent to designated roads. Some tracks are ¼ mile off road while others are several miles from a designated forest road. The tracks cause wet seasons "blowouts" in the sandy soil, which may take several years to reclaim, and some may never return to natural conditions.

Comparing resource damage from 2009 to 2022, it is easy to see that continued off-road use is occurring at Hankinson Hills with little change in land restoration despite efforts of signage and Forest Protection Officer (FPO) compliance patrols.

Other areas of the Sheyenne RD have similar impacts from off-road ATV use but have seen improvements over the years. Areas along FSRD 1212 have been identified and mitigation measures have been in place for several years. Some strategies used are travel management signs at entry points, permanent "no road" signage, carsonite "no motor vehicle" signage, placing logs or branches across the trails, increase availability of MVUM maps, and increased FPO compliance patrols. Some of these images show the success of our mitigation measures by positive land reclamation. However, it takes little effort for users to off road on these trails and reverse years of reclamation in one afternoon.

Occasionally, users feel the need to simply cause resource damage with little respect for public lands. Figure 44 shows damage caused by off-road motor vehicle use which happened one evening after a rain event on the SNG. It doesn't take much effort to destroy prairie landscape which may cause long lasting resource damage to the area. In this instance, a local residence of the area was suspected of causing the damage, but no official contact was made with the suspected perpetrator.

The LMNG has a mosaic of land ownership consisting of Forest Service, National Park, State, and private lands all within the LMNG proclamation boundary. The National Park Service does not allow any form of OHV use through the Theodore Roosevelt National Park while the Forest Service and State lands allow permissible use in designated area. Providing information to the public through social media, land boundary signage, and updated maps has increased awareness for OHV use.

The LMNG staff recognized many Forest roads that were not identified on the landscape with a carsonite road number sign. It is nearly impossible to direct the public to permissible roads for OHV use if they are unaware of what roads to use. LMNG staff made considerable efforts to identify the main roads with accurate signage; but there is still an extensive amount of field work to be accomplished. In addition, LMNG districts partnered with Back Country Hunters and Anglers to install "no travel" and "travel restricted" signs at the intersection of NF roads and non-motorized management area boundaries. This has been an ongoing project, and effort is made each season to replace damaged and missing carbonite road signs.

The DPG has 8 Forest Protection Officers (FPO) with 2 of those being full time recreation employees. The recreation staff generally patrol for compliance of recreation use that includes fee payment, developed campground use, dispersed recreation use, and off-road use. The use of FPO's across the DPG is integral to the program to enforce misdemeanor level offences and resource protection efforts.

The DPG has been working to improve its law enforcement capabilities and presence over the past 2 years. Our current Law Enforcement Officer (LEO) officer has been working on the DPG since 2018. This position was previously stationed in Lemmon, South Dakota however, was relocated to Dickinson, North Dakota to allow the officer to be more active in law enforcement by targeting the higher activity areas on the LMNG. A second LEO has been hired to support law enforcement efforts across the DPG. In addition, collaboration between state, county, and federal law enforcement agencies have increased the presence of officers across the LMNG. Specifically, the North Dakota Highway Patrol and the USFS have partnered to provided targeted OHV patrols in those areas of the national grassland that have been impacted by heavy OHV use.

Over the past 2 years, LEO and FPO's have issued 22 warning notices, 36 incident reports, and 45 violation notices related to illegal off-road use. The Sheyenne RD's travel management plan allows for direct implementation of off-road violations following the motor-vehicle use map. The LMNG has a more difficult time with off-road applications as there is no travel management plan and no official motor-vehicle use map.

All the violations reported on the LMNG have been categorized as causing resource damage, disobeying a special closure order for threatened and endangered species, or careless and reckless operation of a vehicle.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 4.a Objective 1. Within 5 years, identify travel opportunities and restrictions; including designating motorized travel-ways and areas, to meet land management objectives.

Goal 4.a Objective 2. Provide reasonable access for use of the national grasslands.

Goal 4.a Objective 4. Identify the minimum Forest Service road system for administration, utilization, and protection of national grasslands resources using a science-based roads analysis process. Provide safe and efficient travel and minimize adverse environmental effects.

Monitoring Question evaluating the above Plan Component(s)

To what extent is off-road vehicle use (permitted and unpermitted) damaging grassland resources and causing erosion, sedimentation, and vegetation loss?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Management Activities

[1] See Box 1

Findings Rationale: The Little Missouri National Grassland has begun the process for developing a Travel Management plan.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Activity: Develop travel management plan on Little Missouri National Grassland
RATIONALE FOR THE RECOMMENDATION
A travel management plan is essential for meeting LRMP Goal 4a Objective 1, Goal 4a Objective 2, and Goal 4a Objective 4. Protection of national grassland resources will be challenging until a suitable road system is established and clear rule and regulation on authorized travel-ways and areas is developed, enforced, and monitored.

HERITAGE

Monitoring Item MON-HRT-01

Why the Plan Component(s) is monitored?

Cultural/Heritage Resources are non-renewable resources that encompass the physical remains of human activities through time. When found to be of importance to the local, regional, or national level of history and culture, individual Cultural/Heritage Resources can be nominated to the National Register of Historic Places (NRHP). Sites that are determined eligible for the NRHP, or those sites with significance yet with no eligibility determination, are managed and protected from planned actions that could affect that eligibility determination. Sites that have been determined not eligible for nomination to the NRHP are removed from active management.

The National Historic Preservation Act of 1966, as amended (NHPA) was developed to prevent the destruction of our nation's heritage sites, including prehistoric and historic sites. Section 106 of the NHPA, and its implementing regulations (36 CFR 800, inclusive), requires that all federal land management agencies locate and protect all heritage properties that are eligible to the NRHP from planned activities, should the area of the activity contain eligible heritage properties. Through this process a preponderance of the heritage resource properties has been identified. A significant number of these sites have been given eligibility determinations, but a large number are still awaiting that process.

The NHPA also directs the lands management agencies to protect eligible heritage properties, consult with Tribal governments concerning Traditional Cultural Properties, and nominate to the NRHP those sites that are determined eligible for placement on the National Register of Historic Places.

The monitoring questions are found in the DPG Land and Resource Management Plan (DPG LRMP). The purpose of the question is to determine if the standards, guidelines, and direction are met:

1. Consult with designated representatives of federally recognized American Indian tribes during design of projects with potential to affect cultural rights and practices to help ensure protection, preservation, and use of areas that are culturally important to them. *Standard*
2. Enhance and interpret significant heritage sites for the education and enjoyment of the public, while protecting the integrity of the site. *Guideline*
3. Limit non-research oriented ground-disturbing activities on heritage districts and sites eligible for the National Register Historic Preservation (NRHP) that creates adverse impacts to the district or site. *Guideline*

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Legal- National Historic Preservation Act

Goal 2.b Objective 2. Within 5 years, assess identified sites eligible for the National Register of Historic Places (NRHP) in conjunction with SHPO and THPO and provide interpretation for National Register of Historic Places sites where appropriate and consistent with developed preservation plans.

Monitoring Question evaluating the above Plan Component(s)
Are the National Register of Historic Places sites and districts being identified and managed?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
National registered eligible sites (total number of, number of new)	3-5 year	Heritage Natural Resources Manager, INFRA, DPG SO Records	Heritage Program Staff
National registered properties (number of listed)	3-5 year	– Heritage Natural Resources Manager, INFRA, DPG SO Records	Heritage Program Staff
Priority heritage asset (number assessed as needing further management)	3-5 year	Heritage Natural Resources Manager, INFRA, DPG SO Records	Heritage Program Staff

Data and Evaluation History

MON-HRT-01	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Ensure the capacity for the heritage program manager to implement the monitoring program.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Subsequent to the FY21 BMER, the DPG has taken steps to increase the heritage program capacity with the addition of four new heritage positions: three on the LMNG, and one on the Grand River Ranger District. The additional staff are intended to increase the heritage team's bandwidth and to ensure capacity for the heritage program manager to implement the monitoring program. The intent is to provide support to the heritage program manager in both the identification and evaluation of heritage properties, as well as the associated data entry and management within NRM and INFRA. The additional positions have been approved by the RO, but have yet to be encumbered; therefore, the effectiveness has yet to be evaluated.

Methods

Data collection methods and analysis methods are linked to in-field review and inspection of both Priority Heritage Assets (PHA; monitored very 5 years on rotation) and non-PHA sites through the NHPA, Section 106 process. The protocols are defined by the NHPA, 36CFR800, and FSM2360.

For newly located sites, and those sites monitored for the continuity of their eligibility designation, the protocols for the determination of eligibility are located within the National Register Bulletin "How to Apply the National Register Criteria for Evaluation". The full bulletin which contains all aspects of the established protocol and best management practices is available at: How to Apply the National Register Criteria for Evaluation (nps.gov). The protocols include evaluation of each heritage property against the NHPA Criteria for Inclusion and the seven "Aspects of Integrity".

Data was collected from both the Heritage INFRA database, and within the South Dakota State and Historic Preservation Office (SHHPO) Annual Report; and the North Dakota SHPO Annual Reports (both sets of annual reports filed as PDFs in the confidential Heritage Pinyon folders and in the NHPA Section 112 hard copy report files.

Results

Data in Table 62 is derived from the Annual Reports and Natural Resource Manager (NRM) and Infrastructure Application System (INFRA) data. Data were not collected or analyzed for 2020 or 2021.

Table 62. Monitoring Indicator Status Summary

Indicators	2016	2017	2018	2019	2022
New sites	8	6	4	8	24
Relocated, updated sites	11	18	40	32	46
Priority Heritage Assets Monitored	12	8	5	2	9
Number of heritage properties/sites nominated	0	0	0	0	0
Number of new Traditional Cultural Properties identified	0	0	0	0	2

Discussion

Overall, the results reported above are consistent with past Monitoring Report data and results. The increased numbers for all but one of the indicators above is the result of both a slight increase in proposed undertakings on the DPG in 2022, as well as improved implementation of the methods. The heritage monitoring program is based on two joined questions: "(1) Are eligible sites and (2) Traditional Cultural Properties sites, being identified, protected, and preserved? This approach provides accurate insight into the goals of the heritage program on the DPG.

The data from the last two rows of Table 62 can be a little misleading. The decision to nominate sites to the National Register of Historic Places changes little about the overall protection of the site from adverse effects. It does, however, change the management demands for that property, ranging potentially from budget needs- to potential dedication of yearly person hours- to joined programs (i.e., heritage and recreation). The decision to nominate sites to the National Register of Historic Places is something to strive for within overall management of the resource, but not something to take on lightly. Traditional Cultural Properties are defined by Tribal communities and their government(s) and managed by the Grasslands in consultation with that Tribe(s). The lack of new Traditional Cultural Properties reflects Tribal needs rather than Grassland's prioritization of action in moving toward those goals.

Another question posed for the new grasslands archaeologist concerns both the questions asked within the current monitoring program, and the need for that information in relation to current and future needs within the heritage programs' work. We are charged under the NHPA to protect cultural/heritage properties and those aspects of those properties that make them eligible to the NRHP. Do we know that those actions we have implemented as "protective measures" have the efficacy that we have attributed to them?

Monitoring a small number of heritage properties that have had these protection measures put in place, through contract and other measures, would allow for a better, and more defensible, understanding of the status of achieving the Plan objective (identifying and interpretation of National Register of Historic Places). The current Heritage NRM and INFRA systems have the capacity for storing this type of monitoring information for later tabulation, analysis, and reporting.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Legal- National Historic Preservation Act

Goal 2.b Objective 2. Within 5 years, assess identified sites eligible for the National Register of Historic Places (NRHP) in conjunction with SHPO and THPO and provide interpretation for National Register of Historic Places sites where appropriate and consistent with developed preservation plans.

Monitoring Question evaluating the above Plan Component(s)

Are the National Register of Historic Places sites and districts being identified and managed?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: With increased capacity of the heritage program manager, the implementation of the Plan is trending as desired. With additional heritage positions, this is expected to continue.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Continue to ensure the capacity for the heritage program manager to implement the monitoring program.
RATIONALE FOR THE RECOMMENDATION
In the 2021 BMER, it was recommended that the DPG ensure capacity of the heritage program manager to implement the Plan. With the hiring of a new heritage program manager, and the modification to the DPGs organizational chart to include additional heritage positions, the DPG is in the process of implementing this recommendation.

Monitoring Item MON-HRT-02

Why the Plan Component(s) is monitored?

Tribal relations and Tribal consultation, on a staff-to-staff basis, is defined as a requirement within the National Historic Preservation Act of 1966, as amended (NHPA). The Tribal voice in the understanding of pre- contact era (prior to European contact) heritage resources; as well as it's continuity through time, and the maintenance of continued lifeways, is pivotal. The Tribal voice is also critical in understanding the areas of how pre-contact and proto-contact era (during initial European contact and influence) heritage sites' criteria of eligibility should be appropriately applied..

Section 106 of the NHPA, and its implementing regulations (36 CFR 800, inclusive), requires that all federal land management agencies consult with Tribes on both a staff-to-staff level, and a government-to-government level. The staff-to-staff level involves federal agencies heritage professionals working with Tribal staff, including THPOs, to identify and evaluate heritage resources, and assess potential project effects. The Government-to-Government Consultation, which occurs between a federal agency Authorized Official (Line Officer) and an official member of Tribal Government, is also intended to aid in the location, identification, determination of eligibility, assessment of project impacts, and protection of heritage properties This consultation, both Government-to-Government and Staff-to-Staff is to be initiated early in the planning process and is to occur often.

These monitoring questions, addressed in this Monitoring Report, are found in the DPG Land and Resource Management Plan (DPG-LRMP). The purpose of this question: "Are tribes being consulted on sites of religious and cultural significance?" is to determine if the standards, guidelines, and direction for heritage resources are being met:

1. Consult with designated representatives of federally recognized American Indian tribes during design of projects with potential to affect cultural rights and practices to help ensure protection, preservation, and use of areas that are culturally important to them.
2. Enhance and interpret significant heritage resources for the education and enjoyment of the public, while protecting the integrity of the resources. Guideline
3. Limit non-research-oriented ground-disturbing activities on heritage districts and resources eligible for the NRHP, which result in an adverse effect to the district or resource.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 2.b Objective 5. In partnership with American Indian tribes and/or others, educate and interpret, to increase public awareness, protect heritage resources, and further the goals of research.

Monitoring Question evaluating the above Plan Component(s)

Are tribes being consulted on sites of religious and cultural significance?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Tribal consultations (number of tribal consultation visits)	annual tribal relation reports	DPG SO Records	Office of Tribal Relations

Data and Evaluation History

MON-HRT-02	Year
Data last collected or compiled	FY21
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21

Plan Implementation Status Finding from previous BMER	(C) Uncertain - Methods inadequate to assess the status or progress toward achieving Plan Component(s).
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Monitoring Program: Utilize Government- to-Government Consultation tracking procedures and the existing NRM and INFRA systems to track and monitor the identification and protection of Traditional Cultural Properties and Sacred Sites.	C

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Due to staffing changes, the annual Tribal Relations Report was not produced, and the data required as part of the annual reporting process were not properly managed. Though several attempts were made to engage Tribal partners at a Government-to-Government level, the process failed in both the identification of sites of religious and cultural significance and the interpretation and, management, and protection of sites of religious and cultural significance.

Methods

The methods defined within the monitoring program were to document the consultation and report out in the Annual Tribal Relations Report.

Results

As the Government-to-Government consultation was not properly tracked as part of the Tribal Liaisons process, and the annual report was not completed, there is inadequate data to evaluate the Plan Component.

Discussion

While Staff-to-Staff Tribal Consultation between heritage staff their THPO counterparts as it relates to traditional cultural properties as part of the Section 106 process did occur consistently throughout the monitoring period, the tribal liaison was not able to engage with Tribes regarding the identification and evaluation of sites of religious and cultural significance. This is in part a result of staffing shortages and turnover, but also a result of inadequate use of existing tracking procedures aimed at documenting the Office of Tribal Liaison's facilitation of Government-to-Government consultation with Tribes.

Though there are procedures in place to track Government-to-Government Consultation with Tribes, without proper staffing, and proper use of the procedures, the current Supervisor's Office Records of Government-to-Government Tribal Consultation are inadequate.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 2.b Objective 5. In partnership with American Indian tribes and/or others, educate and interpret, to increase public awareness, protect heritage resources, and further the goals of research.

Monitoring Question evaluating the above Plan Component(s)

Are tribes being consulted on sites of religious and cultural significance?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(B) Uncertain - More time/data are needed to understand status or progress of the Plan Component(s)	Yes	Monitoring Program

[1] See Box 1

Findings Rationale: Due to the lack of appropriate information to assess the status of the Plan Component, more time is needed. Staffing changes, and failure by the tribal liaison to complete the Annual Tribal Consultation Report resulted in a lack of required data.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Monitoring Program: Continue to utilize the heritage programs process of Staff-to-Staff consultation to identify, evaluate and monitor Traditional Cultural Properties, and better utilize the Office Of Tribal Relations existing tracking as it relates to the identification, interpretation, and management of Sacred Sites.
RATIONALE FOR THE RECOMMENDATION
Ensure adequate collection of data, as proposed.

COMMUNITY RELATIONS

Monitoring Item MON-CMR-01

Why the Plan Component(s) is monitored?

Monitoring Item MON-CMR-01 was a revised question in accordance with the 2012 Planning Rule (36 CFR 219.12) (Dakota Prairie Grasslands Plan Monitoring Program 2016). The Monitoring Questions: Community Relations 1, 2, 3 from the 2002 LRMP were combined and modified to create Monitoring Item MON-CMR-01 to monitor and evaluate Goal 2.c. of the 2002 LRMP for the DPG.

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item
Goal 2.c Improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Monitoring Question evaluating the above Plan Component(s)
What multiple use services have been provided?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Federal payments; revenue sharing with state and local governments	2 year	Headwater Economics Tool	RO Economist

AUMs (number of)	Annual	Grazing Statistical Report	WO Range Data Steward
Oil and gas permits (number of)	Annual	McKenzie and Medora District Offices	Oil and Gas Resource Specialists
Special Use Permits (number of)	Annual	DPG SO Records, SUDS	Resource Assistant; GIS Coordinator; Lands Special Uses Assistant Program Manager
Person at One Time (PAOT) (number of)	Annual	DPG SO Records	GIS Coordinator; Recreation Specialists
Recreation/Visitor Use/Purpose of Use	5 year	National Visitor Use Monitoring (NVUM)	
Developed Recreation Sites Available	Annual	DPG SO Records	GIS Coordinator
Miles of non-motorized recreation trails available	Annual	DPG SO Records	GIS Coordinator
Interpretive sites available	Annual	DPG SO Records	GIS Coordinator

Data and Evaluation History

MON-CMR-01	**Year**
Data last collected or compiled	FY23
Next scheduled data collection/compilation	FY24
Last BMER evaluation for this monitoring item:	FY21
Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	**RECOMMENDATIONS FROM PREVIOUS BMERS**	**STATUS[1]**
FY21	None	N/A

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

Federal Payments and Revenue sharing with State & Local Governments

Federal Land Payments report from Headwaters Economics for Grasslands are broken into two broad categories:

1. Revenue Sharing (https://www.fs.usda.gov/detail/pts/securepayments/projectedpayments/?cid=fseprd575274): These are payments based on FS receipts (e.g., mineral and grazing receipts). Payments include the 25% Fund, Secure Rural Schools & Community Self-Determination Act, and Bankhead-Jones Farm Tenant Act. Data was compiled for 1994 to 2022 (Figure 46). Data was not available for 2014 and 2015.
2. Payments in Lieu of Taxes (PILT): These payments compensate county governments for nontaxable federal lands within their borders. PILT is based on a maximum per-acre payment reduced by the sum of all revenue sharing payments and subject to a population cap. Data used are PILT estimates for DPG Counties (ND-Billings, Golden Valley, Grant, McHenry, McKenzie, Ransom, Richland, Sioux, Slope; SD- Corson, Perkins, Ziebach). Estimates are used as the Department of Interior administers payments, using a formula with other payments made to counties such as revenue sharing (e.g. payments related to oil and gas receipts). NFS acreage within each county was used as a proxy for the percent of total PILT payments that can be attributed to NFS lands. Data was compiled for 1999 to 2021 (Figure 47).

Animal Unit Month (AUM)

Information on NFS Authorized AUMs was retrieved from the Forest Service annual Grazing Statistical Report (Rangelands Management Reports (usda.gov)). Data is collected and reported at the National level. Inquiries into District-level data was requested from the WO Range Data Steward.
The report is created by summarizing the grazing permits across a District and Unit. Data was compiled for 2010 to 2021 (Table 63). For years 2010, 2011, 2016, 2020, and 2021 there are data quality issues, as the District totals do not equal the listed total for the Unit in the annual Grazing Statistical Report. Data for 2014, 2017, and 2019 are off by one AUM between District totals and the Unit total, due to rounding differences.

Oil and Gas Permits

The number of oil and gas permits issued are maintained by the DPG minerals staff. Approved oil and gas permit issued were obtained from year 2006 to 2022 (Table 64).

Special Use Permits (SUPs)

Special Use Permits (SUPs) for 2010 to 2022 were collected from the Special Uses Data System (SUDS) for the Dakota Prairie Grasslands (Table 65).

Recreation/Visitor Use/Purpose of Use

Data for recreation, visitor use, and purpose of use was obtained by National Visitor Use Monitoring Program for years 2008, 2013, and 2018 for the Dakota Prairie Grasslands (National Visitor Use Monitoring Program | US Forest Service (usda.gov)) (See Monitoring Item MON-REC-02).

Person at One Time (PAOT)

Recreation data was obtained from GIS data at the SO. PAOT (Persons at One Time) is a measure of people capacity for which a particular outdoor recreation feature is designed and built. Capacity limits per recreation site on the Dakota Prairie Grasslands are noted in Table 66.

Developed Recreation Sites, Interpretive Sites, Miles of Non-motorized Trail Miles

Recreation data was obtained from GIS data at the SO. Developed recreation sites, miles of non-motorized trail miles, and interpretive sites are listed in Table 67 for the Dakota Prairie Grasslands

Results

Federal Payments and Revenue sharing with State & Local Governments

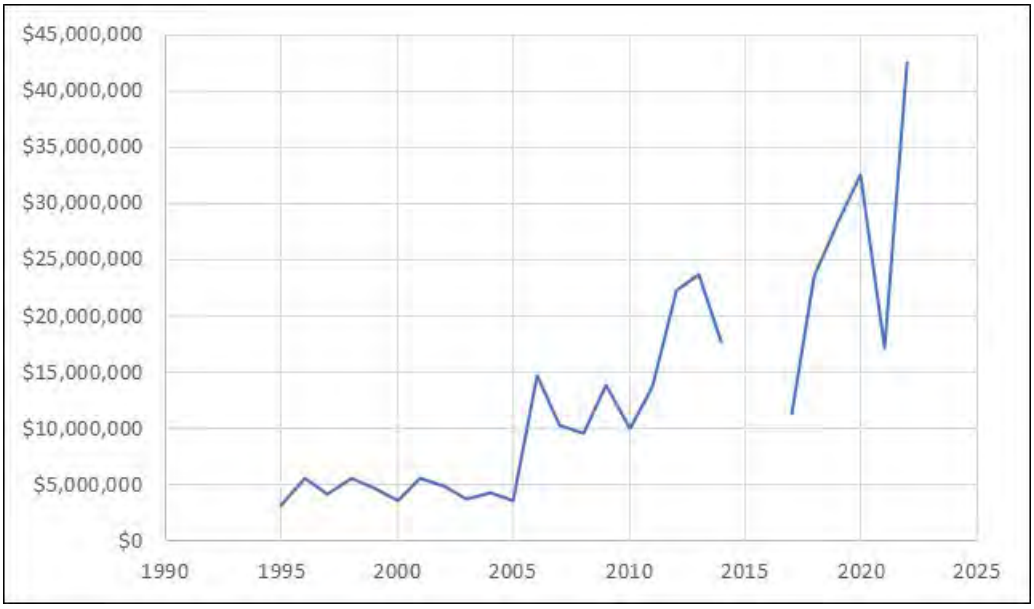


Figure 46. National Grasslands County Revenue Sharing, North Dakota and South Dakota

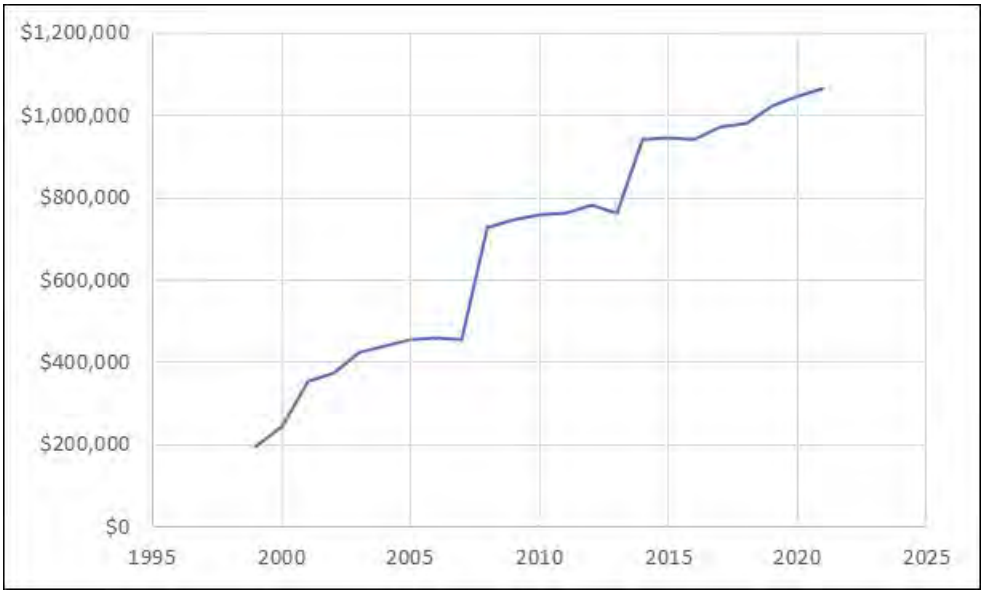


Figure 47. DPG Total Estimated PILT per Year

Animal Unit Month (AUM)

Table 63. Total Authorized Animal Unit Months on DPG Districts (Grazing Statistical Report)

Year	Grand	McKenzie	Medora	Sheyenne	DPG	∆ from DPG in *Grazing Statistical Report*
2010	75,425	224,120	229,822	72,063	601,430	+9,600
2011	78,285	198,943	232,381	70,911	580,520	+13,091
2012	79,048	193,352	232,639	72,559	577,598	0
2013	77,644	217,463	221,167	70,767	587,041	0
2014	80,162	229,736	290,054	72,048	672,000*	+1
2015	80,641	228,360	298,214	71,945	679,160	0

Year	Grand	McKenzie	Medora	Sheyenne	DPG	∆ from DPG in *Grazing Statistical Report*
2016	81,617	231,000	220,292	72,921	605,830	-10,145
2017	79,401	229,680	228,213	73,343	610,637*	-1
2018	71,827	215,301	224,540	69,914	581,582	0
2019	78,993	221,760	231,187	73,364	605,304*	-1
2020	82,478	223,080	228,752	73,429	607,739	+38
2021	76,907	211,187	201,750	74,987	564,831	-743

Oil and Gas Permits

Table 64. Approved Oil and Gas Permits on DPG Districts

Year (FY)	McKenzie District	Medora District	DPG Total
2006	14	25	39
2007	13	27	40
2008	12	6	18
2009	11	6	17
2010	19	10	29
2011	27	13	40
2012	13	15	28
2013	5	13	18
2014	23	11	34
2015	0	0	0
2016	19	8	27
2017	27	5	32
2018	65	10	75
2019	57	3	60
2020	21	0	21
2021	51	13	64
2022	23	0	23

Special Use Permits (SUPs)

Table 65. Special Use Permits Issued on the DPG

Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Unknown	7													7
Outfitting and Guiding Service	10	8	9	9	8	8	7	7	7	5	4	5	7	92
Recreation Event		5	7	10	19	20	21	22	21	17	15	20	16	193
Vendor											1			1
Non-commercial Group Use		4	4	4	4	4	4	4	2	1				31
Cultivation	4	4	5	4	5	5	3	3	1		3	4	5	46
Apiary	1	1	2	1	2	2	2	3	2	2	3	2	3	26
Fence	8	8	8	8	8	1	1	1	2	1	1	1	1	49
Agriculture Residence	1													1
Building	1	1	1	1	1	1								6
Corral, Pen & Livestock Area	1													1
Multi-season Traditional/Cultural Use	3													3

Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Cemetery	1	1	1											3
School	1	1	1	1	1	1	1	1	1					9
Research Study	7	7	6	6	9	7	5	5	3	2	3	2	2	64
Weather Station											1	1	1	3
Nondisturbing Use	16	13	23	23	24	28	24	22	23	20	18	18	20	272
Disturbing Use, 1979 Act					1	2	2	3	4	3	3	5	2	25
Warehouse & Storage Yard	2				1	1								4
Commercial Still Photography						2	2	1	1					6
Motion Picture and TV Location	1						2	1		1	1	1	2	9
Geological and Geophysical Exploration			1	2	2	2	2							9
Occupancy Permit, Reserved Mineral Right	9	7	8	5	5	6	6	5	6	5	6	5	5	78
Oil and Gas Pipeline	96	108	132	138	143	142	68	56	61	77	64	70	77	1,232
Oil and Gas Pipeline Related Facility	39	35	34	31	32	33	32	26	29	33	31	34	35	424
Oil and Gas Production & Storage Area		1	1	1	1	1	1	1	1	1	1	2	4	16
Powerline, REA Financed	29	26	26	26	30	29	30	31	35	25	19	21	19	346
Other Utility Improvement, REA Financed					1	1	1	1	1	1	1	1	1	9
Powerline	6	5	5	6	6	6	6	7	6	8	7	6	6	80
DOT Easement	59	61	61	61	61	60	60	62	63	64	64	64	64	804
Forest Road and Trail Act Easement	249	257	258	264	266	268	275	275	275	274	274	274	274	3,483
Federal Land Policy & Mgmt Act Permit	104	98	89	87	101	87	89	75	66	64	62	63	61	1,046
Microwave-Common Carrier	1	1	1	1	1	1	1	1	2	1	1	1	1	14
Microwave-Industrial	1	1	1	1	1	1	1	1	2	1	1	1	1	14
Private Mobile Radio Service	2	1	1	1	1	1	1	1	1	1	1	1	1	14
Telephone and Telegraph Line	4	5	4	4	4	4	4	4	7	7	4	4	5	60
Telephone Line, REA Financed	11	11	11	11	11	13	12	12	11	9	8	9	7	136
Fiber Optical Cable	2	2	3	3	3	3	3	3	4	4	3	3	5	41
Irrigation Water Ditch	1	1	1	1	1	1								6
Irrigation Water Trans Pipeline >= 12” D	1	1	1	1	1	1	1	1	2	1	3	3	3	20
Water Trans Pipeline >= 12” D						1	1	1	1	4	4	5	4	21
Water Trans Pipeline < 12” D	9	9	7	7	7	7	7	8	12	10	10	12	10	115
Well, Spring or Windmill	1	1	1	1	1	1	1	1	1	1	1	1	1	13
Water Quality Monitoring Station	1	1	1	1	1	1	1	1	2	1	1	1	1	14
Total	689	685	714	720	763	752	677	646	655	644	619	640	644	8,848

Recreation/Visitor Use/Purpose of Use

See Monitoring Item MON-REC-02

Developed Recreation Sites, Interpretive Sites, and Person at One Time (PAOT)

Table 66. Person at One Time (PAOT) by Site Type at each District

District	Site Name	Site Type	Person at One Time	Total
Sheyenne	Hankinson Hills Campground	Recreation	133	203
Sheyenne	Jorgens Hollow Campground	Recreation	70	
Medora	Buffalo Gap Campground	Recreation	230	648
Medora	Burning Coal Vein Campground	Recreation	52	
Medora	Coal Creek Campground	Recreation	50	
Medora	Elkhorn Campground	Recreation	64	
Medora	Magpie Campground	Recreation	47	
Medora	Wannagan Campground	Recreation	64	
Medora	Whitetail Picnic Area	Recreation	42	
Medora	Battle of the Badlands	Interpretive	32	
Medora	Custer Camp Site	Interpretive	NA	
Medora	Custer Military Camp Site	Interpretive	NA	
Medora	Custer Snow Camp	Interpretive	NA	
Medora	Easy Hill	Interpretive	32	
Medora	Initial Rock	Interpretive	35	
Medora	Ice Caves	Interpretive	NA	
McKenzie	Bennett Campground	Recreation	75	637
McKenzie	CCC Campground	Recreation	189	
McKenzie	Sather Lake Campground	Recreation	300	
McKenzie	Summit Campground	Recreation	36	
McKenzie	Homer's Camp	Recreation	5	
McKenzie	Birnt Hills	Interpretive	32	
Grand River	Blacktail Picnic Area	Recreation	35	35

Miles of Non-motorized Trail Miles

Table 67. Miles of Non-motorized Trail Miles on the Dakota Prairie Grasslands by District

District	Non-motorized Trail Name	Non-motorized Trail Miles
Sheyenne	North Country National	29.87
Sheyenne	Scenic	8.14
Sheyenne	Hankinson Hills	2.29
Sheyenne	Oak Leaf	0.10
Sheyenne	Arboretum Loop Skyline	0.11
Sheyenne	Denbigh	3.18
Sheyenne	Middle Trailhead Spur	0.05
Sheyenne	Sheyenne River Water Trail	17.00
Sheyenne	**Total**	**60.74**
Medora	Coal Creek Access	0.01
Medora	Buffalo Gap Loop Spud	0.13
Medora	Bully Pulpit	0.15
Medora	Battle of the Badlands	0.19
Medora	Easy Hill Overlook	0.25
Medora	Bear Creek	0.17
Medora	Survey Monument	0.13

Medora	Coal Creek	0.69
Medora	Buffalo Gap Loop	1.34
Medora	Buffalo Gap Spur	1.27
Medora	Aspen	0.32
Medora	Magpie	0.33
Medora	Buffalo Gap	18.91
Medora	Elkhorn	0.06
Medora	Plumley Draw Spur	0.01
Medora	Maah Daah Hey	144.31
Medora	Wannagan	0.18
Medora	Ice Caves	1.52
Medora	Buffalo Gap Viewpoint	0.10
Medora	Juniper Spur	0.10
Medora	Coal Creek Spur	0.14
Medora	**Total**	**170.31**
McKenzie	Sather Spur	0.04
McKenzie	Summit Viewpoint	0.22
McKenzie	Homer's Camp	0.07
McKenzie	Sather Lake	0.20
McKenzie	Long X	5.81
McKenzie	Birnt Hills Overlook	0.34
McKenzie	Birnt Hills Loop	3.04
McKenzie	Wolf	8.76
McKenzie	Cottonwood	6.93
McKenzie	Bennett	3.06
McKenzie	Summit	0.12
McKenzie	CCC	0.26
McKenzie	Sunset	0.34
McKenzie	**Total**	**29.19**
Grand River	Blacktail	6.84
Grand River	**Total**	**6.84**

Discussion

Historical data and trends can be interpreted for the following: federal payments and revenue sharing with state and local government, animal unit month, oil and gas permits, special use permits, and recreation/visitor use/purpose of use. The previous 2021 BMER effort made data available for the first time for developed recreation sites, interpretive sites, miles of non-motorized trail miles and person at one time therefore this report will be considered baseline data for these monitoring elements.

Federal Payments and Revenue sharing with State & Local Governments

National Grasslands County revenue sharing in for the DPG has increased from approximately $3 million in 1995 to $42.5 million in 2022 (Figure 46). PILT payments from the DPG have increased from approximately $200,000 in 1999 to $1,066,000 in 2021 as depicted in Figure 47.

Animal Unit Month (AUM)

AUMs have fluctuated minimally from 2010 to 2021 for all Districts and for the total for the DPG (Table 63). Grand River District had a low of 71,827 AUMs in 2018 and a high of 82,478 AUMs in 2020. The McKenzie District had a low of 193,352 AUMs in 2012 and a high of 231,000 in 2016. The Medora District had a low of 201,750 AUMs in 2021 and a high of 298,214 AUMs in 2015. The Sheyenne District had a low of 69,914 AUMs in 2018 and a high of 74,987 AUMs in 2021. Totals for the DPG have fluctuated from a low of 564,831 AUMs in 2021 and a high of 679,160 AUMs in 2015.

Oil and Gas Permits

Oil and gas permit numbers issued in total from McKenzie and Medora Districts have fluctuated from 0 to a high of 75 from 2006 to 2022 (Table 64). Both McKenzie and Medora Districts issued 0 permits in 2015, and additionally Medora District issued 0 permits in 2020 and 2022. McKenzie issued a high of 65 permits in 2018 and Medora District issued a high of 27 permits in 2007.

Special Use Permits (SUPs)

A variety of Special Use Permits (SUPs) have been issued on the DPG from 2010 to 2022 (Table 65). The most SUPs have been issued in Forest Road and Trail Act Easement and Oil and Gas Pipeline categories. A total of 3,483 SUPs have been issued in Forest Road and Trail Act Easement category with a generally upward trend from 249 SUPs issued in 2010 to 274 SUPs in 2022. A total of 1,232 SUPs have been issued in Oil and Gas Pipeline category with a general positive trend from 2010 to a peak of 143 SUPs issued in 2014 and a downward trend to 77 SUPs in 2022.

Recreation/Visitor Use/Purpose of Use

The estimated annual visitation has increased across the DPG from 2013 to 2018 in four out of five visit types. Based on visitor use logs, the DPG saw a 200% increase in recreation use throughout the summer months in 2020. Trail use was higher than average, and visitor calls were more frequent with questions around recreation opportunities. See MON-REC-02.

Developed Recreation Sites, Interpretive Sites, and Person at One Time (PAOT)

The Districts on the DPG offer a variety of campground sites and interpretive sites (Table 66). Medora District has the most interpretive sites, and recreation sites, on the DPG with 7 sites in each category and a total capacity of 648. The McKenzie District has 5 recreation sites and one interpretive site with total capacity of 648. The Sheyenne District has 2 recreation sites with a total capacity of 203 and no interpretive sites. The Grand River District has one recreation site with a capacity of 35 and no interpretive sites.

Miles of Non-motorized Trail Miles

Miles of non-motorized trail miles by District are included in Table 67. The Medora District has the most miles of non-motorized trails with a total of 170.31 miles in 20 different trails. The Sheyenne District has a total of 8 non-motorized trails with a total of 60.74 miles. The McKenzie District has 12 non-motorized trails with 29.19 total miles. The Grand River District has one non-motorized trail with 6.84 miles.

Historical data was not available for developed recreation sites, interpretive sites, miles of non-motorized trail miles and person at one time therefore this report will be considered baseline data for these monitoring elements.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 2.c Improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Monitoring Question evaluating the above Plan Component(s)

What multiple use services have bene provided?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	**IS CHANGE WARRANTED?** *Based on the evaluation of monitoring results, may changes be warranted?*	**ADAPTIVE MANAGEMENT** *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	No	NA

[1] See Box 1

Findings Rationale: The DPG has contributed to the capability of the grasslands to provide a desired sustainable level of uses, values, products, and services as described in the Federal Payments and Revenue sharing with State & Local Governments, AUMs, Oil and Gas Permits, SUPs, and Recreation (campgrounds, interpretive sites, and non-motorized trails).

Monitoring Item MON-CMR-02

Why the Plan Component(s) is monitored?

On the Dakota Prairie Grasslands (DPG), black-tailed prairie dogs are the most frequently cited species regarding animal damage. Black-tailed prairie dogs occurs on both McKenzie and Medora districts of the Little Missouri National Grassland (LMNG) and on the Grand River National Grassland (GRNG).

For prairie dog control, the "good neighbor" policy is accomplished with the directive given in 2004 by the U.S. Department of Agriculture Deputy Under Secretary. The Under Secretary directed DPG to work with state and county officials, and local landowners to reduce the potential for prairie dog colonies to expand onto adjacent non-federal lands. The policy is further defined in the 2002 DPG Land and Resource Management Plan (LRMP) Record of Decision (ROD).

Plan Component(s) and Monitoring Question

Plan Component(s) evaluated by this monitoring item

Goal 4.b Objective 2. Work in cooperation with federal, state, and county agencies, individuals, and nongovernment organizations for control of noxious weeds, invasive species, and animal damage.

Monitoring Question evaluating the above Plan Component(s)

To what extent is cooperation with external interested parties occurring for control of animal damage?

Monitoring Questions Indicators	Data collection interval	Data Source / Partner	Point of Contact
Damage control (acreage of prairie dog towns controlled) – MON-WLD-01A, -01B	Annual	DPG District/SO Records	DPG Range Staff/Biology Program Manager
Damage control (number and locations of damage control, by species)	Annual	DPG District/SO Records	DPG Range Staff/Biology Program Manager

Data and Evaluation History

MON-CMR-02	Year
Data last collected or compiled	FY22
Next scheduled data collection/compilation	FY23
Last BMER evaluation for this monitoring item:	FY21

Plan Implementation Status Finding from previous BMER	(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired
Next scheduled BMER evaluation of this monitoring item:	FY25

Recommendation Status from Previous BMER

Previous BMER Year	RECOMMENDATIONS FROM PREVIOUS BMERS	STATUS[1]
FY21	Management Action: There is a need to update the NEPA for GRNG prairie dog control	B

[1] **IMPEMENTATION STATUS OF RECOMMENDATIONS**: (A) Decision to NOT Implement the Recommendation (B) Status Unknown or Determination to Implement the Recommendation Has Not Occurred; (C) Decision Made to Implement the Recommendation and implementation is in Progress or on Standby; (D) Recommendation Completed (FYXX)

Methods

Please see "MON-WLD-01B – "What management actions and naturally occurring events have influenced change to black-tailed prairie dog status and/or its habitat?" for prairie dog control methods. Prairie dog control is currently done through cooperation with the grazing associations. On GRNG, the State of South Dakota does prairie dog control in some cases on neighboring, non-USFS lands.

Results

Please see "MON-WLD-01B" for prairie dog control results.

Discussion

The DPG completed the LMNG Prairie Dog Management Project Environmental Assessment (EA) in 2018. This decision has led to recent prairie dog control on LMNG. Prairie Dog control is authorized through Vegetation Management Plan EAs on the GRNG. On the GRNG, Prairie Dog control is done with funds through agreements with the Grazing Associations. There is a need to update the NEPA for GRNG prairie dog control.

Findings

Plan Implementation Status

Based on the above results of this monitoring question, one implementation status finding (See Box 1) was assessed for the following Plan Components as a whole.

Plan Component(s) evaluated by this monitoring item

Goal 4.b Objective 2. Work in cooperation with federal, state, and county agencies, individuals, and nongovernment organizations for control of noxious weeds, invasive species, and animal damage.

Monitoring Question evaluating the above Plan Component(s)

To what extent is cooperation with external interested parties occurring for control of animal damage?

Findings for the above Plan Components.

PLAN IMPLEMENTATION STATUS [1] Do monitoring results demonstrate intended progress (i.e. maintaining, trending, or advancing) **of the above component(s)**?	IS CHANGE WARRANTED? *Based on the evaluation of monitoring results, may changes be warranted?*	ADAPTIVE MANAGEMENT *If a change may be warranted, where may the change be needed?*
(E) Yes - Implementation of Plan Component(s) ARE trending, progressing, and/or conducted as desired	Yes	Management Activities

[1] See Box 1

Findings Rationale: The Dakota Prairie Grasslands continues to work with partners on prairie dog management, as well as any other animal damage issues as they arise.

Recommendations

SPECIFIC RECOMMENDATIONS Based on these results, the following are recommended:
Management Action: There is a need to update the NEPA for GRNG prairie dog control
RATIONALE FOR THE RECOMMENDATION
To have a stand-alone NEPA analysis specific to prairie dog control and to be consistent with the Little Missouri Grasslands.

Additional Information

Additional information is available at the following links:

- Monitoring program: [Dakota Prairie Grassland - Resource Management (usda.gov)]

Acronyms

Table 68. Commonly Used Acronyms

Acronym	Definition
BMER	Biennial Monitoring Evaluation Report
BMP	Best Management Practices
CWA	The Clean Water Act (CWA) is the primary federal law in the United States governing water pollution. Its objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters; recognizing the responsibilities of the states in addressing pollution and providing assistance to states to do so, including funding for publicly owned treatment works for the improvement of wastewater treatment; and maintaining the integrity of wetlands.
DPG	Dakota Prairie Grasslands
EPA	Environmental Protection Agency
FACTS	The Forest Service's Natural Resource Manager (NRM) Forest Activity Tracking System (FACTS) is the agency standard for managing information about activities related to fire/fuels, silviculture, and invasive species. FACTS is an activity tracking application for all levels of the Forest Service.
FS	Forest Service
FY	Fiscal Year (01-October to 30-September)
GIS	A Geographic Information System (GIS) is a conceptualized framework that provides the ability to capture and analyze spatial and geographic data. GIS applications (or GIS apps) are computer-based tools that allow the user to create interactive queries (user-created searches), store and edit spatial and non-spatial data, analyze spatial information output, and visually share the results of these operations by presenting them as maps.
HUC	Hydrologic unit code (HUC) The numerical identifier of a specific hydrologic unit or drainage area consisting of a two-digit sequence for each specific level within the delineation hierarchy.
IDT	Interdisciplinary Team

INFRA	Infrastructure application
LiDAR	Light Detection and Ranging. LiDAR is a method for determining ranges (variable distance) by targeting an object with a laser and measuring the time for the reflected light to return to the receiver. LiDAR can also be used to make digital 3-D representations of areas on the earth's surface and ocean bottom, due to differences in laser return times, and by varying laser wavelengths. It has terrestrial, airborne, and mobile applications
LMNG	Little Missouri National Grassland
NAIP	The National Agriculture Imagery Program (NAIP) acquires aerial imagery during the agricultural growing seasons in the continental U.S. A primary goal of the NAIP program is to make digital ortho photography available to governmental agencies and the public within a year of acquisition.
NA	Not Applicable
NHD	The National Hydrography Dataset (NHD) is a digital database of surface water features used to make maps. It contains features such as lakes, ponds, streams, rivers, canals, dams, and stream gages for the United States. Cartographers can link to or download the NHD to use in their computer mapping software. The NHD is used to represent surface water on maps and is also used to perform geospatial analysis. It is a digital vector geospatial dataset designed for use in geographic information systems (GIS) to analyze the flow of water throughout the nation. The dataset represents over 7.5-million miles of streams/rivers and 6.5-million lake/ponds.
NRM	Natural Resource Manager (NRM) is responsible for developing, maintaining, and enhancing over 40 programmatic software applications in support of the Forest Service mission. These applications are used by more than 9,000 Forest Service employees, and are designed to comply with laws, regulations, and policy.
PFC	The abbreviation PFC describes both the assessment method and a defined, on-the-ground condition of a riparian area. The on-the-ground condition termed PFC refers to how well physical processes are functioning. A system in PFC has a high likelihood of withstanding a moderately high flow event (such as the 5-, 10- or 25-year flow). If impairment does occur with higher magnitude events, a system in PFC can recover more quickly. The PFC assessment method refers to a consistent approach for considering hydrologic, vegetative, and geomorphic attributes and processes to assess the condition of riparian areas at a point in time. Information pertaining to 17 attributes and processes of a riparian system is foundational to determining its physical function and is synthesized on an assessment form.
RCPP	Regional Conservation Partnership Program
RVI	Ratio Vegetation Index
SD DENR	South Dakota Department of Environment & Natural Resources
SNG	Sheyenne National Grassland
USGS	United States Geological Survey
WCATT	The Watershed Classification Assessment Tracking Tool (WCATT) is a national web-based map application used to classify and track watershed condition classes using a core set of aquatic and terrestrial, physical and biological indicators and attributes.
WCC	Watershed condition classification (WCC) is the process of describing watershed condition in terms of discrete categories (or classes) that reflect the level of watershed health or integrity. In the context of this framework, watershed health and integrity are conceptually the same: watersheds with high integrity are in an unimpaired condition in which ecosystems show little or no influence from human actions.
WIT	Watershed Improvement Tracking (WIT) manages data, observations, and planning details about activities to improve watershed and aquatic ecosystem health and function. It is a restoration activity tracker for wildlife, watershed, fisheries, and soil program areas. The location of each restoration activity must be mapped in WIT.

	The mapping and reporting products deliver valuable improvement information to project leaders, program managers, and public relations staff.
WRAP	Watershed Restoration Action Plans (WRAP) are programmatic documents in which the Forest Service describes existing resource conditions and identifies possible management actions that could be taken to move the Agency towards a desired future condition.

Appendix A. Soils Data

Acres in Tables below were used to calculate total Range infrastructure improvement.

Table. Rangeland Infrastructure Improvement 2018

Management	Treatment Name	Acres
Electric Fence & Compress Rotate	9 RVI Weeds, Temp Fence, Rot. Change	11,938
Electric Fence & Compress Rotate	7 RVI Temp Fence, Rot. Change	5,491
Electric Fence - Imp. Distribution	429 RVI Temp Fence	393
New Pipeline System	182 RVI Pipeline System 2019	1,132
New Pipeline System & Rotation	074 RVI Pipeline system	1,248
New Pipeline System & Rotation	198 RVI Pipeline system	1,714
New X-Fence & Pipeline System	063 RVI Cross fence & range water pipeline system	630
Realigned Fence - Imp. Distribution	493 RVI Fence Mod	189
Temp Stock Tank - Imp Distribution	333 RVI Temp Tank	1,072
Temp Stock Tank - Imp Distribution	470 RVI Temp Tank	224
	2018 Total	**24,031**

Table. Rangeland Infrastructure Improvement 2019

Management	Treatment Name	Acres
Fence Install	130 RVI Fence Install	674
P 3&5Cross Fence	393 RVI Cross Fence and Rotation	763
P 3&5 added stock tank	393 RVI Pipeline system	434
P 3&5 Cross Fence 3 past rot	387 RVI Cross Fence and Rotation	1,984
P 3&5 Rip/agcr x fence & tanks	361 RVI Cross Fence, Pipeline System & NX Weed	5,832
Past 3&5 added stock tank	359 RVI Pipeline system	428
Pipeline & Tank	136 RVI RCPP Pipeline & Tank	150
Pipeline & Tank	128 RVI RCPP Pipeline & Tank	1,426
Pipeline & Tank	126 RVI RCPP Pipeline & Tank	386
Pipeline & Tank	248 RVI RCPP Pipeline & Tank	612
Pipeline & Tanks	288 RVI RCPP Pipeline & Tanks	1,779
Pipeline & Tanks	256 RVI RCPP Pipeline & Tank	3,706
Pipeline & Tanks	054 RVI RCPP Pipeline & Tank	610
Solar Pump Pipeline & Tanks	325 RVI Red Hills Pipeline	1,361
Temp Electric Fence	450 RVI Temp Fence	437
Temp Electric Fence	5C RVI Temp Electric Fence	234
Temp Electric Fence and Rested	9 RVI Temp Electric Fence and Rested Acres	11,938
Temp. Electric Fence	7 RVI Temp Fence, Rot. Change	5,475
	2019 Total	**38,229**

Table. Rangeland Infrastructure Improvement 2020

Management	Treatment Name	Acres
Boundary Fence	287 RVI CP Boundary Fence 2020	376
Boundary Fence	288 RVI CP Boundary Fence 2020	1,783
Cross Fence	248 RVI RCPP Cross Fences 2020	612
Cross Fence and Rotation Change	391 RVI Cross Fence and Rotation 2020	4,616
Cross Fence and Rotation Change	397 RVI Cross Fence and Rotation 2021	353
Cross Fence and Rotation Change	398 RVI Cross Fence and Rotation 2020	315
Cross Fence and Rotation Change	462 RVI Cross Fence and Rotation 2020	637
Electric Fence	395 RVI Electric Fence 2020	790
Electric Fence	512 RVI Electric Fence 2020	5,747
New Pipeline and Tanks	005 RVI CP New Pipeline System 2020	462
New Pipeline and Tanks	019 RVI CP New Pipeline System 2020	796
New Pipeline and Tanks	064 RVI CP New Pipeline System 2020	839
New Pipeline and Tanks	206 RVI CP New Pipeline System 2020	606
New Pipeline and Tanks	256 RVI RCPP New Pipeline System 2020	1,960
New Pipeline and Tanks	270 RVI Member New Pipeline System 2020	1,103
New Pipeline and Tanks	359 RVI Pipeline System 2020	369
New Pipeline and Tanks	383 RVI Pipeline System 2020	834
New Pipeline and Tanks	516 RVI Pipeline System 2020	575
New Pipeline System	374 RVI Pipeline System 2021	277
New Pipeline System	397 RVI Pipeline System 2021	274
New Pipeline System	399 RVI Pipeline System 2021	591
New Stock Tank	501 RVI New Stock Tank 2020	386
Pipeline Replacement	399 RVI Pipeline Replacement 2021	293
Stock Tank Relocated	400 RVI Stock Tank Relocation 2020	465
Temp Electric Fence	7 RVI Temp Fence, Rot. Change 2020	5,475
Temp Electric Fence and Rested	9 RVI Temp Electric Fence and Rested Acres 2020	11,938
Temp Electric Fence and Rotation	496 RVI Temporary Electric Fence and Rotation 2020	460
	2020 Total	**42,929**

Table. Rangeland Infrastructure Improvement 2021

Management	Treatment Name	Acres
Cross Fence	North Durler RVI 2021	608
Cross Fence and Rotation Change	391 RVI Cross Fence and Rotation 2021	5,155
Cross Fence and Rotation Change	495 RVI Cross Fence and Rotation 2021	810
Cross Fence Relocation	365 RVI Cross Fence Relocation 2021	624
Dam Reconstruction	333 RVI Dam Reconstruction 2021	842
New Pipeline System	404 RVI Pipeline System 2021	437
New Stock Tank	365 RVI New Stock Tank 2021	257
Pipeline and Tanks	097 RVI Pipeline System 2021	315
Pipeline and Tanks	266 RVI Pipeline System 2021	1,091
Pipeline and Tanks	289 RVI RCPP Pipeline System 2021	2,746
Stocking Rate and Rotate Change	448 RVI Stocking Rate/Rotation Adjustment 2021	2,122
Stocking Rate and Rotate Change	450 RVI Stocking Rate/Rotation Adjustment 2021	588

Management	Treatment Name	Acres
SW Water Tap, Pipeline and Tanks	170RT RVI Pipeline System 2021	567
Temp Electric Fence	9 RVI Temp Electric Fence Compressed Grazing 2021	11,938
Temp Pipeline System	437 RVI Temporary Pipeline System 2021	354
Well, Pipeline and Tanks	129 RVI RCPP New Well & Pipeline System 2021	1,559
Well, Pipeline and Tanks	300 RVI RCPP New Well & Pipeline System 2021	1,305
Boundary Fence	287 RVI CP Boundary Fence 2020	376
Boundary Fence	288 RVI CP Boundary Fence 2020	1,783
Cross Fence	248 RVI RCPP Cross Fences 2020	612
Cross Fence and Rotation Change	391 RVI Cross Fence and Rotation 2020	4,616
	2021 Total	**31,318**

Table. Number and Acres of Rangeland Improvements 2018-2020 (WIT). From 2021 BMER

Year	Range Improvement Activity	Acres of Improvement
2018	Invasive Species Management	4,666
	Prescribed Fire	1,922
	2018 Total	**6,588**
2019	Invasive Species Management	6,641
	Native Plant Restoration	252
	Other Fuel Treatment	3,420
	Prescribed Fire	3,094
	Thinning-Pre-commercial	31
	2019 Total	**13,438**
2020	Fuel Treatment-Chip-Crush	2,498
	Invasive Species Management	7,406
	2020 Total	**9,903**
	2018 – 2020 Total	**29,929**

Table. Number and Acres of Rangeland Improvements 2018-2020 (FACTS). From 2021 BMER

Year	Range Improvement Activity	Acres of Improvement
2018	Broadcast Burning - Covers a majority of the unit	1,922
	Invasive - Biocontrol, Classic	157
	Invasive - Biocontrol, Livestock	17,516
	Invasive - Pesticide Application	6,416
	Pollinator habitat improved, restored, or maintained	58
	Range Control Vegetation	15,781
	Range Cover Manipulation	52,453
	Re-vegetation treatments – herbicides	44
	Thinning for Hazardous Fuels Reduction	52
	2018 Total	**103,576**
2019	Broadcast Burning - Covers a majority of the unit	2,945
	Grazing and Range Mgt. for Hazardous Fuels Reduction	1,636
	Invasive - Biocontrol, Classic	2
	Invasive - Biocontrol, Livestock	21,349
	Invasive - Pesticide Application	8,225
	Pollinator habitat improved, restored, or maintained	7
	Range Control Vegetation	24,118
	Range Cover Manipulation	31,625
	Re-vegetation treatments – herbicides	109
	Thinning for Hazardous Fuels Reduction	31
	2019 Total	**93,237**
2020	Grazing and Range Mgt. for Hazardous Fuels Reduction	2,684
	Invasive - Biocontrol, Livestock	22,944
	Invasive - Pesticide Application	7,914
	Range Control Vegetation	15,104

Year	Range Improvement Activity	Acres of Improvement
	Range Cover Manipulation	33,108
	Rearrangement of Fuels	34
	Thinning for Hazardous Fuels Reduction	107
	2020 Total	**93,237**
	2018 – 2020 Total	**306,499**

Table. Comparison of Reported Acres WIT vs. FACTS 2018 – 2020. From 2021 BMER

Activity Year	WIT Acres Reported	FACTS Acres Reported
2018	6,588	103,576
2019	13,438	109,686
2020	9,903	93,237
Total	**29,929**	**306,499**

Table. Acres of Rangeland Improvement 2018 – 2022

Management	2018	2019	2020	2021	2022
Broadcast Burning - Covers a majority of the unit	1,922	2,945			816
Chipping of Fuels					1,546
Compacting/Crushing of Fuels				255	790
Grazing and Range Mgt. for Hazardous Fuels Reduction		1,636	2,684	2,885	1,771
Invasives - Biocontrol, Classic	157	2		63	13
Invasives - Biocontrol, Livestock	17,516	21,349	22,944	5,439	6,579
Invasives - Pesticide Application	6,419	8,230	8,447	9,298	9,042
Pollinator habitat improved, restored or maintained	58	7			
Range Control Vegetation	15,781	24,118	15,104	11,991	2,366
Range Cover Manipulation	52,453	31,625	33,108	26,092	16,056
Range Fertilization		917		281	
Rearrangement of Fuels			34		
Re-vegetation treatments - herbicides	44	109			
Seeding grasses, forbs and/or shrubs		44			
Thinning for Hazardous Fuels Reduction	52	31	107	36	26
Grand Total	94,403	91,012	82,428	56,340	39,004

Table. Pad Acres extracted from Oil and Gas Pads Layer (from 2021 BMER)

Rehab Type	Pad Acres
Elkhorn Production Rehab	11.70
Elkhorn Total Rehab	57.58
Production Rehab	799.58
Total Rehab	**2,492.20**

Appendix B. Archived Monitoring Items

Methods

MON-WLD-01B – What is the current Black-tailed Prairie Dog occupancy?

See MON-WLD-01A - What is current population status of the black-tailed prairie dog?- Prairie Dog Locations and Active Colonies.

Results

MON-WLD-01B – What is the current Black-tailed Prairie Dog occupancy?

See acres reported in MON-WLD-01A - What is the current population status of black-tailed prairie dog (BTPD)(*Cynomys ludovicianus*)?.

Discussion

MON-WLD-01B – What is the current Black-tailed Prairie Dog occupancy?

This monitoring question and the indicator (acres of occupied prairie dog colonies) is redundant with MON-WLD-01A; therefore, the two questions should be merged as discussed in MON-WLD-01A.

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