Thunder Basin National Grassland

2011 Monitoring and Evaluation Report

October 1, 2010 through September 30, 2011

United States Forest Service
Rocky Mountain Region

September 22, 2012

Table of Contents

Cover Photo: Windmill at Sunrise on the Spring Creek Unit.

Forest Certification

The Thunder Basin National Grassland Land and Resource Management Plan (Grassland Plan) was approved on July 31, 2002. The Grassland Plan is a dynamic document, subject to change based on annual monitoring and evaluation. Monitoring is intended to provide the information necessary to determine whether the Grassland Plan is sufficient to guide management of the Thunder Basin National Grassland for the subsequent year or whether modification of the plan or modifications of management actions are necessary.

Overall, the 2011 Monitoring and Evaluation results indicate that the management of the Thunder Basin National Grassland is meeting the goals, objectives, standards and guidelines, and management area prescriptions in the Grassland Plan. I have reviewed the 2011 Annual Monitoring and Evaluation Report that was prepared by the Forest Interdisciplinary Team (IDT). It contains the monitoring data and results from the past fiscal years. The district continues to make great headway in working collaboratively and in pioneering new tools and techniques to manage prairie dogs while reducing conflict with neighboring landowners.

The Forest IDT has identified several emphasis areas for continued monitoring, including sage grouse and prairie dog colonies. During the process of developing the prairie dog strategy, the management area identified for the Black-Footed Ferret Reintroduction Habitat Management Area (3.63) was adjusted and the Grassland Plan was amended to fully implement this strategy. The Grassland Plan is sufficient to continue to guide management of the National Grassland.

Please contact Melissa Martin at the Medicine Bow-Routt National Forests and Thunder Basin National Grassland, 2468 Jackson Street, Laramie, Wyoming, 82070, or call 307-745-2300, if you have any specific concerns, questions, or comments about this report.

/s/ Phil Cruz — *9-22-2012*

Phil Cruz
Forest Supervisor

Date

Introduction

The Thunder Basin National Grassland (TBNG) is located in northeastern Wyoming in the Cheyenne and Powder River Basins between the Big Horn Mountains and the Black Hills. This semi-arid grassland ranges in elevation from 3,600 feet to 5,200 feet and is home to over 800 species of native plants. Land patterns are very complex because of the intermingled federal, state and private lands. The Grassland abounds with wildlife year-round, provides forage for livestock and is underlain with vast mineral resources. There are opportunities for recreation including hiking, sightseeing, hunting and fishing.

The Thunder Basin National Grassland Plan was revised as part of the Northern Great Plains Management Plans Revision process. The revision issued a combined Environmental Impact Statement (EIS) for the revision of eight national grasslands and two national forests in the northern Great Plains. Separate Records of Decision (ROD) were then signed for each unit, with the TBNG ROD being issued in July, 2002. The documents associated with the plan revision and ROD can be viewed at:

http://www.fs.fed.us/ngp/docs.html

This Monitoring Report is organized according to the *USDA Forest Service Government Performance and Results Act Strategic Plan: 2000 Revision* goals where practicable. These goals are: Ecosystem Health, Multiple Benefits to People, Scientific and Technical Assistance, and Effective Public Service.

The National Forest Management Act requires specific legally required monitoring items for forest and grassland plan implementation as well as additional monitoring that will be conducted based on the availability of funding and personnel.

The annual monitoring items are included in this report. All monitoring items were addressed in the TBNG Five Year Review, which was completed during Fiscal Year (FY) 08. This report is available on the web at:

http://www.fs.fed.us/r2/mbr/projects/forestmonitoring/index.shtml

As recommended in the TBNG 5 Year Review, the Bald Eagle and Mountain Plover monitoring items are not included as threatened and Endangered (T&E) monitoring items since neither of these species currently has threatened or endangered status. Information concerning these species will be included under the appropriate Viability monitoring items in the next 5 year review (Fiscal Years 2008 to 2012) which will be completed in 2013.

Highlighted Accomplishment on the Thunder Basin National Grassland

In 2010 and 2011 the Douglas Ranger District partnered with several non-governmental organizations to translocate black-tailed prairie dogs from undesirable colony locations adjacent to private lands. Partners contributed approximately 850 volunteer hours in 2010 and 1,000 hours in 2011 from groups including the Humane Society of the US, Defenders of Wildlife, World Wildlife Fund and Biodiversity Conservation Alliance.

Scientific Technical Review Committee

As outlined in the Record of Decision, dated July 31, 2002, the Regional Forester realized that there are still concerns by some that the projected effects in the EIS may underestimate what the real effects will be and that there is uncertainty about the effects of implementing the revised standards and guidelines. In an attempt to address this concern, the Forest Supervisor established a scientific technical review committee composed of representatives from Wyoming Game and Fish Commission, University of Wyoming, Office of the Governor, USDA Forest Service, and Wyoming Department of Agriculture and Oil and Gas Conservation Commission.

The Scientific Technical Review Committee has met several times and will continue to work with the Grassland Plan Monitoring and Evaluation Interdisciplinary Team to finalize the monitoring methods to provide an adaptive management approach to make changes and/or evaluate the effectiveness of changes made to the 2002 Revised Plan.

Goals and Objectives

Chapter 1 of the Grassland Plan lists goals and objectives to be accomplished through grassland management. Progress made towards these goals and objectives is described in Appendix 1.

Projects Completed During FY11

Table 1 gives the decisions made for projects on the TBNG during FY11. These decisions included Record of Decisions (ROD) from an Environmental Impact Statement (EIS), Decision Notices (DN) from an Environmental Analysis and Decision Memos (DM) from categorically excluded projects.

The list of projects was generated from the database that produces the Schedule of Proposed Actions. This quarterly report is available at the following website:

http://www.fs.fed.us/sopa/forest-level.php?110206

Table 1. Projects Completed in FY11.

Name	Decision Type	Date Signed	Primary Purpose
EOG Resources - Lightening Creek and Mary's Draw 2D Seismic Project	DM	04/04/2011	Special Use Authorizations
Inyan Kara Riders Motorcycle Enduro Permit Renewal	DM	04/28/2011	Special Use Authorizations
North Laramie Range Aspen Restoration	DN	7/15/2011	Vegetation Management
Samson Resources Geophysical Exploration	DM	12/20/2010	Special Use Authorizations
Thunder Basin Coal Co LLC: Clinker Mining Expansion	DN	03/23/2011	Minerals
Wright Area Coal Lease by Application (LBA) South Porcupine Field	ROD	07/14/2011	Minerals

Name	Decision Type	Date Signed	Primary Purpose
Wright Area Coal LBA South Hilight Field LBA	ROD	06/03/2011	Minerals
WY DOT Highway 59 Special Use Permit & Mineral Materials Contract	DM	07/28/2011	Special Use Authorizations
Williams Production and Barrett to Lance Oil	DM	03/10/2011	Special Use Authorizations

Watershed Condition Framework

In 2011, this national program was initiated to assess the condition of watersheds on National Forest System (NFS) lands so as to prioritize these areas for restoration treatments. This was accomplished on the TBNG. An interactive map with the results of this effort and a detailed description of this initiative can be found on the following website:

http://www.fs.fed.us/publications/watershed/

The interactive map viewer is located on the following website:
http://apps.fs.usda.gov/WCFmapviewer/

Watersheds on the TBNG rated out in fair condition. While riparian and upland vegetation conditions generally rated out as good, aquatic habitat is highly fragmented due to in channel ponds, and the area tends to have a high road density, leading to the fair condition rating. Watershed restoration action plans will be developed for the highest priority watersheds to facilitate improving the watershed condition on the grassland.

Conclusions and Recommendations

Based on the information gained through the annual monitoring efforts, described in this report, the Interdisciplinary Team (IDT) recommends the following actions.

Conclusions

The FY 11 monitoring results were consistent with the 5 Year Evaluation Report completed in 2008. Management should continue to work towards completing the recommendations from that report.

Recommendations

- Continue to work towards Black Footed Ferret reintroduction.
- Continue to implement the recommendations from the FY08 and Five Year review.

Grassland Plan Appeals

Sixteen appeals were filed by a variety of groups and individuals who disagreed with the decisions made as a result of the Northern Great Plains Management Plan Revision Process. The Thunder Basin National Grassland Land and Resource Management Plan Revision was upheld in a decision by the Chief of the Forest Service on February 6, 2004. This appeal decision can be viewed at:

http://www.fs.fed.us/ngp/plan/appeals/appeals.html

Administrative Changes to the Forest Plan

Three amendments to the Grassland Plan have been completed to date.

Amendment 1: Dakota, Minnesota, and Eastern Railroad Corporation (DM&E)

This amendment was signed on September 4, 2003 by the Regional Forester and authorizes rail line construction, operation and maintenance on the Thunder Basin National Grassland, Wyoming. The amendment is in response to a proposal from the DM&E railroad to expand rail operations into the Powder River Basin. The United States Forest Service (USFS) participated as a Cooperating Agency with the Surface Transportation Board in the analysis and preparation of the final Environmental Impact Statement (EIS) for the DM&E proposal.

The EIS concluded that there was a need for the DM&E to construct and operate a rail line across portions of the TBNG. It also concluded that approval of the project on National Forest System (NFS) lands would be inconsistent, in some instances, with the standards and guidelines in the Grassland Plan.

This amendment modified specific standards and guidelines for the railroad corridor and adjacent areas. The amendment can be found on the Forest website:

http://www.fs.fed.us/r2/mbr/projects/specper/adobepdf/appxEdoc.pdf

Amendment 2: Teckla to Antelope Coal Mine 69kV Power Line

This amendment was signed on June 26, 2006 by the Forest Supervisor and authorizes power line construction, operation and maintenance on the Thunder Basin National Grassland, Wyoming. The amendment is in response to a proposal from the Powder River Energy Corporation (PRECorp) to provide electrical service from the Teckla Substation to Antelope Coal Mine. The USFS prepared an Environmental Assessment (EA) to analyze the impacts of this proposal.

The EA concluded that there was a need for PRECorp to construct and operate a power line across portions of the Thunder Basin National Grassland. It also concluded that approval of the project on NFS lands would be inconsistent, in some instances, with the standards and guidelines in the Grassland Plan.

This amendment modified specific standards and guidelines for the power line corridor and adjacent areas.

Amendment 3: Thunder Basin National Grassland Prairie Dog Management Strategy

This amendment was signed on 11/12/09 proposing a full suite of tools to manage prairie dogs, modify MA 3.63 boundaries (black-footed ferret reintroduction habitat) and adjust shooting restriction boundary on the Thunder Basin National Grassland.

More information concerning this amendment can be found on the following link:

Prairie dog amendment

New Laws, Regulations and Policies

Planning Regulation Update

The 2008 planning rule was published in the Federal Register in April 2008 and now governs forest planning for the Forest Service. The regulations can be found at the following website:

http://fsweb.r2.fs.fed.us/strategic_planning/forest_planning/policies/2008_planning_rule.pdf

On December 17, 2009, Agriculture Secretary Tom Vilsack announced that the Forest Service is beginning an open, collaborative process to create and implement a modern planning rule to address current and future needs of the National Forest System.

Throughout April and May 2010, the Forest Service hosted a series of public meetings to provide opportunities for public input and dialogue on the development of a new planning rule. These meetings have been followed by additional conversations with Forest Service employees, the Fourth National Roundtable in July and the Second National Tribal Teleconference Call in August. The results from these meetings and the formal comments received on the Notice of Intent (NOI) were used to develop the new planning rule which was released in April, 2012. For more information go to the following link:

http://www.fs.usda.gov/wps/portal/fsinternet/!ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPwhQoY6BdkOyoCAPkATlA!/?ss=119987&navtype=BROWSEBYSUBJECT&cid=FSE_003853&navid=091000000000000&pnavid=null&position=BROWSEBYSUBJECT&ttype=main&pname=Planning%2520Rule-%2520Home

Travel management

The Travel Management Rule announced in 2005 requires each National Forest and Grassland to identify and designate those roads, trails, and areas that are open to motor vehicle use. Forests and grasslands in the Rocky Mountain Region are seeking public input and coordinating with federal, state, county, and other local governmental entities as well as tribal governments to implement the rule.

Travel management planning is one of the objectives listed in Chapter 1 of the Grassland Plan. Goal 4a, Objective 1 states:

Within 5 years, identify travel opportunities and restrictions, including designating motorized travel-ways and areas, to meet land management objectives. Provide reasonable access for use of the national grasslands and national forests

Travel management planning on the Thunder Basin National Grassland was completed in 2009, with a Decision Notice signed on June 26, 2009. Implementation for the plan began in the summer of 2010, with an emphasis on signing and decommissioning identified roads. The first edition of the Motor Vehicle Use Map (MVUM) was published in 2010, with a revision scheduled for publishing in June, 2011.

More information included a link to the new regulation can be found at the following website:

http://www.fs.fed.us/r2/mbr/recreation/travel_management/

Roadless Area Conservation

In 2001, the Forest Service enacted the Roadless Rule, which essentially prohibited road construction and reconstruction and timber harvesting, subject to certain limited exceptions, in inventoried roadless areas on a uniform nationwide basis.

In June 2009 District Court Judge Brimmer (Wyoming) denied the government's motion to reconsider the scope of his nation-wide injunction of the 2001 roadless rule, and denied Wyoming Outdoor Council's motion for stay pending appeal. The Judge declined the government's request to conform his injunction to the California injunction, so the District Court's nationwide injunction of the 2001 rule remained in place.

In October, 2011, the 10th Circuit Court of appeals released its long-awaited decision regarding the 2001 Roadless Area Conservation Rule. The 10th Circuit found in favor of the Forest Service, and against the State of Wyoming, holding the promulgation of the 2001 Roadless rule did not violate the Wilderness Act, NEPA, NFMA, the Organic Act, or Multiple Use Sustained Yield Act. The Circuit ordered the District Court to vacate its 2008 ruling that enjoined the Roadless rule and lift its injunction.

Table 2. Roadless areas on TBNG.

Roadless Area	Acres
Duck Creek	12,333
H A Divide	5,058
Red Hills	6,836
Miller Hills	10,368
Cow Creek	17,902
Downs	6,505
Total Acres	59,002

There are six roadless areas on the Thunder Basin National Grassland (Table 2). No roads have been constructed with in these roadless areas since the Thunder Basin Grassland Plan Record of Decision was signed in 2002.

Information regarding roadless can be found at the following website:

http://www.roadless.fs.fed.us/

Monitoring items

The annual monitoring items are discussed below. As mentioned previously, all monitoring items were addressed in the TBNG Five Year Review, which was completed during FY08. This report is available on the web at:

http://www.fs.fed.us/r2/mbr/projects/forestmonitoring/index.shtml

As recommended in the TBNG 5 Year Review, the Bald Eagle and Mountain Plover monitoring items are not included as Threatened and Endangered (T&E) monitoring items since neither of these species has threatened or endangered status. Information concerning these species will be included under the appropriate Viability monitoring items in the next 5 year review (FY 2008 to 2012, which will be completed in 2013.

Ensure Sustainable Ecosystems

Watershed 4 - Aquifer Protection

Goal 1.a, Objective 5
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

To what extent have aquifers been protected from contamination from abandoned wells?

Monitoring protocol/data collected: Compliance monitoring is conducted to determine if wells currently being abandoned are plugged properly. Monitoring to determine if wells abandoned in the past have been plugged occurs infrequently.

Results / Evaluation: Groundwater aquifers on the Grassland provide water for domestic and livestock uses. Abandoned wells, if not properly sealed, can provide a direct conduit for surface water carrying pollutants to groundwater. Groundwater contamination could limit water availability and/or increase costs of water used for domestic or livestock purposes.

Figure 1. Abandoned Homestead Well on TBNG.

Oil and Gas Wells: There are an estimated 864 abandoned and plugged oil and gas wells on the Grassland. The nine oil and gas wells which were plugged in 2011 are shown in Table 3. Plugging methods were witnessed and monitored by the Bureau of Land Management (BLM) for six of the nine wells plugged in 2011. The BLM and the Wyoming Oil and Gas Conservation Commission regulate plugging of oil and gas wells in part to prevent groundwater pollution. BLM policy requires a qualified BLM employee to witness the entire cementing portion of the plugging process. Since standard procedures are in place to ensure oil wells are plugged before they are abandoned, it is assumed that most of the oil and gas wells abandoned since the Grassland Plan was established have been properly plugged.

Table 3. Abandoned Oil and Gas Wells Plugged in 2011.

Well Name	Date Plugged	Qtr-Qtr	Section	T	R
JWS Fed 34-35-42-71	1/25/2011	SWSE	35	42N	71W
Reno Flats Fed. #41-27		NENE	27	41N	72W
Pork S Fed 12-1-41-71		SWNW	1	41N	71W
Pork S Fed 23-1-41-71		SESE	1	41N	71W
Federal 11-25		NWNW	25	43N	71W
Federal 12-25		SWNW	25	43N	71W
Maze Federal 21-35	8/1/2011	NENW	35	42N	70W
Quillback Federal 1-35	8/2/2011	NWSE	35	42N	71W
Federal #29-2	8/3/2011	NWNW	29	42N	70W

There are nine known abandoned open-well conventional oil wells on the Grassland (Table 4), which are all associated with private mineral estates. The Forest Service has jurisdiction over surface clean up at these sites and would need to work cooperatively with the State of Wyoming Oil and Gas Conservation Commission to ensure these wells are plugged properly.

Table 4. Abandoned Oil and Gas Wells Open as of 2011.

Well Name	Depth (ft)	Qtr-Qtr	Section	T	R
Bariod Fee PP7	350	SWSW	30	47N	63W
Bariod Fee PP2	362	SWSW	30	47N	63W
PP3	300	SESW	30	47N	63W
PP4	300	SESW	30	47N	63W
National Lead Patent 9	253	SESW	30	47N	63W
Bariod Fee PP1	360	SESW	30	47N	63W
PP15	462	SESE	30	47N	63W
PP20	350	NWNW	30	47N	63W
Mortons Inc. 1	5920	SENW	15	39N	69W

Water Wells: The number of abandoned domestic and livestock water wells has not been summarized, but efforts are underway to update this information. Wyoming State Engineer's Office (WYSEO) regulations require the plugging of abandoned stock

and domestic wells, but it is unknown to what extent these regulations have been followed on the Grassland. An inventory of abandoned stock and water wells, with either insufficient or unknown abandonment method, was initiated in 2008 and continues today (Table 5). There are four abandoned wells associated with homesteads, dating from 1910 to1930, that were presumably used for domestic and/or livestock uses. One of these wells is capped on the ground surface, but the others are not capped. Whether any means or the methods used to close or abandon these wells below the ground surface is not known. These wells are all presumed to be shallow (i.e. less than 100 feet deep). More recently, use of several livestock wells has discontinued; and procedures to plug and abandon these wells following WYSEO approved procedures have not yet been completed.

Table 5. Abandoned Domestic and Livestock Wells Open as of 2011.

Well Name	Domestic or Livestock	Qtr-Qtr	Section	T	R
Sauerkraut/East 231W80	Livestock	SWSW	3	40N	68W
Old Homestead #1	Both	NESW	13	39N	71W
Old Homestead #2	Both	NWSE	7	39N	70W
Old Homestead #3	Livestock	NESW	6	40N	70W
Old Homestead #4	Both	SWSW	6	40N	70W
Steinle#TB 2 (P12741P)	Both	SESE	15	38N	70W
Manning#TB138 (P9000P)	Livestock	SENW	8	38N	73W
Bob Cat Well#TB182 (P176881W)	Livestock	NENW	19	38N	68W

Grassland Plan Goal 1.a, Objective 5 states, *"Throughout the life of the Plan, ensure proper plugging of abandoned wells to prevent cross contamination of aquifers (e.g., seismograph holes, water wells, etc.)."* Procedures are in place to ensure proper plugging of any newly abandoned oil and gas wells and monitoring has shown that these procedures are being implemented. Nine abandoned open-well conventional oil wells are known to exist on the Grassland; procedures to properly plug these wells have not yet been initiated. Eight abandoned stock and water wells, which have not been properly plugged or with unknown abandonment procedures, are known to exist on the Grassland; procedures to properly plug these wells have not yet been initiated. There are no known incidents of aquifer cross contamination on the Grassland.

Recommendations: Continue efforts to monitor oil and gas wells currently being closed to ensure they are properly plugged to prevent contamination of freshwater supplies. A comprehensive effort to determine if historic abandoned wells have been properly plugged could be expanded when funding allows. Efforts should continue to obtain information related to abandoned stock and domestic water wells on the Grassland.

Specific Recommendations: As time and funding allow, consider:

- Continue to inventory the number, location and status of abandoned open-well oil and gas wells.

- Work work cooperatively with the State of Wyoming Oil and Gas Conservation Commission to ensure proper plugging of the open-well oil and gas wells with private mineral estate.
- Continue to inventory the number, location and status of abandoned open-well domestic and livestock wells.
- Work with grazing permittees to completely plug and abandon livestock wells which are no longer being used.
- Assess risk of abandoned domestic and stock wells on the Grassland which have not been properly plugged and initiate program to properly plug high risk wells.

Soil 1 – Soil Disturbance

Goal 1.a, Objective 1
Frequency of Measurement: Five Years
Reporting Period: 2011

This monitoring item asks the question:

To what extent have soils eroded or disturbed by Forest Service management or permitted activities been restored?

Monitoring protocol/data collected: Soil quality data was collected in the same areas as in the 2003-07 monitoring report. Transects for soil quality and ground cover were measured in 35 grazing allotments.

Results:

Table 6. Soil Quality Results.

Condition	Percent
Satisfactory	91%
Impaired	7%
Unsatisfactory	3%

Table 7. Average Ground Cover Measured.

Vegetation	Litter	Bare Soil	Rock
62%	12%	23%	3%
Total Ground Cover: 77%			

Definition of Soil Quality Condition Classes:

Satisfactory - Indicators signify that soil quality is being sustained and soil is functioning properly and normally. The ability of soil to maintain resource values and sustain outputs is high.

Impaired - Indicators signify a reduction in soil quality. The ability of soil to function properly has been reduced and/or there exists an increased vulnerability to exceed detrimental soil quality standards. An impaired category signals land managers that there is a need for further investigation of the activity area to determine causes and degrees of decline in soil quality. This impaired condition can be a result of inherent and natural site conditions such as: steep slopes, aspects, parent material or past activities. Changes in management practices or other preventative actions might be appropriate.

Unsatisfactory - Indicators signify that loss of soil quality has occurred and soil condition has been detrimentally impacted according to Region 2 and TBNG Grassland Plan soil quality standards (FSH 2509.18-92-1). Soils rated in the

unsatisfactory category are candidates for improved management practices or restoration designed to recover soil quality. Detrimental soil impacts result in the inability of soil to maintain resource values, sustain outputs, and recover from impacts.

Discussion: These results are quite different than those in 2003 – 07. There are a few reasons that might have happened:

1) Previous monitoring was done during a drought and ground cover may not have been as great.
2) The exact locations are different.
3) The amount of animals in the herds decreased by approximately 20% and still is lower than in 2003 - 07.

The previous monitoring was done as the area was recovering from a drought; 2007 was an abnormally dry year (http://droughtmonitor.unl.edu) so there might not have been as much of the vegetation portion of ground cover which is an indicator of soil quality. Exact locations of the previous transects were not recorded so representative areas of the allotments were chosen and these might have given different results. However, visual indicators of soil quality (rills, subsoils on surface, etc.) would not have changed that quickly. Animal numbers were reduced in response to the drought so this may have let the vegetation and litter amounts increase which gave a higher evaluation.

The management of the grazing allotments has led to a decrease in soil erosion and an increase in soil quality since last monitored.

Recommendations:

- Continue to monitor grazing allotments on a 5 year schedule.
- Focus yearly monitoring on specific projects rather than the entire grasslands.

MIS 3 – Population Trends

Legal: 36 CFR 219.19, 20, 27
Goal 1.b, Objective 2, 4, & 6
Frequency of Measurement: Annual
Reporting Period: 5 years

This monitoring item asks the question:

What are the long-term population trends for each management indicator species and the relationships between long-term population trends and the effects of management activities on NFS lands?

Each geographic area has one or more designated MIS species. The following table gives the MIS for each geographic area.

Table 8. MIS Species by Geographic Area

Geographic Area	Management Indicator Species
Broken Hills	Black-tailed Prairie Dog, Greater Sage-grouse
Cellars Rosecrans	Black-tailed Prairie Dog, Greater Sage-grouse

Fairview Clareton	Greater Sage-grouse
Hilight Bill	Greater Sage-grouse
Spring Creek	Greater Sage-grouse, Plains Sharp-tailed Grouse
Upton Osage	Greater Sage-grouse, Plains Sharp-tailed Grouse

Black-tailed Prairie Dog:

The Grassland Plan was amended to better provide for the conservation of black-tailed prairie dogs and their habitat, to address private landowner concerns about unwanted prairie dog encroachment onto private lands within and adjacent to the TBNG boundaries, and to facilitate future recovery of endangered black-footed ferrets. Implementation has included:

- Prescribed burning
- Mowing
- Temporary fence
- Permanent vegetative buffer fence
- Dusting
- Larger shooting closure
- 'No Shooting' portal signs installed
- Translocation
- Rodenticide application
- Raptor perch construction

Mapping: All active prairie dog colonies on Thunder Basin NG are mapped annually. Currently, the population for 2011 is 9,857 acres (3,448 new acres in 2011), with 5,600 of those acres within the 3.63 management area.

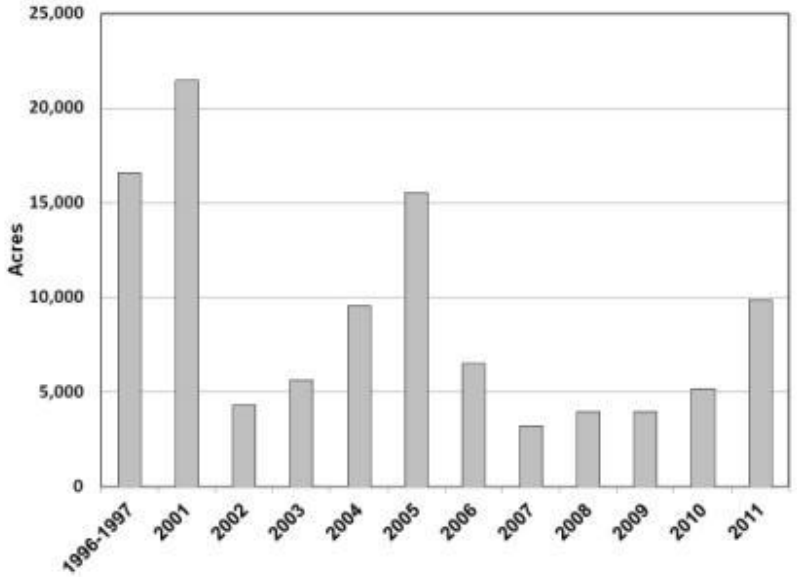


Figure 2. Active Prairie Dog Colonies Mapped on TBNG (acres).

Burning: Prescribed fire and grazing were identified in the Thunder Basin Grazing Association (TBGA) AMP EIS as a tool that could be used to achieve desired conditions

for vegetative resources. The purpose of burning is to provide diverse and quality grassland habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable or increasing populations of plover and prairie dogs and other wildlife with similar habitat needs. Burning was a tool identified to move vegetation resources toward desired conditions, benefiting wildlife habitat. Guidelines in the Grassland Plan direct management to schedule prescribed fire activities at intervals designed to improve or maintain habitats of desired plant and animal species.

Prescribed burning acres completed to date:

- 2009 – 2,193 acres
- 2010 – 2,500 acres
- 2011 – 4,000 acres

Figure 3. Prescribed Burn for Prairie Dogs and Plover.

Translocation: Translocation is a tool identified to provide for the conservation of black-tailed prairie dogs and their habitat, and to address private landowner concerns about unwanted prairie dog encroachment onto private lands within and adjacent to the TBNG boundaries.

Translocation completed to date:

- 2010 – 550 prairie dogs (120 acres)
- 2011 – 349 prairie dogs (166 acres)

Figure 4. Prairie Dogs Relocated on the TBNG.

Mowing: The translocation site was mowed in preparation to encourage prairie dogs to stay after being moved.

- 2010 – 12 acres
- 2011 – 40 acres

Dusting: Delta Dust was applied to prevent plague transmission across the TBNG, and to colonies within 1 mile of residences that had expressed concerns. It is worth noting that all of the Delta Dust for 2011 was either donated by the Bayer Corporation or purchased by the World Wildlife Fund.

- 2010 – 132 acres
- 2011 – 1,997 acres (43,140 burrows)

Signing: Wood portal type signs were installed at every major road entrance into the shooting closure area to inform the public of where the shooting of prairie dogs was prohibited. Additional signing will continue to be installed all of the two-track roads that enter the shooting closure area, or that enter Management Area 3.63.

- 2010 – 4 wood signs
- 2011 – 8 wood signs, 30 carsonite signs

Permanent Buffer Fence: In 2010, permanent fence was constructed around the 150 acre prairie dog trapping site to create a vegetative buffer and prevent future re-colonization by prairie dogs. The Wyoming State Forestry Honor Farm built the majority of the fence at no cost to the USFS.

- 2010 – 150 acres

Rodenticide Application: Zinc phosphide oat bait was applied on approximately 100 acres of the previously trapped site. The area was treated to reduce the potential of the spread of plague to protect human health and safety.

- 2010 – 100 acres
- 2011 – 536 acres

Shooting Closure Expansion: The shooting closure area was expanded from 72,500 acres to 100,460 acres in 2010.

Raptor Perches
Raptor perches were constructed to help encourage natural predation on prairie dog colonies that were along private land boundaries to help provide some control. The most common raptor likely to use the perches is the red tailed hawk.

- 2011 – 2 perches

Greater Sage-grouse Populations

Monitoring Protocol/Data Collected: The Douglas Ranger District wildlife staff monitors Greater sage-grouse leks in March and April. Count leks (monitored to determine population) were checked three times with 7-10 days between visits as per Wyoming Game and Fish Department (WGFD) protocol. Survey leks were visited to determine activity and to identify new leks. Leks were surveyed by Douglas Ranger District staff and other Medicine Bow-Routt National Forest personnel, WGFD biologists and game wardens, private wildlife contractors and volunteers. This information was then provided to the WGFD for compilation. Once the compiled information was

available to the District, mean sage-grouse males per lek values were generated. This information was then compared to the Northeast Wyoming Working Group area trend, as well as to state-wide trends, as shown in the graph below:

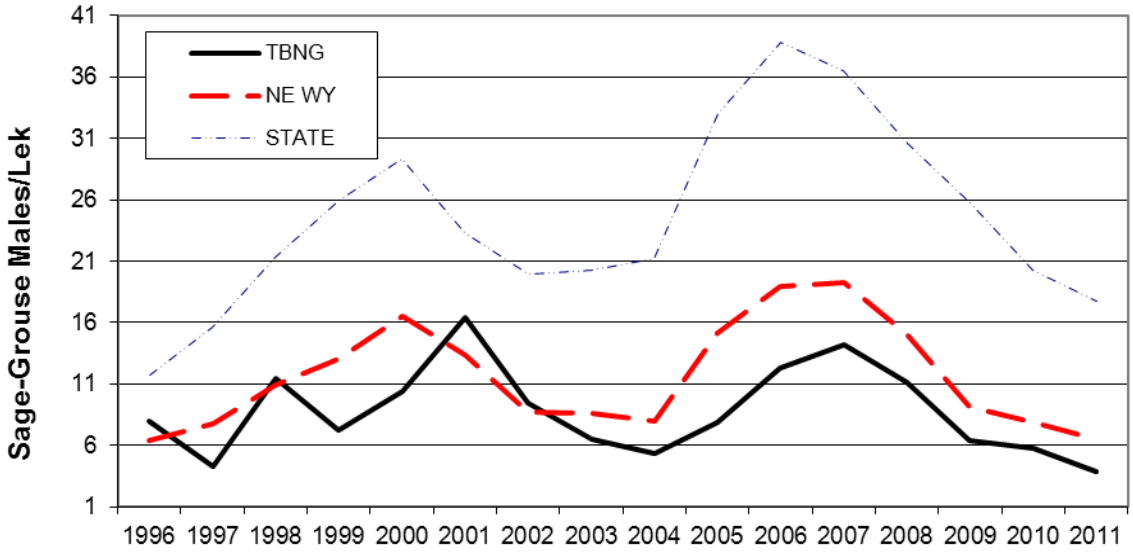


Figure 5. Average Sage Grouse Males per Lek.

Table 9. 10 Year Grouse Monitoring Results

Grassland-wide	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Males/Lek	9.5	6.5	5.4	7.9	12.3	14.2	11.2	6.4	5.7	3.9
10-year mean	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Total Leks	38	38	38	38	38	38	39	39	40	36
Leks Checked	19	19	27	24	28	30	31	24	26	31
Percent Checked	50.00	50.00	71.05	63.16	73.68	78.95	79.49	61.54	65.00	86.11
Active Leks	13	14	14	14	15	20	27	13	15	12
Percent Active	68.42	73.68	51.85	58.33	53.57	66.67	69.23	54.17	57.69	77.5
NE WY WG Males/Lek	**8.7**	**8.6**	**8.0**	**15.2**	**19**	**18.8**	**15.2**	**9.1**	**7.9**	**6.5**
Statewide Males/lek	**19.9**	**20.3**	**21.2**	**33.0**	**39.2**	**36.5**	**30.6**	**25.7**	**20.3**	**17.7**

The graph and table above show that the fluctuation in male attendance per lek on Thunder Basin National Grassland is consistent with what appears to be happening across both northeast Wyoming, and state-wide. The graph above shows that in 2011 Thunder Basin was at a 16 year low for its average males per lek. The Northeast Wyoming Working Group Area was at a 15 year low, and the State-wide average was at a 14 year low.

Population Estimates

Population estimates for Greater sage-grouse are based upon using this average number of males attending leks per year as an index to calculate the *minimum population estimate*. This estimate is generated using mean males/complex then multiplying by three to account for a 2 females: 1 male sex ratio. This number is then multiplied by the total number of complexes over a specific time period. Although this is a rough estimate, it is valuable for looking at long term trends. The formula for the minimum population estimate is:

MPE = [(Total Males/Complexes Checked) x 3] x Total Complexes over Survey Period

The following graph illustrates the minimum estimated sage grouse population for Thunder Basin National Grassland over the last 14 years using this formula.

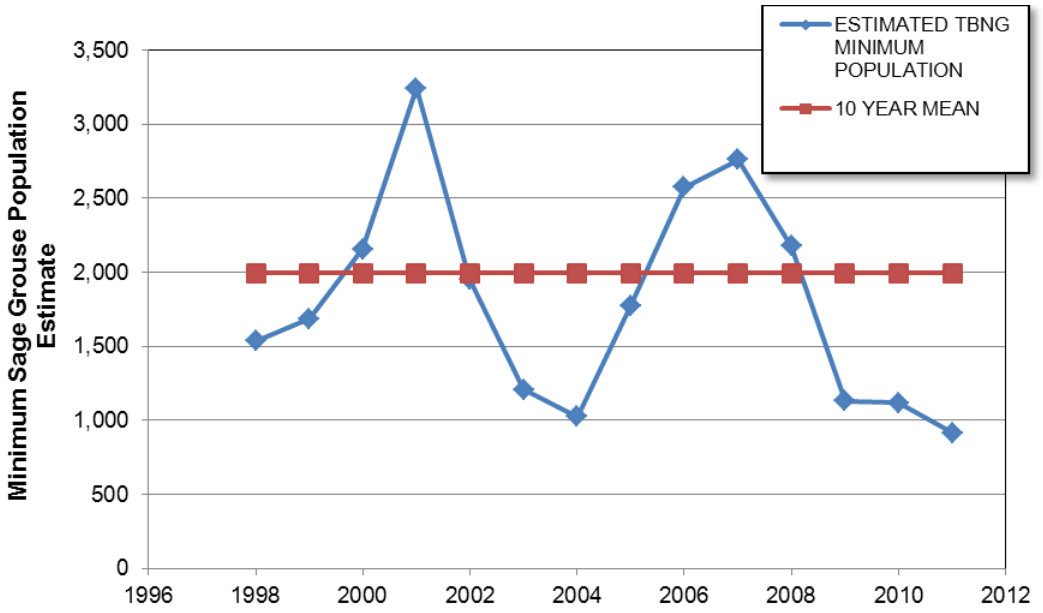


Figure 6. Minimum Estimated Sage Grouse Population on Thunder Basin National Grassland.

Results/Evaluation: Based on this measure, the *minimum* estimated population of Greater sage-grouse on the TBNG in 2011 was estimated at 917 birds. This is a reduction from 2010 when it was estimated 1,119 birds (a decline of 202 birds), which was a decline of 13 birds from the 2009 estimate of 1,132. Since the 10-year low in 2004 the minimum greater sage-grouse population estimate on TBNG has increased from 1,027 in 2004 to 2,746 individuals in 2006 and back down the present 917. Sage-grouse experience natural fluctuations in population levels from year to year.

The 2011 population reflexes a 13 year population low.

Geographic Areas

The National Grassland is divided up into Geographic Areas (GA) as subunits for management. Each GA also has sage-grouse as a Management Indicator Species. Sage-grouse are therefore monitored at this level as well. The graphs below illustrate the population dynamics within each GA.

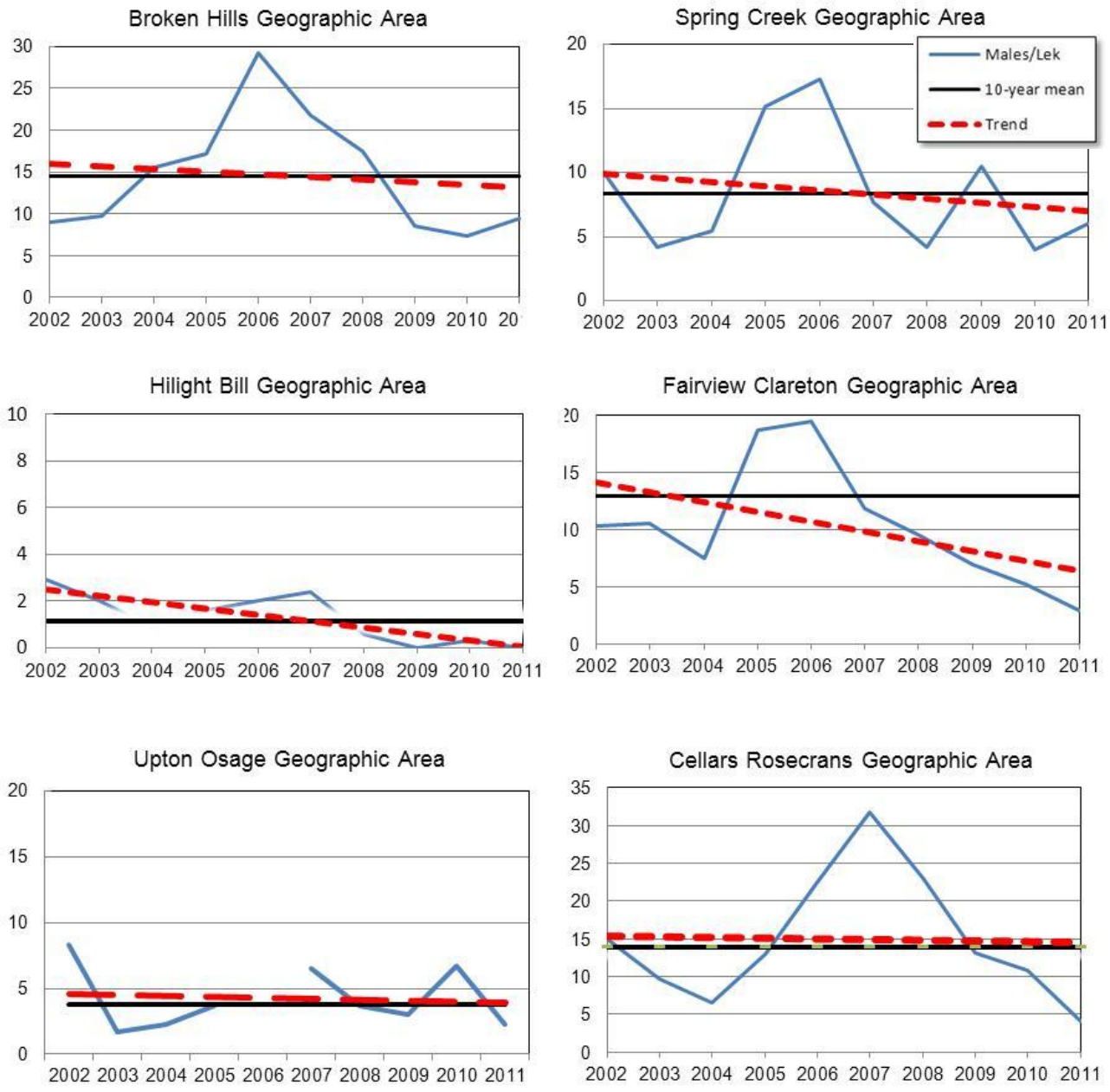


Figure 7. Sage Grouse Monitoring Results (2002-2011) for the Geographic Areas on TBNG.

The Hilight Bill GA has undergone intensive mineral development over the last 10 or more years. There are no sage grouse leks currently active within this GA.

For the Upton Osage GA, there are no sage-grouse leks on National Grassland Surface; however, within the GA and within 2 miles of National Grassland Surface there are three historic non-grassland sage-grouse leks that make up one breeding complex. Current literature indicates that sage-grouse generally nest within 2 miles of their lek,

and therefor can be expected to nest on National Grassland Surface. Based upon the peak male attendance at these non-grassland leks, the sage-grouse population within the Upton Osage GA is decreasing (Table 10 below).

Table 10. Sage Grouse Monitoring Results (2002 - 2011)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Cellars/Rosecrans										
Males/Lek	14.9	9.6	6.6	13.0	22.5	31.7	23.1	13.2	10.9	4.0
Leks Checked	10	8	12	9	11	13	14	11	14	4
10-year mean	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	13.9
Highlight Bill										
Males/Lek	2.9	2.0	0.9	1.6	2.0	2.4	0.6	0.0	0.3	0
Leks Checked	8	6	7	9	8	9	8	8	7	4
10-year mean	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.15
Fairview Clareton										
Males/Lek	10.3	10.5	7.5	18.7	19.4	11.8	9.5	6.9	5.2	2.9
Leks Checked	8	6	10	6	10	13	10	9	10	10
10-year mean	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
Spring Creek										
Males/Leks	10.0	4.2	5.4	15.2	17.3	7.7	4.1	10.5	4.0	6.0
Leks Checked	2	5	5	6	6	7	7	4	7	4
10-year mean	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.4
Broken Hills										
Males/Lek	9.0	9.7	15.5	17.2	29.2	21.8	17.5	8.6	7.3	9.5
Leks Checked	2	6	6	9	9	9	11	9	12	11
10-year mean	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	14.5
Upton Osage										
Males/Lek	8.3	1.7	2.3	3.7		6.5	3.7	3.0	6.7	2.3
Leks Checked	3	3	3	3	0	2	3	3	3	3
9-year mean	3.8	3.8	3.8	3.8		3.8	3.8	3.8	3.8	3.8

Results/Evaluation: All of the GAs were below their 10 year mean in 2011 and 2010. Three of the five GAs with leks on National Grassland Surface are showing a downward trend. The Upton Osage GA is already at zero, and the Broken Hills GA is currently stable. Only the Cellars Rosecrans GA is showing an increasing trend over the 9 year analysis period that the National Grassland Plan has been in effect.

Recommendations: Continue to monitor Greater sage-grouse lek activity.

Plains Sharp-tailed Grouse

Introduction

Plains sharp-tailed grouse (*Tympanuchus phasianellus jamesi*) is a Management Indicator Species (MIS) for both the Upton Osage and Spring Creek GAs of the TBNG. This grouse requires open grasslands and prairies, although sagebrush and other shrubs provide winter shelter and can provide foraging areas. This species was selected as an MIS for high-structure grasslands.

Methods

Sharp-tailed grouse populations on TBNG are monitored through lek counts. The total number of males observed on leks is used to indicate population fluctuations. Leks are observed during late March and early April as this is usually the peak attendance period. Leks are monitored using the following parameters:

1. Counts should be conducted during the month following the peak of mating activity, which is usually early April in Wyoming. Research has shown that the highest numbers of male grouse are observed during this period.
2. Counts should be conducted from the ground. Counts from fixed wing aircraft are not accurate enough to be used for monitoring purposes.
3. Counts should be made as close to sunrise as possible and may extend for one hour after sunrise. The phase of the moon may affect use patterns on leks. During a full moon, grouse may display at night and consequently terminate activity earlier in the morning.
4. Counts should be conducted a minimum of three times each year per lek for at least one count every 7-10 days over a three to four week period.
5. Optimum weather conditions for counts are clear, calm days. Winds should be less than 20 mph since high winds inhibit lekking activity.

Incidental observations of non-lekking sharp-tailed grouse were also recorded to refine search areas in future years.

Results

There was one new sharp-tailed grouse lek identified during the 2011 survey period, the Rose. It is likely that this is a satellite lek off of the ZV Lek complex.

Ten sharp-tailed leks were surveyed in 2011 with a total of 97 males. Most males observed were on leks that occur on NFS lands. There were also approximately five total females observed on leks, but these are not added to the total population estimate. Survey conditions were difficult due to snow, but we were able to access most leks at least once. With the 2011 survey information there is a decreasing trend of sharp-tailed grouse on NFS lands (Figure 8).

Table 11. Sharp-Tailed Grouse Lek Monitoring Results 2003-2010

Lek Name	Complex	Geographic Area	Land Status	2003	2004	2005	2006	2007	2008	2009	2010	2011
Duck Creek	Duck Creek	Spring Cr.	USFS				8		0	9	12	9
York 1	York	Spring Cr.	USFS		2	0	0	0	0			
York 2	York	Spring Cr.	USFS			3	9	2	0			
York 3	York	Spring Cr.	USFS		4		0	0	0			
York 4	York	Spring Cr.	USFS			7	0	0	0			
York 5	York	Spring Cr.	USFS	5			0	0	0			
York 6	York	Spring Cr.	USFS		7	2	12	9	11	11	13	11
York 7	York	Spring Cr.	USFS						17	12	18	9
ZV Creek 1	ZV Creek	Spring Cr.	USFS		15	0	0	0	0			
ZV Creek 2	ZV Creek	Spring Cr.	USFS			2	10	0	0			
ZV Creek 3	ZV Creek	Spring Cr.	USFS/ Private						18		16	10
Rose	ZV Creek	Spring Cr.	USFS									6
Horse Creek 2	Horse Creek	Spring Cr.	USFS						20	0		
Horse Creek	Horse Creek	Spring Cr.	USFS			9	23		0	19	14	13
Kern	Horse Creek	Spring Cr.	USFS								7	
Prairie 1	Prairie	Spring Cr.	Private									
Prairie 2	Prairie	Spring Cr.	Private			6			11			
Gleason	Soda Well	Spring Cr.	Private									6
Mountain	Soda Well	Spring Cr.	USFS							16	12	20
Heald	Soda Well	Spring Cr.	USFS				0	0				
Turner Creek	Turner Creek	Upton-Osage	BLM				2		0	9	25	3
Arch Creek 1	Arch Creek	Upton-Osage	USFS						6	8	12	10
Cedar Knoll	Arch Creek	Upton-Osage	USFS							23	19	
			Total Males	**5**	**28**	**29**	**64**	**0**	**83**	**107**	**148**	**82**

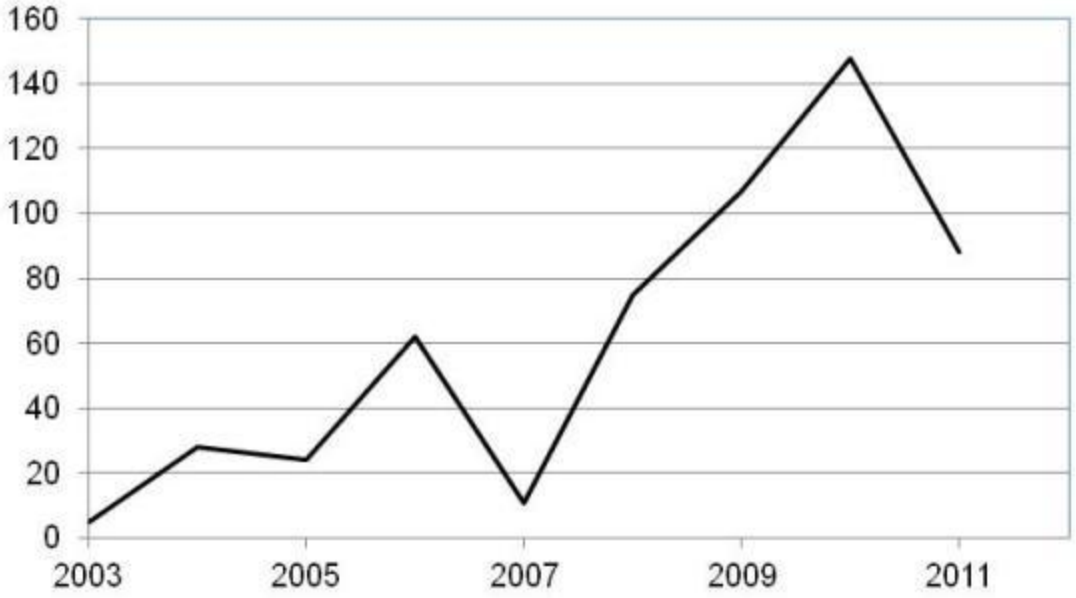


Figure 8. Total Male Sharp-tailed Grouse Observed on NFS Leks.

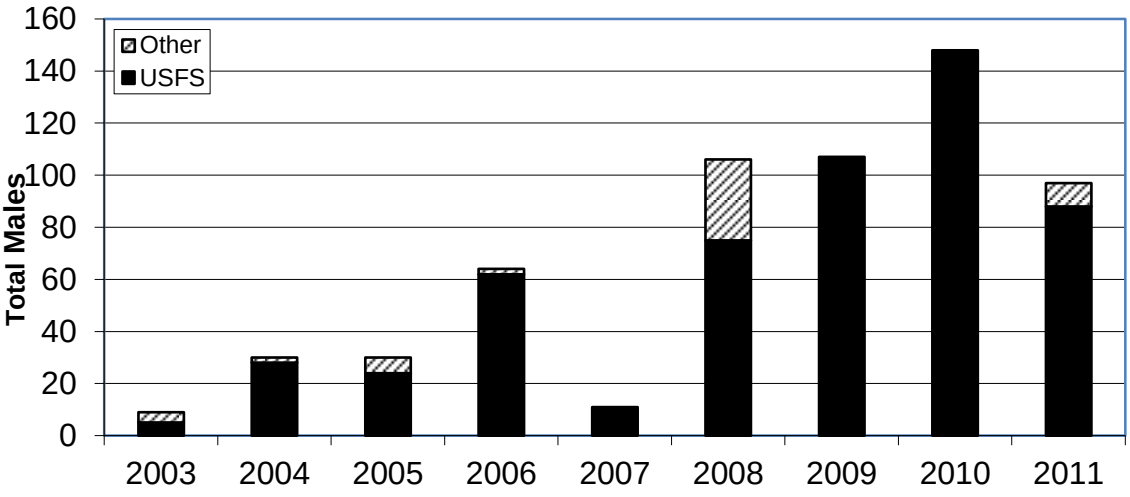


Figure 9. Total Male Sharp-tailed Grouse Observed on all Leks.

Discussion

There was a sharp decline in population numbers in 2011. This could be due to a long hard winter and cold, late spring. Habitat for sharp-tailed grouse appears to be good condition. There are concerns about the sharp decline in 2011 numbers. However, numbers are not at an all-time low, and it appears that overall the sharp-tailed grouse on NFS lands are maintaining. If these numbers continue to decline, more discussion and analysis will be warranted.

T & E 1 - Black Footed Ferret

Goal 1.b, Objective 2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***To what extent are NFS lands and their management contributing to the recovery and viability of black-footed ferrets?***

Monitoring Protocol/Data Collected: Acres of active prairie dog colonies (prey for ferrets, should they be reintroduced in the future); acres planned for ferret reintroduction; progress toward such a reintroduction effort.

Results/Evaluation: The Thunder Basin National Grassland encompasses over 500,000 acres of short-grass prairie in northeastern Wyoming. The Multi-State Conservation Plan For The Black-tailed Prairie Dog (Luce 2006) identifies the Thunder Basin as one of two comparatively large and intact priority areas for the conservation of the black-tailed prairie dog. For the purpose of prairie dog and prairie ecosystem conservation, a Land and Resource Management Plan amendment in 2002 designated 58,000 acres within Cellars-Rosecrans Geographic Area as a unique Management Area (MA 3.63). Management Area 3.63 on the Thunder Basin is managed for prairie ecosystem values with the intent of providing suitable habitat for the black-footed ferret should a future opportunity for reintroduction occur.

A broad partnership continues to work to advance prairie dog population growth on the Thunder Basin. Partners in land management include: Wyoming Game and Fish Department, World Wildlife Fund, Thunder Basin Grazing Association, Prairie Dog Coalition, Defenders of Wildlife, Thunder Basin Grasslands Prairie Ecosystem Association, The Bayer Corporation, Biodiversity Conservation Alliance, and the U.S. Fish and Wildlife Service. Efforts to conserve short-grass prairie habitats and black-tailed prairie dogs include the use of prescribed fire; mowing to improve habitats; installation of temporary fencing to facilitate the growth of vegetative buffers; the dusting of prairie dog burrows to combat bubonic plague; designation of prairie dog shooting closures; installation of signage; trapping and translocation of prairie dogs encroaching on private land; application of rodenticides where other methods have proven ineffective; and, the installation of raptor perches to encourage predation of prairie dogs in proximity to private lands.

Specific accomplishments in 2011 include:

- the mapping of 3,448 additional acres of active prairie dog colonies,
- dusting of 2,000 acres of habitat,
- the use of prescribed fire on 4,000 acres to improve habitat,
- and, the translocation of 349 individual prairie dogs encroaching on private lands.

All active prairie dog colonies on the Thunder Basin are mapped annually. In 2011, 3,448 new acres were mapped. Currently, black-tailed prairie dogs occupy 8,648 acres on the Thunder Basin National Grassland; 5,600 of these acres occur within Management Area 3.63.

Recommendations: Continue to manage for increasing prairie dog numbers – especially in and around the Black-footed Ferret Reintroduction Habitat Management Area (MA 3.63). Continue to plan and prepare for ferret reintroductions.

Multiple Benefits to People

Recreation 1 - Trails

Goal 2.a Objectives 1 and 7
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***To what extent are trails managed to meet regional standards and to minimize conflicts among users?***

Monitoring protocol/data collected: Miles of trail maintained to standard, reports of conflicts among trail users.

Results/Evaluation: The Thunder Basin National Grassland has 45 miles of single track motorized trail and 73 miles of two-track motorized trail (see Table 12).The entire two-track trail system was either converted and/or designated in the Thunder Basin Travel Management Analysis completed in 2009. All of the trail systems already existed either as user-created trails or two-track roads which have been converted to motorized trails. Since none of the newly designated trails were purpose-designed and/or built for ORV use, route widths are often too wide; there are inadequate drainage and erosion controls; tread surfaces are either nonexistent or inadequate for the type of use the route is now designated for; and some routes are poorly placed in relation to drainages or other sensitive areas.

Specifically, in the Weston Recreation Area, which encompasses approximately 12.3 miles of two-track trail, and is the most popular motorized recreation area on the grassland; the many user-created creek crossings have caused considerable damage. In the travel management analysis, all but two of the crossings are to be closed, and bridges to be constructed over the creek. The closed crossings were signed closed in 2010. The District applied for and was awarded the Wyoming State Trail crew to construct the bridges in 2010 and 2011; however, the project has not yet been completed. There are continued plans to see the bridges constructed and work is underway now to move it forward.

As part of the Travel Management Analysis, two trailheads are to be built for recreational riders to access the newly designated motorized trail systems. One is south of the Steckley Road, using an abandoned gravel pit, and another is just south of the Dull Center Road on a flat area, which access the trails in the Lake Creek area. There are plans to apply for a grant from the Wyoming State Trails Program to construct the trailheads in 2012.

The 45 miles of single-track motorized trail is used for a motorcycle Enduro event one day each year. This is part of a larger Enduro circuit, and has been deemed one of the best in the Rocky Mountain circuit. The maintenance work for the single-track trail is done by the Inyan Kara Riders, a volunteer group out of Upton, Wyoming, who also organizes the Enduro event. There have been reports that there are erosion issues on the single-track trail system; however, these have not been confirmed.

Table 12. FY11 Trails Meeting Agency Standards.

Trails on District (miles)	Trails meeting agency standards (miles)	Percent (%)
118	45	38%

The 45 miles of single-track motorized trail is used for a motorcycle.

Recommendations:

- Provide on-site training to the volunteer group for trail maintenance, reconstruction and construction techniques.
- Arrange for a complete assessment of the single-track system to confirm the erosion issues. Arrange for repairs/maintenance/reconstruction as required.
- Secure funding to purchase a small UTV so the trails can be patrolled regularly and checked for maintenance needs.
- Complete maintenance inventories for each trail.
- Identify immediate problem areas and schedule reconstruction/maintenance either with a district trail crew, or apply to the Wyoming State Trail crew.
- Expand the Weston bridge construction project to include decommissioning and fencing out the closed creek crossings.

Travel and Access 1 - Effects of Off Road Vehicles

Legally Required Monitoring Item
Goal 2.a and 4.a
Frequency of Measurement: Two Year
Reporting Period: Two Year

This monitoring item asks the question:

What are the effects of vehicle use off roads?

Monitoring protocol/data collected: This item is assessed using field observations, Forest patrol responses, and official law enforcement statistics.

Results/Evaluation: Recreational riders are seeing the benefits of the travel management analysis and its implementation through increased and improved signing. This as well as a vastly improved Motor Vehicle Use Map that was unveiled in 2011 helped prevent off-road driving in key areas (i.e. Weston Recreation Area) as riders are given clear direction on where they can ride.

Table 13. Off Road Vehicle Violations on TBNG from 2003-2011.

Fiscal Year	Warnings	Incidents	Violations/ Tickets	Total
2003	1	1	0	2
2004	0	18	3	21
2005	5	1	4	10
2006	2	9	1	12
2007	1	6	2	9
2008	4	12	4	20
2009	8	19	5	32
2010	9	11	8	28
2011	8	9	3	20

The statistics from 2007-2010 reflect mostly spring patrolling efforts in Weston Recreation Area. Weston is known for a large upsurge in use in the spring and a priority had been placed on patrolling on frequent weekends beginning in March through May. Unfortunately, due to a variety of factors, little to no patrolling occurred in the spring of 2011, which is reflected in the law enforcement data in the table above.

The Rochelle Hills Area, which had previously seen a larger amount of motorized use in the spring, is now closed to motorized use from April 15 through June 30th each year to protect a critical elk calving area. This was included in the TBNG Travel Management Decision and was implemented with a gate at the grassland boundary on the upper end in 2010. To date, the gated closure has been respected; however, it is difficult to tell if riders are coming in from the bottom as there is no way to close that end adequately.

Effects of Off Road Use: Most off-road use occurs in the sagebrush areas, which with the wet springs and cooler summers over the past two years, have recovered quickly. Most off-road use appears to have been one-time only for game retrieval or to take a hunter closer to their target hunting area, so the chance of recovery is much higher. The hardest-hit areas are any knolls where hunters drive to the top to view an area below. These areas are driven repeatedly, and have suffered considerable damage, primarily from loss of vegetation and topsoil.

Other hard-hit areas are access "roads" to Woody Creek, Antelope Creek and the Cheyenne River which have been impacted by trappers driving in to check their trap lines throughout the winter and spring. The trap lines have to be checked every 72 hours, and according to one trapper, his entire line is a round-trip of 270 miles; much, if not all, on the grassland. These "roads" usually skirt the top of stream embankments and often cross drainages. The "roads" the trappers have created have become well-established and are used by hunters and other recreational riders who believe they are legitimate. They are causing the usual loss of vegetation and erosion any ground disturbance creates, as well as increasing the informal road system on the grassland and future decommissioning burden.

Effectiveness of Past Actions to Reduce Off Highway Vehicle Use: Education and enforcement efforts during hunting seasons these past years have proven very

effective. Signing roads closed with a carsonite post has proven effective in some instances. Buck and pole fencing has also proven effective for stopping off-road use, but only in those areas that have other natural features to work with.

FY11 Actions taken to address this problem: The Thunder Basin National Grassland Motor Vehicle Use Map was redone to be more readable and therefore usable. Several errors were corrected as well. In concert with the new map, signing has continued with the goal to match the information on the map to the ground. These efforts proved welcome to recreation riders and hunters who have always sought more definitive information on how to ride the grassland.

Recommendations:

- Continue to seek funding to support having trained Forest Protection Officers in the field.
- Continue to work towards filling a Reserve Law Enforcement Officer position on the district.
- Test and evaluate a variety of methods to effectively close unnecessary travel routes on the Grassland.
- Identify, decommission and barricade hunter-created "glassing" spots on knolls.
- Strategize engineering and enforcement to reduce and eventually eliminate trapper-created routes.

Community Relations 2

Goal 2.c
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

What are the effects of National Forest System Management on adjacent communities?

Monitoring protocol/ data collected: This monitoring item is answered using National Grasslands 25% payments to counties from the National Grassland.

Table 14. 25% Payments to Counties for Thunder Basin National Grassland (in Dollars).

County	TBNG Acres	2004 Payment	2005 Payment	2006 Payment	2007 Payment	2008 Payment	2009 Payment	2010 Payments
Campbell	139,775	287,141	215,602	288,676	140,987	219,580	156,763	279,071
Converse	182,274*	346,567	267,680	376,449	183,354	286,345	204,428	363,682
Crook	302	595	453	624	305	474	338	603
Niobrara	840	1,656	1,260	1,735	847	1,319	942	1,677
Weston	224,429	446,767	336,599	463,511	226,374	352,568	251,707	448,089
Total	547,620	1,082,726	821,594	1,130,995	552,367	860,289	614,180	1,093,123

Results/Evaluation: The 25% payment to counties for National Grasslands (7 U.S.C. 1012) provides 25% of net (rather than gross) receipts from grazing, minerals

(excluding royalties from coal) and other uses of the national grasslands directly to counties where the grasslands are located. These funds are to be used for roads and schools. These payments are calculated on a calendar year basis and are given in Table 14 above. The 2011 data will be available for the FY12 monitoring report. In 2005, the Minerals Management Service withdrew funds to cover a large royalty overpayment from previous years, which accounts for the drop in payments from 2004 to 2005. The drop in payments from 2006 to 2007 is thought to be for the same reason. For Converse County, the TBNG acres for 2009 and 2010 were 182,153 due to a land exchange.

The TBNG has the largest area of public land in these counties and so has the majority of tourism activities related to outdoor recreation, such as hunting and sightseeing. One measure of the effects of tourism is to consider the money spent by travelers in the area. Travel related employment ranges from 4 to 8% of total employment by county. Revenue from travel spending has increased over the past 10 years in all counties, most markedly in Campbell and Converse counties. Wyoming tourism data can be found at the following website:

http://www.deanrunyan.com/impactsWY.html

Recommendations: Continue tracking payments to grassland for this monitoring item.

Comparison of Estimated and Actual Outputs and Services

Legally Required Monitoring Item
Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are the projected annual outputs and services being met annually and at anticipated costs?***

The outputs tracked for this monitoring report include forage provided to domestic livestock, noxious weed control, terrestrial wildlife habitat, and minerals permit processing and operations, as these are the primary outputs of the Thunder Basin National Grassland. Costs are tracked for the Douglas District of the Medicine Bow – Routt NFs and Thunder Basin National Grassland. The figure below does not reflect administrative costs, which are common to all program areas (cost pools). Costs shown do include costs for the Laramie Peak Unit as that area is also administered by the Douglas District. Fiscal Year (October 1 to September 30th) allocated budgets for 2003 to 2011 are given below in Figure 10.

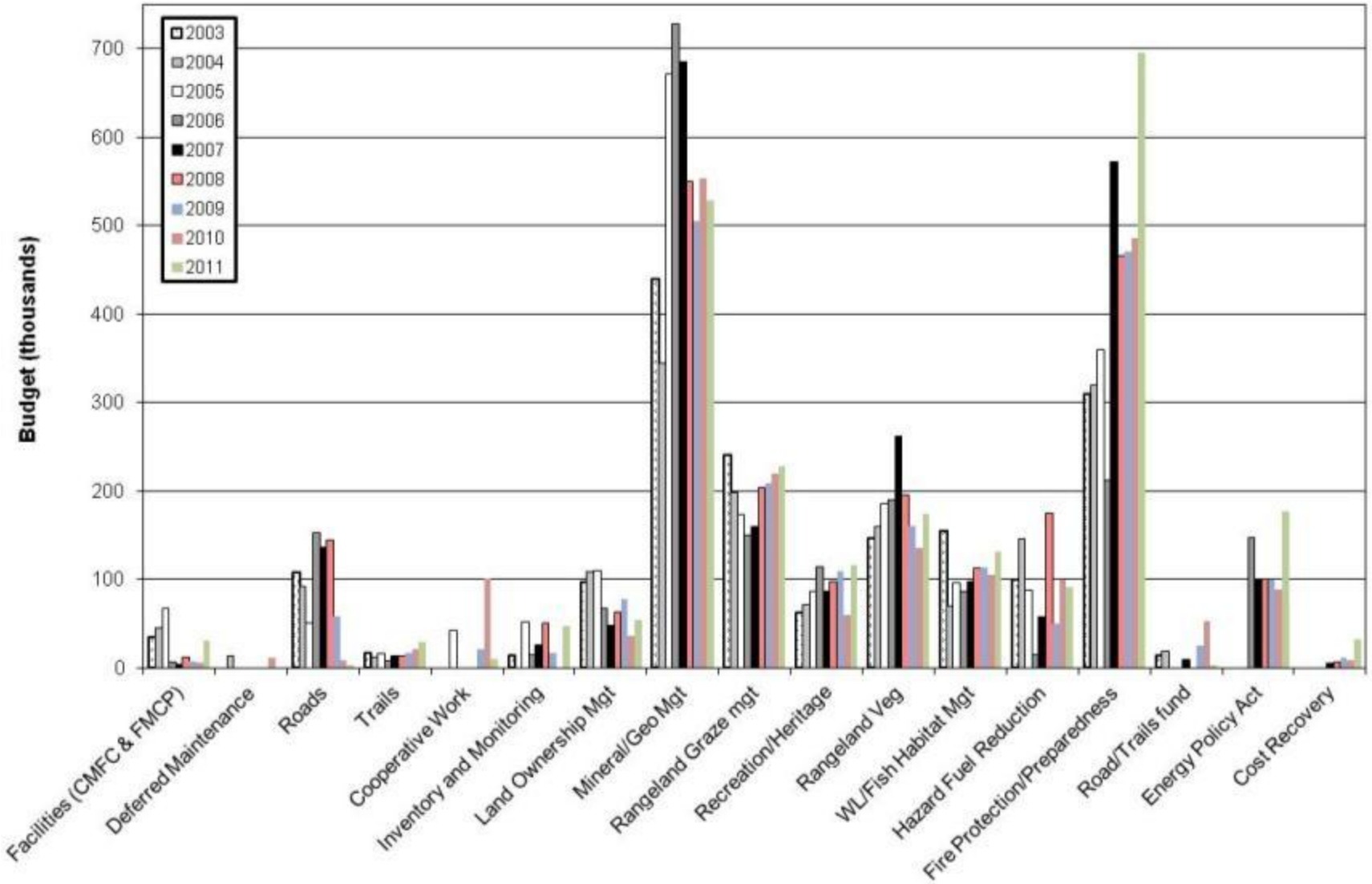


Figure 10. Budget for 2003 - 2011 for The Douglas Ranger District of the Medicine Bow - Routt NFs and Thunder Basin National Grassland. (Graph does not Include Costs for Administrative Programs Common to all Program Areas).

Rangeland Outputs

2009

Year 2009 was the first year of "abundant" precipitation after nine consecutive years of this extended and extreme drought in Wyoming. Spring and summer rains were better-than-average in most areas in amount, and timing was generally conducive to good grass production. Most ranchers were able to run the majority of their permitted numbers; although some have not yet fully replaced all of their herds sold off in earlier years, taking partial non-use for resource protection. Some went on a little later than normal because of the cool, late spring, and a few came off early. All of these efforts are good examples of proper rangeland vegetation management techniques – reducing livestock commensurate with the level of forage production and water availability, and allowing rangelands to recover from previous drought conditions.

Non-use of animal numbers for resource protection averaged about 5%, with the total amount of grazing use at about 95% of the projected Grassland Plan level – higher than most years since this drought began.

2010

Year 2010 was the second year of "abundant" precipitation after a severe and prolonged drought from 2000-2008. Spring and summer rains were better-than-average in most areas in amount, and timing was generally conducive to good grass production. However, good rains were spotty, as usual, across the Grasslands, and some allotments received very little precipitation at all. Most ranchers were able to run the majority of their permitted numbers; a few have not yet fully replaced all of their herds sold off in earlier years, taking partial non-use for resource protection. Some went on a little later than normal because of the cool, late spring, and a few came off early. All of these efforts are good examples of proper rangeland vegetation management techniques reducing livestock commensurate with the level of site-specific forage production and water availability, and allowing rangelands to recover from previous drought conditions.

Non-use of animal numbers for resource protection averaged about 5%, with the total amount of grazing use at about 89% of the projected Grassland Plan level – higher than most years since this drought began.

2011

2011 was a year of about average precipitation (following two good years) after a severe and prolonged drought from 2000-2008. Spring and summer rains were about average in most areas in amount, and timing was generally conducive to good grass production. However, good rains were spotty, as usual, across the Grasslands, and some allotments received very little precipitation at all. Most ranchers were able to run the majority of their permitted numbers; a few have not yet fully replaced all of their herds sold off in earlier years, taking partial non-use for resource protection. Some went on a little later than normal because of the cool, late spring, and a few came off early. All of these efforts are good examples of proper rangeland vegetation management techniques – reducing livestock commensurate with the level of site-specific forage production and water availability, and allowing rangelands to recover from previous drought conditions.

Non-use of animal numbers for resource protection averaged about 5%, with the total amount of grazing use at about 93% of the projected Grassland Plan level – higher than most years since this drought began.

Grazing Levels

Table 15. Livestock Grazing Use for 2004 – 2010 (in AUMs).[1]

Livestock Grazing	Planned Level[2]	2004	2005	2006	2007	2008	2009	2010	2011
Cattle		89,580	102,432	78,237	60,245	81,021	60,245	95,575	100,037
Sheep		3,881	4,739	3,739	7,568	8,261	7,568	7,598	7,587
Total Use	**115,430**	**93,461**	**107,171**	**81,976**	**67,813**	**89,282**	**67,813**	**102,173**	**107,624**

Recommendations: Continue to report actual grazing use each year in relation to the planned level, and explain in the narrative section the annual climatic fluctuations that may account for the differences.

Rangeland Health

Rangeland vegetation structure and composition were measured across the entire Grassland in the period between 2004-2008.

Monitoring Protocols/Data Collected: Rangeland analysis has been conducted across the entire Grassland (Spring Creek unit in 2004, the Thunder Basin area in 2005-2006, and the Inyan Kara area in 2007-2008). Cover-Frequency transects were read on most allotments, in addition to photopoints. Robel pole[3] readings were taken at established transect intervals to measure vegetation height. Visual inspections of nearly all pastures were made to verify and extrapolate transect results. Parker 3-Step permanent transects were re-read in many locations as well.

Each Geographic Area has desired vegetation structure conditions set forth in the Grassland Plan (Chapter 2). As defined in Appendix H of the Grassland Plan, High structure is 7 inches or greater, Low structure is 2 inches or less, and Moderate is 2 ½ to 6 ½ inches in height. Vegetation structure inventory data are summarized and compared to desired conditions in Table 16 below.

Table 16. Summary of Rangeland Vegetation Structure across the Thunder Basin National Grassland (552,480 acres).*

Vegetation Structure	High	Moderate	Low
Grassland Plan Desired Condition*	29% - 39%	38% - 48%	18% - 28%
Existing Condition as of 2008:			
Percent	28%	52%	17%
Acres	152,157	288,730	95,222

[1] Grazing use is measured using animal unit months (AUMs) which is a standard unit for each type of livestock (for example, 1 AUM for cattle is the amount of forage that one cow/calf pair would eat in one month).
[2] From Supplemental Table S-2 of the FEIS.
[3] Robel Pole is a banded pole, which is used to measure the amount of vegetation biomass present at the time of the survey (Robel et al, 1970).

*The percentage across the entire Grassland is computed by using a weighted average for all of the acres across all six Geographic Areas. Note that 3% of the Grassland acres are within the permit boundaries of active coal mines.

Measured at the greater landscape scale across all 550,000+ Thunder Basin National Grassland acres, current management is within 1-4% of meeting desired vegetative structure. All categories have a 10% range of acceptable levels.

Actions needed in the next 5-10 years to meet ***overall*** Grassland Plan Desired Condition:

1. Conditions should be measured by Geographic Area because the different GAs have different management objectives and desired vegetative conditions.
2. For the most part, across most allotments, maintain existing vegetative structure. Slight modifications of use in some pastures of some allotments will be adequate to accomplish the following changes in categories.
    a. Move about 5,000 – 10,000 acres from Moderate structure to Low structure.
    b. Move about 10,000 – 20,000 acres from Moderate structure to High structure.

Each Geographic Area has desired vegetation seral stages set forth in Chapter 2 of the Grassland Plan. Vegetation composition data are summarized and compared to desired conditions in Table 17 below.

Table 17. Summary of Rangeland Vegetation Seral Stages for the entire Thunder Basin National Grassland (552,480 acres).*

Vegetation Seral Stage	Late	Late Intermediate	Early Intermediate	Early
Grassland Plan Desired Condition*	12% - 22%	28% - 38%	28% - 38%	14% - 24%
Existing Condition as of 2008:				
Percent	12%	37%	28%	20%
Acres	63,268	206,268	153,924	108,879

*The percentage across the entire Grassland is computed by using a weighted average for all of the acres across all six Geographic Areas. Note that 3% of the Grassland acres are within the permit boundaries of active coal mines.

Measured at the greater landscape scale across all 550,000+ Thunder Basin National Grassland acres, current management is already meeting desired vegetative seral stages in all four categories.

Actions needed in the next 5-10 years to meet ***overall*** Grassland Plan Desired Condition:

1. Conditions should be measured by Geographic Area because the different GAs have different management objectives and desired vegetative conditions.
2. Since 3 of the 4 categories are near the outside of their ranges, efforts should continue to move toward the middle of those ranges. For example, management of 10,000 – 20,000 allotment/pasture acres could be slightly

adjusted to move them from Late Intermediate up into Late, and a similar amount could be moved downward into Early Intermediate.

About 367,841 acres (67%) were reported as administered to standard across the Grassland in 2009. None of the pasture acres monitored over the course of the 2009 field season across all areas of the Grassland had the specific data methods or results entered in the database.

In 2011, previous NEPA decisions were implemented on 66,031 acres, improving vegetation in these pastures. Allotment management plans were updated as needed and implemented on an additional 19% of the allotment acres on the Thunder Basin Grazing Association.

Recommendations:
Annual monitoring efforts will continue to evaluate where minor changes are needed in order to meet overall objectives (such as for prairie dog management emphasis areas as well as vegetation objectives). Efforts are scheduled to begin in 2012 to reassess structure and composition percentages as a part of the Grassland Plan ten-year review.

Noxious Weed Control
Funding for noxious weed treatment, as well as assigned target acres, was again greatly reduced in 2009 and 2010. As a result, only 528 acres of noxious weeds were treated on the Grassland in 2009 – an average amount over the past several years. In 2010, 180 acres of noxious weeds were treated on the Grassland – only a third of the average amount over the past several years. In 2011, funding for noxious weed treatment, as well as assigned target acres, was again greatly reduced. As a result, only 112 acres of noxious weeds were treated on the Grassland – only a third of the average amount over the past several years. Primary species treated were the same as in the past: leafy spurge, diffuse knapweed, saltcedar, cheatgrass, and Canada thistle. The district is focusing much of its efforts on inventorying for the presence of saltcedar (tamarisk) because it is still possible to eradicate this species from the Grassland. Saltcedar is not classified as a noxious weed by the state of Wyoming (although it is by most western states). However this non-native invasive tree species is a serious threat to riparian ecosystems.

Figure 11. Saltcedar (light colored shrubs) on TBNG.

Table 18. Noxious Weed Treatment (acres).

2004	2005	2006	2007	2008	2009	2010	2011
327	430	580	853	302	528	180	112

All five counties, all three Grazing Associations, and the Thunder Basin Prairie Ecosystem Association are cooperating parties with the Forest Service in controlling noxious weed and invasive plant infestations.

Recommendations: Continue to report acres of noxious weeds treated each year, along with reasons for annual fluctuations in acres and species of weeds treated; data are useful to discern trend of infestations and treatments.

Minerals

Mineral Operations during FY 2011

The following administration and permit processing was accomplished on the TBNG during 2011.

Energy Operations Processed: In 2011, 37 Energy Operations were processed, and are broken down as follows:

- 15 Oil/Gas Sundry Notices
- 8 New Mineral Related Special Use Permits (SUP) issued (tank batteries, power lines to well sites, pipelines, etc.)
- 7 Mineral Material Permits processed
- 2 Gold Dredging authorizations processed
- 2 Geophysical Exploration Authorization processed
- 3 New Coal lease consent decision signed – South Hilight LBA tract, South Porcupine LBA tract, and North Porcupine LBA tract

Only a few oil and gas leases were processed, but then processing was placed on hold due to the BLM request due to concerns with NEPA sufficiency on the BLM side. The leases will be on hold status until there is a new or updated NEPA document completed for leasing.

Figure 12. Oil Well on TBNG.

Operations Administered to Standard: In FY 2011, 584 operations were administered to standard, including:

- 2 Bonded Mineral Material Sales
- 537 Oil/Gas well inspections and follow up inspections
- 48 Tank Battery site inspections
- 2 Bioremediation inspections performed
- 4 Surface Coal Mine Plans
- 46 Mineral related Special Use Permits
- 3 Geological Hazards and Resources inspected
- 1 Paleo PIT project completed

Oil and Gas Wells: There was one oil/gas well drilled, 4 bond releases for wells were approved, and 4 spills were inspected and administered.

Geologic Resources: Prepared 12 Geologic Permits and Reports.

Groundwater Resources: None.

Table 19. Summary of Mineral Activities 2004-2011.

	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Oil & Gas Well Inspections	470	495	576	595	528	529	529	537
Follow-up Inspections	23	25	34	25	34	30	31	30
Mineral-related SUPs	5	20	n/a	n/a	21	21	57	
Bond releases (wells) processed and approved	2	2	5	3	7	4	2	9
Spills	2	4	3	2	2	1	3	

Scientific and Technical Assistance

Administration – Action Plans in Goals and Objectives

Goal 3, Objectives 1,2 & 3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are the action plans identified in Goal 3 - Scientific and Technical Assistance, being completed on schedule?***

Monitoring Protocol/Data Collected: A review of the opportunities to implement national recovery plans was conducted and actions taken in support of a National Recovery Plan are described below.

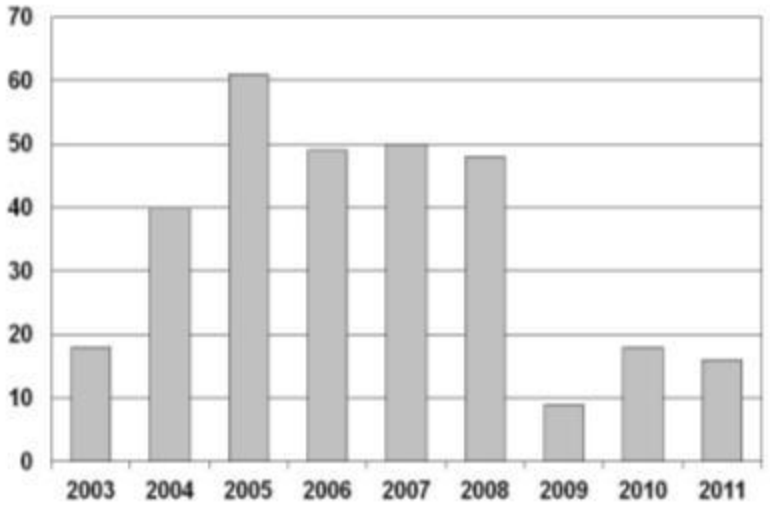
Objective 1; Inventory and Monitoring:
Inventories and monitoring were conducted for nesting raptors, breeding sage grouse, breeding sharp-tailed grouse, bald eagle, prairie dogs, breeding songbirds and foraging bats. The results of prairie dog and grouse monitoring are discussed above in the *MIS 3 – Population Trends* monitoring item.

Raptors
In 2011, nesting raptors (bald eagles, golden eagles, Red-tailed, Swainson's, and ferruginous hawks) were inventoried on 3,500 acres of the Thunder Basin National Grassland to provide resource information for land management decisions, and to assist other ongoing raptor projects. Ground searches were conducted in known nesting areas to locate new and known nest sites. Species present, activity level, and nest condition were recorded. A total of 89 raptor nests were located, 16% (14 nests) were active. It is suspected that the remainder was inactive due to a lack of prey caused by a crash in the local rabbit population

Table 20. Raptor Nests Monitored on TBNG 2003-2011.

Year	Total Inventoried	Number Active	Percent Active
2003	208	37	18
2004	155	62	40
2005	104	64	61
2006	337	152	49
2007	151	76	50
2008	231	98	42
2009	123	11	09
2010	126	23	18
2011	88	14	16

In 2011, 14 nests were occupied by raptor species including; one golden eagle (*Aquila chrysaetos*), six ferruginous hawks (*Buteo regalis*), five red-tailed hawks (*Buteo jamaicensis*), and two great-horned owls (*Bubo virginianus*).



The number of nests monitored by year is listed below. However, it does not represent a totally accurate percent of active nests. Each year specific areas are targeted for survey, leaving other areas with an undetermined status for many nests. Depending on the habitats available, the raptor species using it will vary. The active category only represents the least amount of active nests found in one year.

Figure 13. Active Raptor Nests found on TBNG 2003-2011.

Table 21. Number of Nest Monitored (T = Total nests monitored, A = Active nests).

Species	2003		2004		2005		2006		2007		2008		2009		2010		2011	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Bald Eagle	5	1	5	1	1	1	1	1	7	1	1	0	0	0	0	0	0	0
Golden Eagle	0	0	36	31	10	9	29	19	14	8	45	27	12	0	6	2	7	1
Ferruginous Hawk	146	17	41	17	40	14	144	46	46	14	85	27	54	4	42	7	62	6
Swainson's Hawk	0	0	2	1	4	4	6	7	1	1	2	2	2	1	4	2	2	0
Red-tailed Hawk	52	17	70	11	29	28	144	80	73	44	48	27	54	5	70	11	11	5
Great Horned Owl	5	2	1	1	6	6	13	13	10	8	9	9	1	1	4	1	2	2
Unknown Raptor spp.																	4	0
TOTAL	**208**	**37**	**155**	**62**	**104**	**64**	**337**	**166**	**151**	**76**	**190**	**92**	**123**	**11**	**126**	**23**	**88**	**14**

Bats

No bat surveys occurred in FY11. Refer to past year's Annual Monitoring Reports for the data from past surveys on the TBNG.

Objective 2: Provide Research Results:

Ferruginous hawk: The TBNG continues to participate with a variety of partners in the *Tri-National Investigation of Ferruginous Hawk Migration*. Several Ferruginous hawks from the TBNG have been trapped and equipped with radio collars as a part of this effort. The site below provides information about this raptor species and up-to-date information about the Tri-National Migration Study.

http://www.ferruginoushawk.org/index.html

Objective 3: Establish new monitoring and implement existing monitoring for MIS.

Monitoring was continued for all known sage and sharp-tailed grouse leks. New leks were added into the established monitoring plan. We continued to monitor activity of black-tailed prairie dog colonies and new colonies were entered into monitoring plans.

Recommendations: Continue to monitor, inventory, and pursue administrative studies, as appropriate. Especially maintain inventory and monitoring of sensitive species, MIS, and species of local interest. The continued viability of sensitive species is being maintained through project level surveys to detect occurrences, avoidance of sensitive species occurrences in project implementation, and implementing conservation measures to minimize impacts to populations or habitats.

Effective Public Service

Threatened and Endangered Species – Action Plans

Goal 4b
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are actions identified in national recovery plans for threatened and endangered species being implemented where opportunities exist on the national grasslands and forests?***

Wildlife

Monitoring Protocol/Data Collected: The Black-footed ferret is a federally listed wildlife species which depends upon prairie dogs for its survival. The mountain plover has been proposed for listing twice in the recent past (in 2002 and 2011), however in May, 2011, the Fish and Wildlife Service determined that the mountain plover was not threatened or endangered and withdrew the listing proposal. The Bald eagle was removed from the Endangered Species List in 2007.

Figure 14. Black Footed Ferret (Photo Courtesy of the USFWS)

Results/Evaluation: As part of the recent draft National Black-footed Ferret Recovery Plan (US Fish and Wildlife Service (USFWS), 2006), TBNG has been identified as a potential reintroduction site. The following items were taken from the draft Recovery Plan, and identify actions needed to recover ferret populations:

1. Maintain a captive ferret population of optimal size and structure to support genetic management and reintroduction efforts.
2. Reduce disease-related threats in wild populations of ferrets and associated species.
3. Ensure sufficient habitat to support a wide distribution of self-sustaining ferret populations.
4. Establish free-ranging populations of ferrets to meet downlisting and delisting goals.
5. Promote partner involvement and adaptive management through regular programmatic review and outreach.

Items 3-5 are action items that TBNG can contribute toward ferret recovery. To ensure sufficient habitat is available, TBNG has established a prairie dog shooting closure, maps prairie dog colonies annually, and through Grassland Plan direction provides additional standards and guidelines for activities within prairie dog colonies. Grassland Plan direction also outlines ferret reintroduction habitat by establishing a management area designation for black-footed ferrets. TBNG is also currently part of the proposed statewide 10(j) designation for the identified ferret reintroduction habitat. This would allow for release of black-footed ferrets on TBNG as nonessential experimental population. As a part of this process, the TBNG has developed a prairie dog strategy, which involved other Federal agencies, state agencies, private landowners, and a private land owner group. Programmatic review of the Forest Plan/Grassland Plan occurs annually.

Proactive management actions for TBNG include implementing the prairie dog strategy involving partners, pursuing a 10(j) designation, and continually monitoring prairie dog populations. Many of these partnerships have been long in the making, and are now at a place where we are making new strides in the management of prairie dogs and the reintroduction of ferrets. These partners include: US Fish and Wildlife Service, Wyoming Game and Fish Department, Thunder Basin Prairie Ecosystem Association, Thunder Basin Grazing Association, The Nature Conservancy, Defenders of Wildlife, World Wildlife fund, Prairie Dog Coalition, Biodiversity Conservation Alliance, Bureau of Land Management, etc. These actions and partnerships are expected to provide long term conservation of prairie dogs, and contribute to a future ferret reintroduction.

Recommendations: Continue to monitor active prairie dog colonies within the black-footed ferret recovery area.

Plants

Monitoring Protocol/Data Collected: Two federally listed plant species Ute ladies' tresses (*Spiranthes diluvialis,* threatened) and blowout penstemon (*Penstemon haydenii,* endangered) are known or suspected to have suitable habitat on the TBNG.

In 2011 surveys were continued for both species by USFS botanists and for project level work.

Results/Evaluation: Suitable habitat has been identified for Ute ladies' tresses in riparian areas and wetlands in western portions of the TBNG, but no populations have been discovered. Suitable habitat for blowout penstemon is suspected to occur on central portions of the TBNG, but habitat discovered to date is marginal. Marginal habitat is included in survey efforts but no populations have been found.

Ute Ladies' Tresses

In Wyoming Ute ladies' tresses is known to occur in riparian wetlands at the southern extent of the North Platte River drainage in Converse, Goshen, Laramie and Niobrara Counties. Potential distribution of species and suitable habitat was modeled in 2003 (Fertig and Thurston 2003) and included several drainages that extend onto the TBNG. Extensive surveying on TBNG has been done in the past and efforts continued in 2011.

Figure 15. Ute Ladies' Tresses

650 acres of modeled suitable habitat was surveyed by USFS botanists in 2011 during the appropriate survey window (mid-July to mid-August) dictated by USFWS. The surveys had negative results but additional surveys are planned for 2012 and 2013 in accordance with USFWS guidelines recommending 3 years of consecutive surveys for confirmation of presence/absence in suitable habitat (USFWS 1995a). Projects with impacts to riparian areas of wetlands in the vicinity of suitable habitat also incorporated field reconnaissance for this species in 2011 (Table 22). These surveys had negative results and biological determinations for these project were typically "no effect" if suitable habitat was absent or "may affect, not likely to adversely affect" in suitable habitat was present but unoccupied. Field surveys for Ute ladies' tresses will continue for all relevant projects in future years.

Table 22: Ute Ladies Tresses Surveys in 2011.

Year	Surveyor name	Project/Source	Area Surveyed	Result
2011	USFS botanists	USFS monitoring	Antelope Creek, Bear Creek, Sand Creek (mapped suitable habitat)	Suitable habitat identified, no plants found
2010-2011	Knight Technologies, Inc.	Clinker scoria mine	Burning Coal Draw, North Prong Little Thunder Creek	No suitable habitat found within the analysis area
2006, 2010, 2011	BKS Environmental Associates, Inc.	Mackey Road Relocation	School Creek, Little Thunder Creek	No suitable habitat found within the analysis area
2007,2009, 2010, 2011	BKS Environmental Associates, Inc.	Antelope Mine Plant Expansion	Tributaries of East and West Logan Draw and Antelope Creek	No suitable habitat found within the analysis area

Blowout Penstemon

Blowout penstemon *(Penstemon haydenii*) is a regional endemic of the Nebraska Sandhills and the northeastern edge of the Great Divide Basin in Carbon County, Wyoming. There are currently three known occurrences in Wyoming and ten populations globally. Most recently surveyed in 2008 by Wyoming Natural Diversity Database, the TBNG sits between the 2 known population centers but no individuals or suitable habitat have been discovered to date. The 2011 field season surveys included both USFS monitoring and project level surveys for suitable habitat (and species occurrences in marginal habitat), both with negative results. Additional USFS surveys will be conducted in future years and blowout penstemon will continue to be considered in biological assessments on the project level. Because there has yet to be suitable habitat identified on the TBNG, all projects thus far have reached the biological determination of "no effect" on this species.

Figure 16. Blowout Penstemon (Photo Courtesy of Walter Fertig)

Conclusions: All actions were in compliance with the recovery plans for Blowout penstemon (USFWS 1992) and Ute Ladies Tresses (USFWS 1995b)as well as the Thunder Basin National Grassland Land and Resource Management Plan (USFS 2002).

Recommendations: Continue to monitor these species and survey for species occurrences and suitable habitat. No needed changes to the plan have been identified to date.

Implementation Monitoring

Implementation of Standards and Guidelines

Legally Required Monitoring Item
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Have site-specific decisions successfully implemented the Land and Resource Management Plan Direction?***

Monitoring Protocol/Data Collected: Interdisciplinary Team (IDT) monitoring trips in October 2011 by the Forest Monitoring and Evaluation Team and Douglas District Personnel reviewed the following projects. The results of these reviews are summarized below.

Forest Grassland Monitoring and Evaluation Field Trip, October 18 and 19, 2011.

Stop 1 Black Thunder Coal Mine Tour

The IDT toured the Black Thunder Coal Mine, learning about and reviewing operations, stockpiling and reclamation procedures.

IDT Team Evaluation

Resource Area	Evaluation
Archeology	Not many issues, but does wonder how they deal with unanticipated discoveries of cultural sites. There have not been any discoveries reported.
Planning	The reclamation looks good. There are bond release issues - which are complicated. Would like to know their tracking system for which areas are in what phase of reclamation.
Public Affairs	It is what it is, a large coal mine and there are reclamation bond issues. They should insure that the topsoil is still viable after stockpiling.
Scenery / Visuals	The mine is doing a better job on reclamation than twenty years ago. There is more topography and more rocks. They are working towards creating more natural rock outcrops.
Botany	There is discussion about range and wildlife values but not about plant diversity on the reclaimed land, which could be an issue with having the state accept the reclamation. The wetlands are different with a large reservoir after reclamation as compared to small wetlands prior to the coal mine.
Wildlife	Have been working with the coal mines for on-site mitigation for raptor nests and perches lost from coal mining activities.
Range	There is an issue with bringing the reclaimed areas into production. The district is making progress with the mines. There have been some range permitting issues related to the mines.

Hydrology	For the newer reclamation plans, the coal mines are working closely with us to recreate the form and patterns of wetlands, rather than having a few larger reservoirs. The by-pass for this reservoir should be re-evaluated when the area is turned back to the NFS.
Renewable Resources	Amazing tour. The reclamation does not appear to have very diverse vegetation and there are very few shrubs. Consider if there should be off-site projects or funding for migratory birds.
District Rangers	The bond release issues are very complex and the mines want to keep control of the lands. At the final stage of reclamation (Stage 3), they are holding very little bond and the bond release is costly, so little incentive to turn back the land. The district has been encouraging them for a bond release plan. The State Dept. of Environmental Quality (DEQ) makes the decision, but the USFS must concur. The USFS is invited on the Stage I, II and III inspections. Only 40 or 80 acres of NFS lands have been released. DEQ may push mine for bond release in the future. The District is also getting more critical in reviewing the plans to look at the big picture for reclamation.
Forest Supervisor	Visually, they have done a good job with the reservoir. They have found some key sites to not disturb like the portion of little thunder creek they retained. Is tree spading an option? Could some trees or shrubs be saved and then replaced back on site? Could they contract out with a nursery to replace the vegetation on the site? What would help speed up the bond release?

Figure 17. Pronghorn Reservoir, on the Black Thunder Coal Mine reclamation area.

Stop 2 Sampson Geophysical Seismic Exploration

The seismic exploration projects are often quite large. The District is currently working on analyzing one that is 60 square miles. This project was implemented in January, 2010 with vibrosis trucks. There appears to be little impact visible after one season as the tracks are no longer visible. The companies submit a plan of operations and stagger the trucks to offset the tracks. They use all-terrain vehicles to lay out the line, which creates less impact than using trucks. They flag and avoid the sensitive plant sites, and avoid steep slopes riparian areas and other resources in their operations. They also avoid any known archeological sites. The Memorandum of Understanding with the State Historic Preservation Office states that they do not have to evaluate the archeological sites, but should avoid them. This is different than in Colorado where they have to evaluate sites for eligibility.

For future projects, they will try to do due diligence for these sites to determine eligibility and if the sites should be avoided. Usually the operations are late in the season when there are no wildlife timing restrictions and the plants are dormant. Another issue is the potential for the project to cause a fire if implemented during a high fire risk time. Some of the areas are within core sage grouse habitat. There is a tool to calculate impacts to sage-grouse from projects.

IDT Team Evaluation

Resource Area	Evaluation
Archeology	We should increase the real time monitoring and spot check the archeological sites during operations. We should ensure that the private landowners know they have the option to have archeological surveys done if desired, per BLM requirements. We may want to look at a programmatic agreement as the current agreement does not cover geophysical operations.
Minerals	This meets our requirement to allow mineral exploration while protecting resources.
Planning	The planning process worked well.
Soils	Hard to determine the effects without know where the machines actually traveled.
Scenery / Visuals	Looks good, cannot see any effects.
Botany	Looks good from a vegetation standpoint. They avoided the potential sensitive and/ or T and E plant habitat.
Wildlife	The timing stipulations were appropriate for the project. Would be good to avoid operations during fire season.
Range	Everything is being done to minimize effects. Good to have the operations when the plants are dormant. The operations plan requires equipment to be cleaned to reduce potential weed contamination.
Hydrology	No apparent impact.
Renewable Resources	Looks good, very little impacts.
District Rangers	This was permitted in a relatively short about of time and process went well.
Forest Supervisor	Nice to see how impacts were minimized. It is good we are fulfilling our requirements under the minerals and energy act.

Stop 3: Upton Osage Fuels Reduction:

This fuels reduction project was initiated in 2004.to reduce fuels in the area around the towns of Upton and Osage. The District worked with the local community as they had a concern over fire risk around their towns. There also was interest from local equipment operators to bid on the project. The contract was awarded and the unit was completed in Fall, 2010. The contract was to deck the logs, which the FS would then sell separately. There were quite a few design criteria included in the decision. The Enduro (a local motorcycle race) permit holder appealed the original decisions. The district worked with them to mitigate their concerns by leaving more trees in specific areas to keep the motorcycle use close to the approved route.

IDT Team Evaluation

Resource Area	Evaluation
Archeology	The surveys for the whole project found 8 or 9 eligible sites, which were specified to be avoided.
Public Affairs	Looks good, meets the fuels purpose and need.
Planning	This project is consistent with the grassland plan, although the plan does not contain enough direction concerning forestry projects. The timber group on the forest should be more engaged when the grassland plan is revised.
Soils	Project did not use designated skid trails, and they could have utilized a feller-buncher. The standard BMPS's – to not skid or put piles in drainage ways were not followed. The ruts could be rehabilitated and the slash piles moved away from the drainage. They will need to figure out access to the log decks for the deck sales.
Scenery / Visuals	The project was designed for fuels reduction, but maybe will help protect against the bark beetle infestation. Looks good.
Botany	The areas of bare soil should revegetate. However the area should be monitored as there is cheatgrass in the vicinity that could spread into the unit.
Wildlife	No snags, but there is potential for snag retention. Down woody debris appears to be lacking as well. Snags may be created when piles are burned due to the proximity of some of the burn piles to live trees. Another unit in this project has a bat site. Should look at mitigation for bat habitat for future projects.
Range	Nice transitory rangeland created. Could use targeted grazing to keep fuels lower in the WUI area.
Hydrology	Would have been good to have identified the drainage as a protected stream course in the contract.
Renewable Resources	The project met the fuels objectives. There is a nice park like open feel to the unit. Many trees are damaged from the project, and there was too much soils disturbance. It would be good to include option in the future for under burning. The burn piles should be located farther away from live trees.
District Rangers	Hard to keep track of everything when a project is happening. The district learned to be more engaged with the folks who normally lay out contracts.
Forest Supervisor	The District worked with the Black Hills NF to get a prescription for this project. The Grassland Plan has general guidance for this area, which does not have certified forest land. Good to have a discussion of what you want the forest vegetation to look like over the next several decades. Good idea to use

	grazing to keep fuels down within WUI areas. Wood be good to have a COR / TSA available for the next contract. A normal contract would have had designated skid trails, landings locations, etc. This is an opportunity to determine what to do with the future forest in this area. Possibly could use KV funds from selling the decks to accomplish the soils rehabilitation.

2011 Douglas District Field Trip

Materi Pipeline

This project was included in the Inyan Kara EIS and ROD, as an adaptive management option. The EIS included appropriate design criteria for this project. The project included adding a stock tank that is supplied through a water pipeline from an existing well. The tank straddles private and federal lands. Funds came from the Inyan Kara grazing association, Conservation Districts, and the Wyoming Water Development Commission small water projects program. Landowners also contributed to the project. Archeological clearances were completed prior to implementation including tribal consultation.

The tank is constructed from a large tire with a float valve to control water use. An escape ramp for wildlife was also installed in the tank. The tank can be individually turned on and off to alter livestock distribution. The pipeline was installed by using heavy equipment to first rip the line, then push it into the ground and drive over to pack it down. This created a narrower swath of disturbed soil than with using a backhoe to dig a trench. Where feasible the line was co-located with existing roads as well. The line has been mapped so it can be added to the corporate database. This project is designed to reduce use in riparian areas and improve cattle distribution in the uplands. Photopoints and plots in the riparian area and uplands will be used for monitoring.

The IDT found that the installation was in a good location to improve cattle distribution. The items that need further attention are that the escape ramp should be improved and the water rights should be reviewed to ensure the paperwork is correct.

Best Management Practices (BMP) Monitoring

In order to test new BMP protocols, an oil well, Wildhorse Federal #14-18 on the Spring Creek Unit was evaluated using the draft BMP forms and instructions. This well was being used for production, and at the time of the inspection had an open mud pit and two stockpiles of soil located on the well pad.

The wellpad was well graveled and the disturbed area around the pad had been seeded. However no erosion control had occurred on the stockpiles, which showed indication of soil movement offsite, likely during rainstorm events. The mudpit had been overfilled in the past, and showed signs of drilling mud overflowing towards an ephemeral drainage below. Frequent compliance inspections had documented operations at the site and the

remediation measures which had followed. One example is when an inspection found oily fluids in the mud pit. The operator was notified and promptly vacuumed up the liquids, which could have posed a danger to wildlife.

Recommendations

Continue the frequent compliance inspections as they are key to minimizing the impacts during the different stages of well drilling and production.

Figure 18. Mudpit and Soil Stockpile at Wildhorse Federal #14-18.

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Photographs are from USFS personnel unless otherwise noted.

Acronyms

ATV	All Terrain Vehicle
AUM	Animal Unit Months
BLM	Bureau of Land Management
BMPs	Best Management Practices
CE	Categorical Exclusion
DM	Decision Memo
DEQ	Department of Environmental Quality
DM&E	Dakota, Minnesota, and Eastern Railroad Corporation
DN	Decision Notice
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FY	Fiscal Year
IDT	Interdisciplinary Team
LBA	Lease by Application
MA	Management Area
MIS	Management Indicator Species
MVUM	Motor Vehcile Use Map
NEPA	National Environmental Policy Act
NFS	National Forest System
NRHP	National Register of Historic Properties
PREcorp	Powder River Energy Corporation
PSD	Prevention of Significant Deterioration
R2	Region 2 (Rocky Mountain Region of USFS)
RNA	Research Natural Area
ROD	Record of Decision
SHPO	State Historic Preservation Officer
SIA	Special Interest Area
SUP	Special Use Permit
TCP	Traditional Cultural Properties
T&E	Threatened and Endangered
THPO	Tribal Historic Preservation Officer
USDA	United States Dept. of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
UTV	Utility Vehicle
WGFD	Wyoming Game and Fish Department
WYDEQ	Wyoming Department of Environmental Quality
WYNDD	Wyoming Natural Heritage Database
WYSEO	Wyoming State Engineer's Office

Appendix 1. Goals and Objectives

This section gives progress made toward the objectives which are due annually or by Fiscal Year 2010. Progress updates as of FY07 toward all grassland-wide and geographic objectives in the Grassland Plan were given in Appendix 2 of the TBNG Five Year Review, which is posted on the forest website at: http://www.fs.fed.us/r2/mbr/projects/forestmonitoring/index.shtml.

Goal 1: Ensure Sustainable Ecosystems: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands and watersheds.	
Objective 5. Throughout the life of the Plan, ensure proper plugging of abandoned wells to prevent cross contamination of aquifers (e.g., seismograph holes, water wells, etc.).	**Year Due Annually**
See the Watershed 4 – Aquifer Protection Monitoring Item.	
Goal 1.b: Provide ecological conditions to sustain viable populations of native and desired non-native species and to achieve objectives for Management Indicator Species (MIS).	
Objective 1. As scientific information becomes available, jointly develop with the US Fish and Wildlife Service and other agencies conservation and recovery strategies for plant and animal species, listed as threatened or endangered under the Endangered Species Act, and implement established conservation or recovery strategies over the life of the Plan.	**Year Due Annually**
See the T & E 1 - Black Footed Ferret Monitoring Item. Ute Ladies' Tresses (Spiranthes diluvialis), a plant T&E species with potential to be found on the TBNG has a draft conservation/recovery plan. In addition there is a petition to delist this species.	
Objective 3. Develop and implement conservation strategies for Forest Service sensitive species, as technical information becomes available	**Year Due Annually**
Plants: Conservation assessments were published for all US Forest Service Region 2 sensitive plant species known or suspected to occur on the TBNG (available at: http://www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5206999). Conservation strategies specific to the TBNG have not been developed at this time due to staffing, budget, and other workload priorities. Aquatic Species: No conservation strategies exist for R2 aquatic sensitive species in the planning area, although aquatic assessments	

have been constructed for these species. It will take time, personnel, and money to accomplish the prerequisite inventories to construct conservation strategies. Aquatic personnel have accomplished very limited inventories in the planning area as of FY05 due to existing workload priorities.

Objective 5. Identify rare plant and animal communities, inventory them, and develop associated management strategies to conserve them. Support the development and implementation of State and Regional Conservation Plans as they apply to the grassland or forest units.	**Year Due Annually**

Aquatic Species:

Although the sturgeon chub and other aquatic sensitive species are considered locally rare in the planning area, there were no ad hoc inventories or management strategies developed to conserve them up to FY05 due to staffing, budget, and other workload priorities. Selected baseline inventories were conducted from 2002 through 2006; no surveys were conducted in 2007-2011. WGFD completed surveys on many streams in 2004 and 2005 drafted an administrative report in 2007 titled “Status of Habitat and Native Species in Northwest Wyoming Prairie Streams”

Plants:

Rare plant communities have been inventoried on the TBNG and Barr’s milkvetch, a sensitive species, and several other species of local concern have been identified and mapped. State and Regional Conservation Plans that apply to rare plant species of TBNG have not been developed at this time due to staffing, budget, and other workload priorities.

Objective 7. Establish scientifically credible monitoring programs, develop survey methods, and initiate baseline and trend surveys for populations, habitats and/or ecological conditions to contribute to viability of threatened and endangered species, species at risk, and MIS.	**Year Due Annually**

Plants:

Suitable or potentially suitable habitat for Ute ladies' tresses have been identified in select riparian and wetland areas on the TBNG. Systematic field surveys to determine species presence or absence were conducted in 2011 and will be continued in 2012 and 2013 using USFWS published survey protocol. If habitat is occupied or occupancy by Ute ladies' tresses is unknown, habitat will be avoided during project activity.

Several occurrence of Barr's milkvetch have been visually monitored over at least 4 years. While visual observations are not conclusive, occurrences appear stable and no upward or downward trend has been noted. Additional occurrences have been noted in recent years. No other R2 sensitive species have been found on the TBNG at this time.
Plant species that are at risk but not covered by Threatened, Endangered and Sensitive Species (TES) direction have been identified as plant species of local concern and habitat described. These plant species of local concern are included in botanical target surveys at the project level. Survey protocol is based on national direction for TES plant species and scientific protocols.

Objective 8. Complete and initiate implementation of conservations strategies for globally rare plant species (G2-3 rankings) including Barr's milkvetch and other high priority species in cooperation with other conservation agencies and organizations. **Year Due Annually**

State and Regional Conservation Plans that apply to rare plant species of TBNG have not been developed at this time due to staffing, budget, and other workload priorities.

Objective 9. Conduct target surveys for globally rare plant species (Barr's milkvetch, smooth goosefoot, Ute ladies' tresses) and other rare plant species with viability concerns. **Year Due Annually**

Systematic surveys of suitable Ute ladies tresses habitat are in the process of being conducted and completion is expected in 2012. Field surveys of TBNG for Barr's milkvetch were conducted by Wyoming Natural Diversity Database before authoring the species conservation assessment. Additionally, target surveys for all sensitive and local concern species continue to be conducted as part of project level analysis

(available at: http://www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5206999)..

Goal 1.c: Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species.

Objective 3. Within 5 years, develop and implement cooperative noxious weeds and undesirable **Year Due 2007**

non-native or invasive species management plans in consultation with appropriate partners and agencies	
An Invasive Species Strategy was developed in 2005 for all of the Thunder Basin National Grassland for terrestrial and aquatic species as well as for invasive plants. An analysis for an Integrated Management approach to the control of noxious weeds was completed for the entire area in 1996, and in Implementation Plan for that effort was completed in 2000. Currently, an EIS is underway that proposes aerial spraying to control noxious weeds. Cooperative Agreements are in place with Campbell, Converse, Niobrara, and Weston counties for control of noxious weeds on the Grasslands. Thunder Basin, Inyan Kara, and Spring Creek Grazing Associations cooperate physically and financially with the Forest Service and those counties in weed control. Thunder Basin Grassland Prairie Ecosystem Association has also contributed financially in the inventory and control of weeds on federal, state, and private lands in the Grasslands.	
Objective 4. Within 3 years, develop and implement a certified noxious weed-free forage program in consultation with appropriate state agencies	**Year Due 2005**
A certified weed-free forage program has been in place for all National Forest System lands in the state of Wyoming since 1995. The existing rules were strengthened in 2005 to include products such as hay cubes and pelleted forage products.	
Objective 7. Immediately initiate hazardous material cleanup on identified sites	**Year Due Annually**
All previously identified hazardous material sites have been cleaned up. Hazardous material spills associated with on-going minerals operations are administered through the minerals permits.	
Objective 8. In a timely manner, review Prevention of Significant Deterioration (PSD) permit applications, and make recommendations where needed to reduce impacts to air quality related values for all Class I and Class II areas.	**Year Due Annually**
There have been no known PSD permits for review.	

Goal 2: Multiple Benefits to People: Provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems.
Goal 2.a: Improve the capability of the Nation's forests and grasslands to provide diverse, high-quality outdoor

recreation opportunities.	
Objective 1. Annually maintain or reconstruct 20% of National Grassland to regional standards.	**Year Due Annually**
See the Recreation 1 – Trails Monitoring Item.	
Objective 3. ***Within 5 years, provide appropriate directional signing to key recreation sites and inform people about the public access routes to national grasslands and national forests***.	**Year Due 2007**
Beginning in FY07, a large emphasis has been placed on installing repaired, corrected and new directional signing on the grassland. Plans are underway to continue this effort into the future as funding allows. This emphasis was very successful with a noticeable increase in legible signs throughout the grassland. Hunters in particular, as well as landowners, have made positive comments on the higher quality and quantity of signs. Recommendations: • Maintain funding levels to allow hiring of a sign crew and to purchase supplies to continue this effort. • Place U.S. flag stickers on all signs to prevent vandalism and reduce replacement costs.	
Objective 5. ***Within 5 years, draft and begin implementing a science and marketing based interpretive program strategy that uses a variety of communication media. The purpose of the strategy will be to effectively use communication principles and methods based in the field of interpretation to "Communicate with target audiences regarding management concerns or issues, changes in management direction, and specific projects". Enhance visitor's recreation experiences by identifying and implementing interpretive projects that highlight national grassland and forest resources and management.***	**Year Due 2007**

Thunder Basin National Grassland was included in the forest interpretive plan which was updated and finalized in 2005. Grant money was secured from the Wyoming State Trails program in FY08 to create a "media blitz" for the Campbell County population. The message will be "responsible riding on national forests and grasslands" to discourage off-road use by ATV riders. This effort is in partnership with the Bighorn National Forest, Black Hills National Forest, and the Buffalo Field Office BLM, as all of these areas, as well as the grassland, are greatly affected by Campbell County recreation users. The message/s will be conveyed through print and radio media. Recommendations: • Identify similar message needs as warranted. • Use 2008 media program as a pilot and adjust for use in other communities as needed.	
Objective 6. Provide nonmotorized and motorized trails for a wide variety of uses and experiences.	**Year Due Annually**
The Thunder Basin Travel Management Decision addresses the need for motorized trails. Budgets have been too prohibitive to create any plans for a non-motorized trail system.	
Objective 7. Manage trail systems to minimize conflicts among users.	**Year Due Annually**
The Thunder Basin Travel Management Analysis should identify conflicts by type, user groups, and geographical locations.	
Objective 8. When appropriate, authorize special use permits for outfitter-guide services on NFS lands.	**Year Due Annually**
Outfitter and guide permits are regularly authorized.	
Objective 9. Through partnerships, encourage, establish, and sustain a diverse range of recreational facilities and services on NFS lands. Encourage outfitters and guides who support interpretive and educational awareness of grassland ecosystems or who provide services to people with disabilities.	**Year Due Annually**
Outfitters are encouraged to provide educational and interpretive awareness in their programs.	

Objective 10. When appropriate, designate, and manage outfitted camp locations.	**Year Due Annually**
There are no outfitter camps on the Grassland.	
Goal 2.b: Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values.	
Wilderness Objective*:*	
Objective 1. Within 5 years of Congressional designation, revise or develop wilderness plans to emphasize recreational, aesthetic, and educational experiences consistent with values of those areas.	**Year Due 2008**
There are currently no designated Wilderness Areas on the Grassland.	
Heritage Sites Objectives:	
Objective 1. Within 5 years, develop and implement a heritage inventory strategy and implementation schedule to survey and evaluate sites, in support of management actions and activities as agreed upon with the State Historic Preservation Offices (SHPO), Tribal Historic Preservation Offices (THPO) and to include compliance with laws Sec. 106 and Sec. 110 of the National Historic Preservation Act.	**Year Due 2007**
The Forest has finalized a comprehensive Programmatic Agreement for many aspects of the National Historic Preservation Act, especially under section 106. In addition, national direction now includes Section 110 survey and site reporting as part of meeting a Heritage Program Managed to Standard.	
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.	**Year Due 2007**
Project associated sites continue to be evaluated to the NRHP. No sites on TBNG are currently listed on the National Register of Historic Places. We currently have a draft nomination for the Dorr Place, an historic homestead and ranch headquarters. If placed on the NRHP a plan will be developed for the site in consultation with the SHPO. At this time, we prefer off-site interpretation for most sites since we cannot maintain new developments due to limited budgets and do not want to attract vandalism and theft.	
Objective 3. Within 3 years, identify and protect traditional cultural properties in consultation with federally recognized American Indian tribes	**Year Due 2005**

Two Traditional Cultural Properties (TCP) have been identified on TBNG and are under protection with Plan standards and guidelines as well as other legal protections. One TCP lies only partially in a Special Interest Area (SIA) and it is recommended the SIA boundary be expanded to include the entire TCP. Many tribes have concerns about identifying TCPs to federal agencies unless the sites are threatened by a project and have told us they will share the information only as needed. We continue to work to develop and maintain relations with tribes to aid in the identification and protection of TCPs, although most of this relationship building comes in the form of project consultation. The Grassland has participated in a Department of Defense Legacy project called "after the smoke clears" on protecting TCPs and sacred sites during and after fire suppression on Grasslands.	
Objective 5. Educate, interpret, and promote partnerships to increase public awareness, protect heritage resources, and further the goals of research.	**Year Due Annually**
The Grassland unit conducted a volunteer PIT project during the period to help record and protect historic properties and increase public involvement. Project work that impacts cultural resources as well as cultural resource inventory has been used to further the goals of research and interpret the archaeological record of the Grassland.	
Special Areas Objective:	
Objective 1. Within 5 years, develop and implement a management and monitoring plan for each Research Natural Area.	**Year Due 2007**
There are no establishment reports currently completed for any of the Research Natural Areas (RNAs). There were several grazing analysis projects that will continue livestock grazing within the RNAs. Livestock grazing in the RNAs is not excluded by the Grassland Plan because the ecological communities represented by these RNAs were in part created by large grazing animals.	
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. :	
Livestock Grazing Objectives	
Objective 1. Annually, provide forage for livestock on suitable rangelands. Annual grazing levels will be adjusted, as needed, during periods of drought or for other conditions	**Year Due Annually**
Consistently, and historically, grazing levels are adjusted annually according to local climatic conditions as well as any other factors that may be affecting vegetative production. Discussion of conditions during the life of this Plan is included in the Comparison of Estimated and Actual Outputs and Services Monitoring Item.	

Objective 2. As needed, revise allotment management plans (AMP) to meet desired vegetative conditions described in Geographic Areas and to implement all appropriate management plan direction	**Year Due Annually**
The allotment management EA for the Spring Creek Unit was completed in 2005; following appeal, and partial remand, the decision was completed in late 2007. The decision has been implemented on all 15 allotments. Few updates will be required for AMPs as existing conditions are almost entirely meeting desired conditions across the area. The allotment management decision for the 71 allotments in the Thunder Basin Grazing Association EIS was issued in October 2007. The decision was upheld on appeal in March 2008. The AMPs have yet to be updated, but adaptive management is already being implemented. The Decision Memo for 18 allotments in the Inyan Kara Grazing Association planning area was signed in September 2007. By definition, using the 2005 legislative categorical exclusion authority means that existing management is meeting or moving toward desired conditions, and current management will be continued. No AMPs have been updated for these allotments at this time, and there are few anticipated changes. The EIS for the remaining 77 allotments in the Inyan Kara area was completed in September 2008. Field analysis for these allotments was completed in 2007, and the results are included in this report regarding rangeland vegetation structure and seral stage. Allotment management plans were updated as needed and implemented on an additional 19% of the allotment acres on the Thunder Basin Grazing Association. Thus, allotment management planning will have been completed and updated for all 552,480 acres of the Grassland within the next six months. As data in this report demonstrate, most areas of the Grassland are already meeting desired conditions.	
Mineral and Energy Resources Objectives:	
Objective 1. Ensure reclamation provisions of operating plans are completed to standard.	**Year Due Annually**
Inspections are completed and formal approval is sent to the WYDEQ by the Forest Service. All provisions are completed before reclamation bonds are released.	
Objective 2. Honor all valid existing legal mineral rights,	**Year Due Annually**

Operating Plans are addressed annually. New proposals are addressed through the National Environmental Policy Act (NEPA) process. Mitigations necessary to ameliorate concerns are included in Special Use Permits and Plans of Operations.	
Miscellaneous Products Objective:	
Objective 1. Provide appropriate opportunities to satisfy demand for miscellaneous products (special forest and grassland products, such as mushrooms, floral products and medicinal plants) through environmentally responsible harvest and collection methods on National Forest System Lands.	**Year Due Annually**
Proposals for collection of special forest products are analyzed for effects on sustainability of populations and collection methods. Where conditions are met, permits for collection are issued.	
Scenery Objective:	
Objective 1. Implement practices that will meet, or move the landscape character toward scenic integrity objectives. Reference Geographic Area direction.	**Year Due Annually**
Standard Lease Terms (SLT) provide guidance on color requirement for oil and gas facilities on TBNG to blend with the surrounding grassland landscape and meet and maintain the adopted scenic integrity objective and the desired landscape character. CSU stipulations for areas with High and Moderate Scenic Integrity Objectives (SIOs) provide guidance on meeting and maintaining the adopted scenic integrity objective and the desired landscape character. Coal companies are required to reclaim mined lands to meet and maintain the adopted scenic integrity objective and the desired landscape character.	
Special Uses Objective:	
Objective 1. Ensure all special use permits are meeting requirements for customer service and are in compliance with the terms of their permits or contracts.	**Year Due Annually**
Customer service requirements will continue to be met through the cost recovery process. The grassland meets or exceeds its' target for "Administered to standard". Several "Notice of Non-Compliance With Opportunity To Cure" letters were issued and compliance was obtained.	
Goal 3: Scientific and Technical Assistance Develop and use the best scientific information available to deliver technical and community assistance and to support ecological, economic, and social sustainability.	

Goal 3.a: Improve the knowledge base provided through research, inventory, and monitoring to enhance scientific understanding of ecosystems, including humans, to support decision making and sustainable management of the Nation's forests and grasslands.	
Objective 1. ***Implement inventory and monitoring systems to provide scientific information and decision support across all land ownerships.***	**Year Due Annually**
Four Ecological Classification Types developed by rangeland research scientist Dr. Daniel Uresk of the Forestry Sciences Laboratory at Rapid City, South Dakota were used in the Cover-Frequency transects installed across the Grassland to gather and evaluate data for species composition (seral stages). Methods and results were used to support allotment management decisions and assure sustainable management of the rangelands. Results are applicable for all land ownerships across the grassland landscape. The Grassland collaborated with The Nature Conservancy, an adjacent landowner with conservation goals; and coordinated with BLM and USFWS level 1 team on survey strategies, flowering timing and determinations for Ute Ladies' tresses.	
Objective 2. ***Provide research results and tools through technology transfer to support effective management, protection, and restoration of ecosystems.***	**Year Due Annually**
Between 2004 and 2007, five conservation assessments have been completed for the following TBNG fish and amphibian species: plains killifish, flathead chub, plains minnow, and northern leopard frog.	
Objective 3. ***Assess potential habitat capability at the local level for management indicator species by identifying existing or establishing new reference areas and implementing long-term monitoring. Some reference areas will need to be managed for multiple-year accumulation of vegetation and litter for those management indicator species of high structure grasslands and sagebrush habitats.***	**Year Due Annually**
The Grassland needs to evaluate whether the habitat capability and suitability models are the most effective measure of habitat quality for MIS species or if another protocol should be used. Habitat quality for MIS will be assessed for the next 5 year evaluation.	
Objective 4. ***Assess the potential impacts of the construction of impoundments in upper watersheds on hydrologic flows and patterns on downstream habitat on the sturgeon chub and other sensitive native fish species.***	**Year Due Annually**

Because of budget, time, personnel, and other workload priorities, there have been no systematic efforts to make this determination in recent years.	
Objective 5. ***Assess the condition of watersheds containing aquatic habitats of sensitive fish species that are found primarily in clear-water streams and rivers.***	**Year Due Annually**
There are no aquatic sensitive species extant in the planning area that primarily prefer clear-water streams. This objective may not be applicable to the TBNG.	
Goal 4: Effective Public Service. Ensure the acquisition and use of an appropriate corporate infrastructure to enable the efficient delivery of a variety of uses.	
4.a: Improve the safety and economy of the USDA Forest Service roads, trails, facilities, and operations and provide greater security for the public and employees	
Objective 1. ***Within 5 years, identify travel opportunities and restrictions, including designating motorized travel-ways and areas, to meet land management objectives. Provide reasonable access for use of the national grasslands and national forests.***	**Year Due 2007**
Travel management planning for the Grassland began in 2007, and the MVUM (motorized vehicle use map) has been published, with annual updates as needed.	
Objective 2. Within 5 years, provide site-specific maps and information showing closures, restrictions, and opportunities for motorized and non-motorized use using a science-based Roads Analysis process.	**Year Due 2007**
The 2004 Roads Analysis for the Grassland is being used as the starting point for the travel analysis planning. The MVUM shows site-specific motorized travel opportunities.	
Objective 3. ***Within 5 years, identify the minimum Forest Service road system for administration, utilization, and protection of National Forest system lands and resources, while providing safe and efficient travel and minimizing adverse environmental effects***	**Year Due 2007**
The Thunder Basin Roads Analysis was completed in 2004 providing a framework for motorized uses on the Grasslands. Recommendations for a minimum road system will be implemented in project level decisions.	
Objective 4. ***Where appropriate, encourage and authorize recreation opportunities for people with disabilities.***	**Year Due Annually**
All newly constructed and reconstructed facilities will be accessible to the extent possible within physical constraints.	

Goal 4.b: Provide appropriate access to NFS lands and USDA Forest Service programs.	
Land Ownership and Access Objectives:	
Objective 1. ***Within 3 years, develop and implement approved land ownership adjustment plan in response to resource management and public needs. The plan shall be coordinated, reviewed, and updated annually.***	**Year Due 2005**
A landownership adjustment plan has not proven to be the best tool due to the existing pipeline of projects and the political nature of land exchanges. The pipeline of projects is addressed each year and priorities are set in conjunction with resource management needs and budget. The current pipeline of projects exceeds five years of projects.	
Objective 2. Within 3 years, develop and implement a 5-year Rights-of-Way Acquisition Program in response to resource management programs and access needs. This 5-year plan will be coordinated, reviewed, and updated annually.	**Year Due 2005**
A Rights of Way Acquisition plan will be developed over the next several years as a necessary byproduct of implementing the Travel Management Decision. Priority projects have been identified.	
Unauthorized Uses Objective:	
Objective 1. ***Take appropriate law enforcement or administrative actions on all unauthorized uses.***	**Year Due Annually**
All discovered or reported unauthorized use is investigated. Where appropriate, law enforcement action is taken.	
Public and Organizational Relations Objectives:	
Objective 1. Provide opportunities for federally recognized American Indian tribes to participate in planning and management of the national grasslands and national forests, especially where tribes have claimed special geographic, historical, or cultural interest.	**Year Due Annually**
Federally recognized Tribes that have expressed interest are regularly scoped for projects and plan revisions. These tribes are in Wyoming, Oklahoma, South Dakota, North Dakota, and Montana. Tribes with Tribal Historic Preservation Officers regularly comment on project and site protection. Site visits have been made with tribes and treatment plans reviewed by Tribal Historic Preservation offices and tribes are regularly invited to participate, although with the long distances involved it is difficult for many tribes to get to the Grassland. These tribes will be on mailing lists for Forest Plan revisions.	

Objective 2. Work in cooperation with federal, state, and county agencies, individuals, and nongovernment organizations for control of noxious weeds and invasive species and animal damage.	**Year Due Annually**
See Community Relations 1 Monitoring Item	
Objective 3. Create and foster partnerships with other agencies, accredited educational and research institutions, and other appropriate public and private sector organizations to further the goals of research, education, protection, and interpretation.	**Year Due Annually**
A Challenge Cost Share Agreement was developed with Wyoming Natural Heritage Database (WYNDD) in 2002 which has and continues to contribute to research, education, protection, and interpretation - specifically for Barrs Milkvetch and Ute's lady's Tresses Orchid. The Botany Program is working with other partners to develop sources of local native plant materials which are genetically appropriate for use on Thunder Basin National Grassland.	
Objective 4. Cooperate with the appropriate state and federal agencies in balancing desired wildlife and fish population objectives with desired habitat conditions.	**Year Due Annually**
On a regular basis we meet with the Wyoming Game and Fish Department to discuss and review their population goals and objectives. The District develops habitat improvement projects to meet the population goals set by the Wyoming Game and Fish Department. Annual reports describing sampling results are submitted to WGFD under chapter 33 reporting requirements. To date we have reported amphibian observations but not fish sampling efforts, mostly because there has been limited fish pop sampling completed on the grasslands for the past several years.	
Objective 5. Identify opportunities for partnerships to provide new recreational fisheries and/or waterfowl and wetlands habitat.	**Year Due Annually**
The DM&E decision identified the creation of wetlands as part of mitigation. The location has been selected and is currently being analyzed for site specific effects. A new ADA-compliant fishing platform was installed at Turner Reservoir with funding provided by WGFD.	