Thunder Basin National Grassland

2006 Monitoring and Evaluation Report

October 1, 2005 through September 30, 2006

United States Forest Service
Rocky Mountain Region

May, 2007

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Cover Photo: View looking southwest from Cow Creek Butte.

Forest Certification

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

Overall, the 2006 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 Thunder Basin National Grassland Plan. I have reviewed the 2006 Annual Monitoring and Evaluation Report that was prepared by the Forest Interdisciplinary Team. It contains the monitoring data and results from the past fiscal year. A technical team of experts is assisting the ID team in developing monitoring protocols that will be implemented in future years.

The Forest ID Team has identified several emphasis areas for continued monitoring, including sage grouse and prairie dog colonies. During the process of developing the prairie dog strategy (in draft), a potential management area adjustment was identified for the Black-Footed Ferret Reintroduction Habitat Management Area (3.63). The Douglas Ranger District will continue to work on this issue to determine what type of changes to the Thunder Basin Plan are necessary to fully implement this strategy when it is finalized. The Thunder Basin Plan is sufficient to continue to guide management of the National Grassland.

Please contact Frank Romero 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/Mary H. Peterson
MARY H. PETERSON
Forest Supervisor

June 2, 2007
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. The Grassland ranges in elevation from 3600 feet to 5200 feet and the climate is semi-arid. 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 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.

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 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 Regional Forester directed the Forest Supervisor to establish 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 purpose of the committee is to develop a monitoring implementation plan that will describe the methods of monitoring needed to determine how well we are implementing the direction in the Revised Plan, to determine how effective implementation of Revised Plan direction is in meeting desired conditions, and to help us validate assumptions and direction used in the Revised Plan.

On May 21, 2004, individuals from the participating agencies met at the Medicine Bow – Routt National Forests and Thunder Basin National Grassland Supervisor's Office in Laramie, WY (see box on the following page):

The purpose of this meeting was to establish the need, purpose and interest of agency representatives to serve on the committee, and to discuss the expectations of what the product outcome would be.

An example of a Monitoring and Implementation Guide was presented that displayed the monitoring questions, measures and protocols. The group also reviewed Chapter 4 of the Thunder Basin National Grassland Land and Resource Management Plan - Monitoring and Evaluation.

From this chapter, the group decided to use a format for their Monitoring and Implementation Guide that displays the Monitoring Question, Monitoring Items, Protocols, Frequency of measure, Cost and Responsibility.

On August 5, 2004, a Memorandum of Understanding (MOU) was signed between the Medicine Bow – Routt National Forests and Thunder Basin National Grassland and the State of Wyoming to formalize the Scientific Technical Review Committee.

Scientific Technical Review Committee Participating Agencies

- University of Wyoming:
  - College of Agriculture
    - Dept. of Agriculture and Applied Economics
    - Dept. of Renewable Resources
    - Wyoming Natural Diversity Database
- Office of Governor:
  - Planning and Policy
  - Endangered Species Coordinator
- State of Wyoming:
  - Wyoming Dept. of Agriculture
  - Wyoming Game and Fish Department
  - Department of Environmental Quality
    - Water Quality Division
    - Air Quality Division
  - Oil and Gas Conservation Commission
- USDA Forest Service
  - Medicine Bow – Routt NFs and TBNG
  - US Forest Service Research

During 2007, the Scientific Technical Review Committee will work with the Thunder Basin 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 Thunder Basin Plan lists goals and objectives to be accomplished through grassland management. Goals and objectives provide broad, overall direction regarding the type and amount of goods and services the national grasslands and national forests provide and focus on achieving ecosystem health and ecological integrity.

Goals are concise statements that describe desired conditions, and expected to be achieved sometime in the future. They are generally timeless and difficult to measure. Goals describe the ends to be achieved, rather than the means of doing so.

Objectives are concise, time-specific statements of measurable planned steps taken to accomplish a goal. They are generally achieved by implementing a project or activity.

Many of the objectives are due to be accomplished over the life of the plan, usually considered to be 15 years. However, some objectives have earlier due dates, or are

annual objectives. For the objectives due by 2006 or earlier, in addition to the annual objectives, the progress made towards these objectives is listed in Appendix 1.

The goals and objectives in the Thunder Basin Plan are tiered to the *USDA Forest Service Government Performance and Results Act Strategic Plan: 2000 Revision*. This strategic plan presents the goals, objectives and activities that reflect the Forest Service's commitment to a sustainable natural resource base for the American people. All goals and objectives fall under the overall mission of the Forest Service, which is to sustain the health, productivity, and diversity of the land to meet the needs of present and future generations. "Caring for the Land and Serving People" expresses the spirit of this mission. Implicit in this statement is the agency's collaboration with people as partners in caring for the nation's forests and rangelands.

The Forest Service's mission and strategic goals and objectives are derived from the laws defining and regulating the agency's activities. Goals and objectives describe tangible progress toward achieving the agency's mission through implementing land and resource management plans. These plans guide on-the-ground natural resource management to ensure sustainable ecosystems and to provide multiple benefits. The Forest Service is committed to these goals and objectives:

Projects Completed During FY06

Table 1 gives the decisions made for projects on the TBNG during FY06. The list of projects was generated from the database that produces the SOPA or Schedule of Proposed Actions. This quarterly report is available at the following internet website: http://www.fs.fed.us/sopa/forest-level.php?110206

Table 1. Projects Completed in FY06

Name	Decision Type	Date Signed	Primary Purpose
Upton Osage Fuels Reduction	DM	5/22/06	Fuels
Upton Osage Timber Edge Storage Tank	DM	9/15/06	Range
Spring Creek AMPs[1]	EA	4/11/06	Range
Love Sol	DM	6/19/06	Range
Martens Pipeline and Storage Tank	DM	11/18/05	Range
Ballard Oil Well #12-6	DM	7/11/06	Minerals, Special Use Authorization
Black Hills Oil Exploration, Grieves Oil Well project	DM	7/11/06	Minerals, Special Use Authorization
Camp Creek Federal Oil Wells #12-8 and #41-7	DM	10/25/06	Minerals, Special Use Authorization
Gold Mine Draw-Alluvial Valley Floor Coal Lease Exchange	EA	5/12/06	Minerals, Special Use Authorization
Westport Oil & Gas Nicholson CBNG POD	EA	6/26/06	Minerals, Special Use Authorization

[1] The Spring Creek AMP was appealed and remanded for further analysis. This analysis will be completed for a potential new decision in FY2007.

Name	Decision Type	Date Signed	Primary Purpose
Yates Petroleum Corp. Marine Coal Bed Natural Gas Project	EA	6/12/06	Minerals, Special Use Authorization
North Antelope Rochelle Mine Access Road and 69kV Power Line	EA	3/20/06	Special Use Authorization
Powder River Energy Corp. (PRECorp) 9-T41N, R 67W	DM	4/24/06	Special Use Authorization
Powder River Energy's Chaco energy Power Line Sections T14 & 23, R54N 70W	DM	2/6/06	Special Use Authorization
Powder River Energy's Antelope Coal Mine 69kV Power Line and Plan Amendment.	DM	6/26/06	Special Use Authorization
Manning Field Nest Relocation	DM	8/15/06	Wildlife
Forest Service Roads in T42N, R72W, Section 33 for Yates Petroleum RUP	DM	6/30/06	Special Use Authorization

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.

FY06 Recommendations:

- Continue work with the U.S. Fish and Wildlife Service (USFWS) to finalize the experimental/non-essential designation (10j Rule) to facilitate the reintroduction of ferrets on TBNG. In partnership with Wyoming Game and Fish Department (WYGFD), apply for an allocation of black-footed ferrets from the USFWS for reintroduction on Thunder Basin National Grassland in fiscal year 2007.
- Develop a prairie dog management strategy in cooperation with the Thunder Basin Prairie Ecosystem Association, WYGFD, USFWS, Biodiversity Conservation Association and other partners. This strategy may involve an adjustment of the 3.63 Black-Footed Ferret Reintroduction Habitat Management Area boundary, in addition to modifications to the standards relating to the use of rodenticides. This may require a Thunder Basin Plan amendment.
- The Douglas District IDT recommends that the project list for the District should be reviewed annually, at which time monitoring tasks can be prioritized and assigned. This arises from the IDT noting during field project reviews that monitoring items included in decisions have not always been completed. The monitoring project list will be developed during a winter Douglas District Leadership Team meeting from projects that occurred the previous year.
- Continue to monitor sage grouse populations, especially in the Hilight Bill Geographic Area.
- Incorporate mountain plovers into the Viability 1 monitoring item, which includes reporting on sensitive species (reported every 5 years), and drop this monitoring item since mountain plovers are no longer being considered for ESA

listing. This monitoring will next be reported in the TBNG 5 Year Review, scheduled for completion in 2008.

Progress made towards FY05 Recommendations:

Continue work with the U.S. Fish and Wildlife Service (USFWS) to finalize the experimental/non-essential designation (10j Rule) to facilitate the reintroduction of ferrets on Thunder Basin.

In 2006, the Wildlife Program continued to work with the USFWS to develop a 10j Rule in order to designate the future population of ferrets on Thunder Basin as "experimental/non-essential." When complete, we anticipate that this 10j Rule will facilitate the reintroduction of ferrets onto Thunder Basin.

In partnership with Wyoming Game and Fish Department, an allocation of black-footed ferrets was requested from the USFWS for reintroduction on Thunder Basin National Grassland in fiscal year 2006.

The USFWS did not allocate any ferrets to Thunder Basin at for FY06.

Continue to monitor sage grouse populations, especially in the Hilite Bill Geographic Area.

The District Wildlife Program coordinated with the WYGFD and the Bureau of Land Management to continue to monitor sage grouse populations throughout the greater Thunder Basin area. Results demonstrate a declining sage grouse population in the Hilight Bill Geographic Area, where a high level of minerals development and extraction occurs.

Develop a prairie dog management strategy in cooperation with The Thunder Basin Prairie Ecosystem Association, WYGFD, USFWS, Biodiversity Conservation Association and other partners. This strategy may involve an adjustment of the 3.63 Black-Footed Ferret Reintroduction Habitat Management Area boundary, in addition to modifications to the standards relating to the use of rodenticides. This may require a Thunder Basin Plan amendment.

In 2006, work continued on the prairie dog management strategy in cooperation with the Thunder Basin Prairie Ecosystem Association, WYGFD, USFWS, Biodiversity Conservation Association and other partners. This strategy may involve an adjustment of the 3.63 Black-Footed Ferret Reintroduction Habitat Management Area boundary, in addition to modifications to the standards relating to the use of rodenticides. The District is leading the process on proposing the necessary Thunder Basin Plan amendment associated with these modifications.

Forest 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

Two amendments to the Thunder Basin 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 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 revised Land and Resource Management Plans (LRMP).

This amendment modifies 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 revised Land and Resource Management Plans (LRMP).

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

New Laws, Regulations and Policies

Planning Regulations

On January 5, 2005, a final planning rule was published in the Federal Register. This rule supercedes the 2000 rule and implements the 1976 National Forest Management Act (NFMA). The 2005 Rule contains direction for modifying Forest and Grassland Plans that were developed under previous planning rules. If this review results in a decision to correct, amend or revise the 2002 Plan, the Forest will adhere to the 2005 rule, specifically 36 CFR 219.14 to accomplish that work. Information concerning the new planning rule can be found at the following website:

http://www.fs.fed.us/emc/nfma/index2.html

Travel Management

In November, 2005 the US Forest Service announced new travel management regulations. The new travel management policy requires each national forest and grassland to identify and designate those roads, trails and areas that are open to motor vehicle use. Local units will seek public input and coordinate with federal, state, county and other local governmental entities as well as tribal governments before any decision is made on a particular road, trail or area. Unplanned, user-created routes will be considered at the local level during the designation process.

The agency expects that it will take up to 4 years to complete the designation process for all 155 national forests and 20 grasslands. Each unit will also publish a motor vehicle use map. The final rule addresses the more than 80,000 comments received on last year's proposed rule. Most comments strongly supported the concept of designating routes and areas for motor vehicle use.

Once the designation process is complete, motor vehicle use off these routes and outside those areas (cross-country travel) will be prohibited.

The rule will impact motor vehicle use on roads, trails and areas under Forest Service management. State, county or other public roads within national forest and grassland boundaries will not be included in the designation process. Travel management on the Thunder Basin National Grassland is scheduled to be completed by 2009 with the environmental analysis scheduled to begin in FY2008. More information, included a link to the new regulation can be found at the following website:

http://www.fs.fed.us/r2/recreation/travel_mgmt/

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 ("IRAs") on a uniform nationwide basis.

In July 2003 the Wyoming district court issued a nationwide permanent injunction against the Roadless Rule.

On May 5, 2005, the Forest Service adopted the State Petitions Rule, which is a process to provide Governors an opportunity to establish or adjust management requirements for National Forest System inventoried roadless areas within their States.

In October 2006 The State Petitions Rule was set aside by the Courts and the 2001 Roadless Rule was reinstated.

Recent courts cases on the Roadless Rule have let to NFS direction to forests that all decisions for projects in roadless areas must comply with the 2001 Roadless Rule. The current interim direction and other information regarding roadless area direction and management can be found at the following website:

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

Monitoring items

The National Forest Management Act (NFMA) 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 discussion and results of the monitoring items are given below. These items are listed in Chapter 4 in the TBNG Plan.

Ensure Sustainable Ecosystems

Aquifer Protection

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

This monitoring items 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 past abandoned wells 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 or increase the costs of water use for domestic or livestock purposes.

Figure 1. Well supplying water for a stock water development.

Oil and Gas Wells

There are an estimated 727 abandoned conventional oil wells on the Grassland. Of the conventional oil wells abandoned from 2003 to 2006, 100 percent were found to be properly plugged based on monitoring conducted by Douglas Ranger District Minerals Staff. The Wyoming Oil and Gas Conservation Commission regulate plugging of oil and gas wells in part to prevent pollution of freshwater supplies. Since standard procedures are in place to ensure oil wells are plugged before they are abandoned, it

is assumed that most of the 727 abandoned oil wells have been properly plugged, but a comprehensive inventory of wells abandoned prior to 2003 has not been completed.

Water Wells

The number of abandoned domestic and livestock water wells has not been summarized, but efforts are underway to update this information. WYDEQ regulations require the plugging of abandoned stock and municipal wells, but it is unknown to what extent these regulations have been followed on the Grassland. 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 adopted when funding allows. Efforts should continue to update information related to abandoned stock and domestic water wells on the Grassland.

Specific Recommendations: As time and funding allow, consider:

1. Confirm the number, location and status of abandoned conventional oil wells.
2. Determine the number of abandoned domestic and stock wells on the Grassland (i.e. query files, NFS databases, State Engineer Database),
3. Determine whether the abandoned domestic and stock wells on the Grassland have been properly plugged (i.e. query State Engineer Database and Water Rights Records),
4. Determine whether oil wells abandoned on the Grassland before 2003 have been properly plugged (i.e. query Wyoming Oil and Gas Conservation Commission Records),
5. Develop and implement a field sampling protocol to validate the results of recommendations #1-3.

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: In 2006, Thunder Basin managed 47,890 acres for the potential reintroduction of the black-footed ferret; and black-tailed prairie dogs – the primary prey of ferrets. Ongoing drought conditions increased suitable habitat for prairie dog

towns and in turn increased prairie dog numbers in recent years, and populations temporarily rebounded. However, a 2006 cyclic sylvatic plague epidemic reduced prairie dog numbers once again.

Within the entire National Grassland there were approximately 6,500 mapped acres of active prairie dog colonies mapped in 2006. This represents a reduction of 62% from 2005.

The district continues work on a Black-footed Ferret Reintroduction Strategy and the Prairie Dog Management Strategy. In addition, the District continues to assist in the on-going development of a "10j Rule" which would designate ferrets reintroduced to Thunder Basin as an experimental and non-essential population. All of this effort is designed to eventually contribute to the recovery of the black-footed ferret.

Figure 2. Black Footed Ferrets. (Photo courtesy of USFWS)

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

Bald Eagle

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 bald eagle?***

Monitoring Protocol/Data Collected: Number of winter-roost and nest sites of bald eagles.

Results/Evaluation: In 2006, Thunder Basin specifically monitored four winter roosting areas, and managed habitat around 12 winter-roost sites. In addition, six known bald eagle nest sites were tracked, three known nest site on NFS lands and three on neighboring lands. Nesting bald eagles were documented at one of the NFS site as well as at one private adjacent site. The NFS site hatched two chicks and fledged at least one. The private land site was not monitored for productivity. Powerline construction continues to create a potential adverse affect on bald eagle and other avian species at risk.

Recommendations: Continue to implement mitigation measures, including burying powerlines, to minimize effects of powerline collision on bald eagles and other avian species at risk. The Thunder Basin Plan Special Use Guideline P3 directs burial of all

electrical utility lines of 33 kV or less in most areas. Exceptions to burying of powerlines are evaluated on a site specific basis and are constructed to meet *Avian Powerline Commission Guidelines*[2]. These may occur where the protection of human health or safety would be better accomplished with an above ground line due to ongoing development in the area, where the line would be in existence for less than 5 years, or where the line is within 5 miles of an active coal mine and is in the direction of mine development.

Mountain Plover

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 mountain plovers?***

Monitoring Protocol/Data Collected: Acres of active prairie dog colonies that provide suitable habitat for plovers. Number of projects incorporating design features to reduce adverse effects to the mountain plover.

Results/Evaluation: The USFWS deemed the mountain plover "not warranted" for listing under the ESA. Therefore, the mountain plover is no longer a proposed ESA-listed species, however the plover continues to be a R2 Regional Forester Sensitive Species.

In 2006, Thunder Basin National Grassland supported 6,500 acres of active prairie dog colonies that served as potential habitat for mountain plovers. As plague moves through the black-tailed prairie dog population on Thunder Basin National Grassland, mountain plover habitat tends to persist for approximately 3 years after the prairie dogs die out. This often allows time for re-establishment of the prairie dog colony, and continuation of the mountain plover habitat.

Incidental observations associated with other surveys identified two nests, six eggs, 13 juvenile birds, and 43 adult birds. Mountain plover design criteria was incorporated into one new oil and gas lease and two oil and gas related development projects to reduce adverse effects to the mountain plover.

Recommendations: Incorporate mountain plovers into the Viability 1 monitoring item, which reports on the status of sensitive plant and animal species found in grassland and sagebrush habitats. This monitoring item is reported every 5 years and will be included in the TBNG 5 Year Review, scheduled to be completed in 2008. The annual Mountain Plover monitoring item (T & E 3, Goal 1.b, Objective 2) would be dropped as it would be redundant with Viability I. The grassland will continue to manage for increased acres of prairie dog colonies, which provide suitable habitat for

[2] The Avian Power Line Interaction Committee is an organization of electric utilities, utility organizations, or federal agencies involved in bird and powerline interaction issues. More information can be found at their website: http://www.aplic.org/.

mountain plover. Project design will continue to minimize or eliminate adverse effects to mountain plover, a sensitive species.

Multiple Benefits to People

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:

Table 2. FY06 Off Road Vehicle Violations on TBNG.

Description of Violation	Offense Code	Warnings	Incidents	Violations/ Tickets	Total
Special order area closure to vehicle travel off NFS Roads.	36CFR26156	2	9	1	12

The grassland is a unique area in that it is generally open for use the entire year, with just a few areas and times that it is inaccessible to motorized use. The Upton/Osage area, and parts of the Spring Creek unit can become snowed in, but the heart of the grassland is generally open and dry year-round. In studying the use pattern, it is scattered throughout; however, the hardest hit area is the Weston portion of Spring Creek, which is the "backyard" play area for residents from Gillette, as it is the closest public land available to them, and the Upton/Osage area which also has towns near by for easy access to public lands. Also, because of the minerals industry being the predominant job source, the schedules for use are related to the work schedules, which are 12 hours on, 12 hours off per day, with rotating schedules around the week, making for week-long recreation with no obvious high/medium/or low use during the week, nor during the day.

Effects of Off Road Use
Increased use off roads has led to increased disturbance of vegetation and soils.

Effectiveness of Past Actions to Reduce OHV Use:
Physical barriers do not work on the open grassland. Users just go around the area. Signing efforts have been increased to notify users to keep on routes. We are also working effectively with the local Wyoming State Game and Fish Department wardens and biologists to get information on OHV users as they find them.

Education and enforcement efforts during hunting seasons these past years have proven very effective. Little to no off-roading was observed this year. In fact, no violations were written for off-roading or even for lack of a state OHV sticker during the hunting season on the grassland. However, some grassland users are still running off of existing roads and trails, creating new unauthorized roads and trails.

FY06 Actions taken to address this problem:
The district hired a dedicated Forest Protection Officer (FPO) to patrol the grassland this past year, and he was able to patrol steadily from mid-May to the end of October. However, one person trying to cover 556,000 acres within the 1.8 million acre landscape is difficult at best.

Hunting season was patrolled fairly well with three pairs every weekend and one to two pairs during the week, which covered the heart of the grassland (Cow Creek Buttes, Fiddleback and Rochelle Hills).

Recommendations: Beginning in 2007, to be completed by 2009, a site specific analysis of existing roads will be completed for the Thunder Basin National Grassland to determine which roads will be designated for motorized use. All other roads will then be closed to motorized use. Once this designation is completed, enforcement of illegal vehicle use off roads should be improved.

- Continue to seek funding to support having trained Forest Protection Officers in the field.

Outdoor Recreation

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 20 miles of single track motorized trail. All of the maintenance work done on the Upton/Osage trails is done by volunteers from the Inyan Kara Riders. No Forest Service money is used to maintain these trails.

This trail system is also used by the Inyan Kara Riders 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.

Table 3. FY06 Trails Meeting Agency Standards.

Trails on District (miles)	Trails meeting agency standards (miles)	Percent (%)
20	20	100%

All of these trails are single-track motorized (designated motorcycle trails), and there has been an upsurge in ATV use on these trails, which has affected the trail quality for motorcycle users.

Recommendations:

- Provide on-site training to the volunteer group for trail maintenance, reconstruction and construction techniques.
- Secure funding to purchase one or two dirt bikes so the trails can be patrolled regularly and checked for maintenance needs.

Community Relations

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 4. 25% Payments to Counties for Thunder Basin National Grassland (in dollars).

County	TBNG Acres	2004 Payment	2005 Payment
Campbell	145,654	287,141	215,602
Converse	175,798	346,567	267,680
Crook	302	595	453
Niobrara	804	1,656	1,260
Weston	226,625	446,767	336,599
Total	549,219	1,082,726	821,594

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 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 funds are calculated on a calendar year basis. 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. Payment information for the 2006 calendar year was not available at the time of this report, and will be reported in the 2007 monitoring report.

Recommendations: If additional information concerning employment and/or tourism related to TBNG becomes available, include in 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. These figures (Figure 8) do 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 2006 are given below.

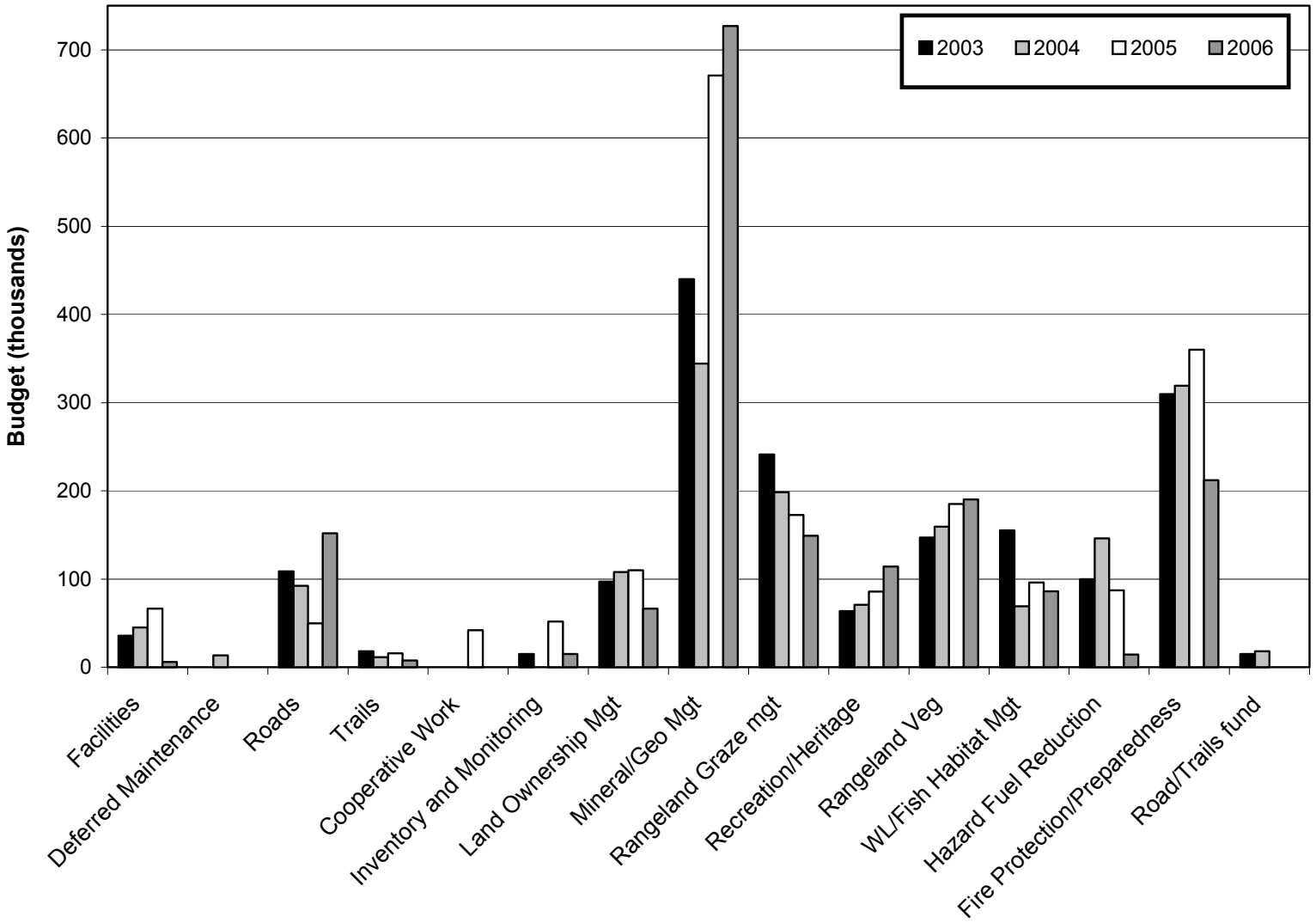


Figure 3. Budget for 2003 - 2005 for The Douglas District of the Medicine Bow - Routt NFs and Thunder Basin National Grassland. (Graph does not include costs for administrative programs common to all program areas).

Rangeland Outputs

Year 2006 was the seventh consecutive year of this extended and extreme drought in Wyoming. Up until 2004, the Grassland had received scattered, moderate amounts of winter and spring moisture, and conditions had been somewhat better than other areas of the state. However, in 2004 it became the Grassland's turn as the Thunder Basin had probably the worst climatic conditions to be found anywhere across the state and the Region; some areas, particularly along the Antelope Creek and Cheyenne River drainages, had little winter and no spring moisture, and much of that area did not ever green up. Rainfall patterns in 2005 were quite variable, with some places showing little improvement over the previous grazing season while many others had very timely, but limited, spring rains that produced slightly above-average forage production. Nearly all the areas cured out earlier than usual with the extended hot, dry summer.

2006 returned with a vengeance – and the Grassland was once again the hardest-hit area of the state. There was very little winter precipitation. The northern and eastern reaches of the Thunder Basin benefited somewhat from a wet spring snowstorm. But much of the southern and central portions received very little winter precipitation and even less spring/summer moisture – none in much of the area. The Antelope Creek and Cheyenne River drainages and surrounding areas once again suffered the worst. Soil moisture sensor readings from two monitoring stations installed in the area confirm that soil moistures are extremely low. Some areas are being impacted by wind (and occasionally water) erosion; the hardest-hit areas are those that also experienced fires during this past spring and summer.

Nearly every producer has liquidated at least a portion of their herd – some have sold everything. Many have gone out-of-state to lease forage for the remaining portions of their herds. Non-use of animal numbers for resource protection averaged about 25%, with the total amount of grazing use at only about 65-70% of the projected Thunder Basin Plan level – because many were unable to run the considerably-reduced numbers for the full season.

Table 5. Livestock Grazing Use for 2004 – 2006.

Livestock Grazing	Planned Level[3]	2004 Output (AUM)	2005 Output (AUM)	2006 Output (AUM)
Cattle		89,580	102,432	78,237
Sheep		3,881	4,739	3,739
Total Use	**115,430**	**93,461**	**107,171**	**81,976**

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 would eat in one month.

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 account for the differences. At the five-year reporting interval, consider changing units-of-meausre

[3] From Supplemental Table S-2 of the FEIS.

from AUMs to Head-Months (HMs) since the Bills for Collection for grazing use are issued for HMs.

Rangeland Health

Rangeland vegetation structure and composition classes were measured in 2006 on the 115,884-acre Broken Hills Geographic Area (GA), 91,551 acres of the Cellars-Rosecrans GA, and the 82,988-acre Hilight Bill GA. The information, among other efforts, will be used in the completion of allotment management planning updates for the 71 allotments in those GAs permitted to the Thunder Basin Grazing Association.

Recommendations:

Analyze and display the vegetation structure and composition results for the 71 allotments in these 3 Geographic Areas in the 2007 Monitoring Report.

Noxious Weed Control

Primary species treated were leafy spurge, diffuse knapweed, saltcedar, and Canada thistle. The district is focusing much of its efforts on inventorying for the presence of saltcedar (tamarisk) because it is still possible at this point that we can 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 4. Saltcedar (light colored shrubs) on TBNG.

Table 6. Noxious Weed Treatment (acres).

2004	2005	2006
327	430	580

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 infestations. .

Additional earmarked funds were received in 2006 ($1,400) to control noxious weed populations in recently burned areas and to increase control efforts ($9,000) along many major roads. The result is treatment on about 30% more acres than in other years.

Recommendations:

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

Terrestrial Wildlife

In Fiscal Year 2006, the long term drought experienced over the last few years intensified, precipitation remained below average and occurred at times that only limited vegetative growth occurred. Observations indicate that the upland game habitat conditions showed a reduction in health and vigor as a result.

Black Tailed Prairie Dogs

In 2005, a complete inventory of active prairie dog colonies was completed in compliance with Biological Resources, (F) Fish, Wildlife and Rare Plants, Standard #65 (LRMP, page 1-20)

> *Evaluate prairie dog management 3 years after management plan approval. Evaluate prairie dog management again when the total acres of active prairie dog colonies expand to 35,000 acres (approximately 7%) of suitable habitat on the Thunder Basin National Grassland.* ***Standard***

The results of this inventory showed that black-tailed prairie dog numbers continued to rise - increasing by about 63%, from about 9,550 active acres in 2004 to about 15,531 active acres in 2005 (see figure 6 below). However, in 2006 a plague epidemic reduced numbers by 62% to approximately 6,500 acres of active prairie dog colonies. As the table indicates, even with a plague epidemic, the area is supporting higher historic prairie dog numbers from the aftermath of the 2001 plague event. Despite the recent reduction in active prairie dog acres, Thunder Basin National Grassland has the potential to support black-footed ferrets. Collaboration will continue with the Wyoming Game and Fish Department and the USFWS in pursuit of a ferret allocation for as early as fall 2007.

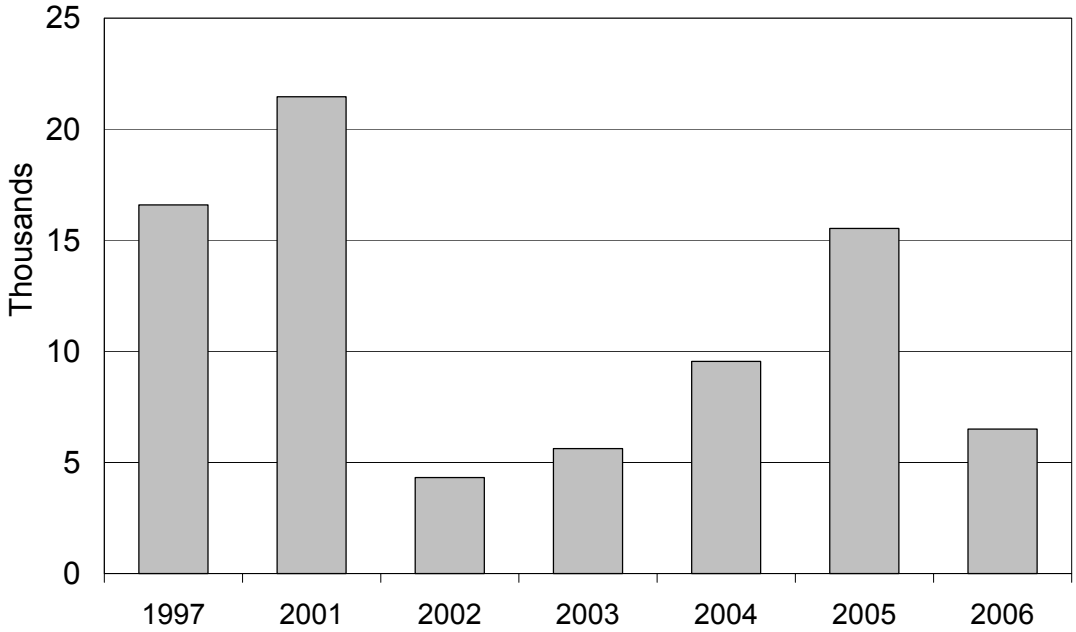


Figure 5. Acres of Active Prairie Dog Colonies.

Based on the information from the 2005 inventory, the Douglas District drafted a prairie dog assessment and management strategy that is still being pursued. This strategy looks at opportunities to use all management tools available to manage

prairie dog colony sizes and locations. The draft strategy was developed, in part, through discussions with neighboring landowners and other interested parties, including the Thunder Basin Grassland Prairie Ecosystem Association. This cooperative effort provides an opportunity to manage prairie dog colonies on an ecosystem level rather than based on land ownership boundaries.

The draft strategy has identified a potential need to amend the Thunder Basin Plan to be able to fully use all tools available for the management of prairie dogs. Currently, the plan limits use of rodenticides to areas where human health and safety are a concern or where public or private facilities, such as cemeteries and residences, are being damaged. The strategy also identified a potential need to adjust the boundary of Management Area 3.63 (Black Footed Ferret Reintroduction Habitat) to better fit with topographical and biological boundaries of suitable prairie dog habitat. The boundary has been tentatively identified and is ready for implementation once a Forest plan amendment has been completed.

Sage Grouse

In the highly industrialized mineral development area of the Grassland (Hilight Bill Geographic Area), habitat alteration, disturbance, and powerline construction has further reduced the habitat suitability for sage grouse. Correspondingly, sage grouse numbers appear to be declining in this portion of the Grassland. In addition, powerline construction may be creating a potential adverse affect on sage grouse and other avian species at risk. Sage grouse appear to be stable or increasing in other areas of the grassland.

Recommendations: Continue to track the habitat suitability of various species and manage for an increasing number of prairie dogs, especially in the Black-footed Ferret Reintroduction Management Area (3.63). Wherever possible, bury all powerlines to reduce their effects on avian species at risk.

Minerals

The following administration and permit processing was accomplished on the TBNG during 2006.

Energy Operations Processed: In 2006, the following Energy Operations were processed:

Figure 6. Oil well on the TBNG.

- 19 Oil/Gas APDs
- 8 Oil/Gas Sundry Notices
- 19 Mineral Related Special Use Permits (tank batteries, powerlines to wellsites, pipelines, etc)
- 2 Coal Exploration Licenses
- 7 Mineral Material Permits processed (944,368 tons for $500,515.00)
- 41 Oil/Gas Lease requests processed to the BLM

Operations Administered to Standard: In 2006, 619 operations were administered to standard, including:

- 2 Bonded Mineral Material Sales
- 588 Oil/Gas well inspections and 28 follow up inspections
- 2 Bioremediation inspections performed
- 5 Surface Coal Mine Plans
- 19 Mineral related special Use Permits
- 3 Geologic Resources

Oil and Gas Wells: There were 39 new oil/gas wells drilled, five bond releases for wells were processed, and three spills inspected and administered.

Geologic Resources: Eighteeen Geologic Permits and Reports were prepared.

Oil and Gas Leasing Availability Decision: This Record of Decision (ROD) made the decision concerning which lands on the Thunder Basin National Grassland west of the coal outcrop will be available for leasing. This decision made approximately 58,460 acres of the Thunder Basin National Grassland available for oil and gas leasing. This decision was deferred in the July 2002 ROD for the Thunder Basin National Grassland Land and Resource Management Plan pending completion of the Powder River Basin Oil and Gas Environmental Impact Statement.

Scientific and Technical Assistance

Administration

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 and a description of any actions taken in support of a National Recovery Plan.

Results/Evaluation:
Objective 1; Inventory and Monitoring: Inventories were conducted for nesting raptors, breeding sage grouse, breeding sharp-tailed grouse, and foraging bats. Monitoring was conducted for known raptor nests, and known sage and sharp-tailed grouse leks. Breeding song birds were not surveyed on TBNG during 2006. Prairie dogs were monitored as well, and that work is described in more detail under Goal 1b regarding black-footed ferret recovery and in the *Comparison of Estimated and Actual Outputs and Services* monitoring item.

Raptors
Over 360 raptor nests were monitored within the Thunder Basin National Grassland. Surveys located 176 occupied diurnal raptor nests, including those of the Bald Eagle, ferruginous hawk, golden eagle, red-tailed hawk, Swainson's hawk and great horned owl. A total of 185 unoccupied nests were also recorded.

Figure 8. Ferruginous Hawk

Table 7. 2006 raptor nest summary for the Thunder Basin National Grassland.

Species	Occupied Nests		Unoccupied Nests			Total Nests
	Active	Adults Only	Good	Damaged	Destroyed	
Bald Eagle	2	0	4	0	0	6
Ferruginous Hawk	42	7	48	31	25	153
Great Horned Owl	14	1	0	0	0	15
Golden Eagle	18	1	6	1	1	27
Red-tailed Hawk	79	3	39	17	8	146
Swainson's Hawk	9	0	1	0	0	10
Unknown Buteo	0	0	2	0	1	3
Unknown raptor	0	0	0	0	1	1
Total Nests	**164**	**12**	**100**	**49**	**36**	**361**

Key to Table:

Occupied Active - An occupied, active nest in which a breeding attempt was made, indicated by the presence of an incubating or brooding adult, eggs or young in the nest, or fledged young near the nest.

Occupied Adults Only - An occupied nest with two adults present at or near the nest and/or fresh lining material in the nest.

Unoccupied Good - An unoccupied nest that is in good condition but with no apparent recent use or adult presence at the time of the observation.

Unoccupied Damaged - An unoccupied, dilapidated nest in a state of ruin due to weather, natural aging, and/or neglect.

Unoccupied Destroyed - An unoccupied nest showing no sign of raptor activity that is destroyed to the point that it is no longer useable without major reconstruction. These nests, for all practical purposes, have disappeared.

Sage Grouse:

The greater sage-grouse (*Centrocercus urophasianus*) is the largest grouse in North America. It is dependent on sagebrush (*Artemisia* spp.) habitats in western North America. The greater sage-grouse is a Management Indicator Species for all six Geographic Areas across TBNG, as well as a Region 2 Sensitive Species. It was selected as a MIS for sagebrush habitats that have tall, dense and diverse herbaceous understories (Thunder Basin Plan, Appendix H).

Figure 8. Sage Grouse Displaying on a Lek.

Methods

Douglas Ranger District wildlife staff monitored greater sage-grouse leks in April of 2006. Count leks were checked three times with 7-10 days between visits as per Wyoming Game and Fish Department protocol. Survey leks were visited to determine activity and to identify new leks. All leks were surveyed by Douglas Ranger District staff, WYGFD biologists and game wardens, private wildlife contractors and volunteers. This information was then provided to the WYGFD for compilation. Once the compiled information was available to the district a minimum population estimate and mean sage-grouse males per lek values were generated.

The procedure for generating the minimum population estimate was changed in 2006. Prior to 2006 only the leks that occurred on NFS lands were used to generate the minimum population estimate. District wildlife staff decided that for a biologically accurate estimate we needed to include the leks that occur on adjacent lands if those leks are part of the complex that occurs on NFS lands. A 2005 study[4] found that 65% of female sage-grouse nest within 3.1 mile of a lek therefore inclusion of leks adjacent to NFS lands reflects the nesting population on TBNG. This did not change the number of complexes used to generate a minimum population estimate but did increase the mean birds per complex.

The minimum population estimate calculation was originally used by the WYGFD to assess sage-grouse populations, but is no longer used. This estimate is generated using mean males/complex then multiplying by three to account for a two females: one male sex ratio. Then multiply that over 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 mean sage-grouse males/lek statistic for TBNG is calculated by dividing all the males observed on leks by the number of leks checked. Only leks that occur on NFS land are used in this calculation. This is the current standard that the WYGFD uses for assessing sage-grouse populations. TBNG males/lek is compared against the Northeast Wyoming sage-grouse local working group area and Wyoming state averages.

Results

There are 34 leks known to occur on NFS lands within TBNG. Twenty-eight (82%) were checked in 2006 and 15 were documented as active.

New Leks: No new leks were identified on NFS lands in 2006. Sage-grouse were observed strutting in new places, but these locations did not get three visits to confirm lek status. These are priority areas for the 2007 surveys. The Kort II lek was documented on private surface in 2005 and this appears to be new location for the Kort lek which previously was located on NFS land.

Abandoned/Destroyed Leks: This year three leks were classified as abandoned or destroyed. These are the 59, Rochelle and Bergreen leks. The 59 and Bergreen leks were classified as abandoned because they have been documented as inactive for the

[4] Holloran, M.J. and S.H. Anderson. 2005. Spatial Distribution of Greater Sage-grouse Nests in Relatively Contiguous Sagebrush Habitats. The Condor 107: 742-752.

past five consecutive years and the Rochelle lek was classified as destroyed because it was excavated as a result of mining activity.

Other Changes: All lek location information available in the WYGFD spreadsheet was verified in 2006. It was found that the Dunham 9 and ZV Creek II leks were classified as being on NFS lands, but are actually on private surface and the Cellars 1 lek was classified as being on private surface but is on NFS land. This change affected the males/lek calculations for the Fairview Clareton and Spring Creek Geographic Areas.

Minimum Population Estimate: Using the new method for estimating population there are an estimated 2506 sage grouse on TBNG in 2006 (Figure 10). This is a 43% increase over the 2005 estimate of 1,747 individuals. The 2006 estimate is less than the ten-year high of 2,654 individuals. The Minimum Population Estimate under the new method was checked against the previous method and although the total number of individuals was higher the percentage increase was similar.

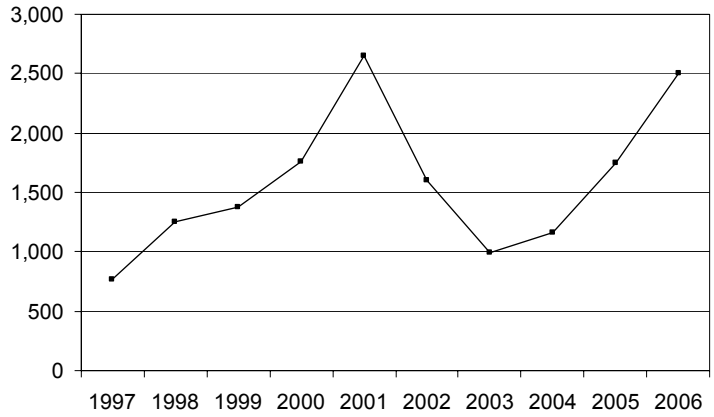


Figure 9. Minimum population estimate for greater sage grouse on TBNG (1997-2006).

Mean Sage-grouse Males/Lek: In 2006 the mean sage-grouse males per lek was 12.3 males/lek which was a 55% increase from 2005 (7.9 males/lek) (Figure 11). The 10 year high for TBNG was 16.2 sage-grouse males/lek in 2001 although the 2006 estimate is 25% lower than the 10 year high it is the second highest males/lek estimate in 20 years. The 2006 information for Northeast Wyoming and statewide are not available at this time.

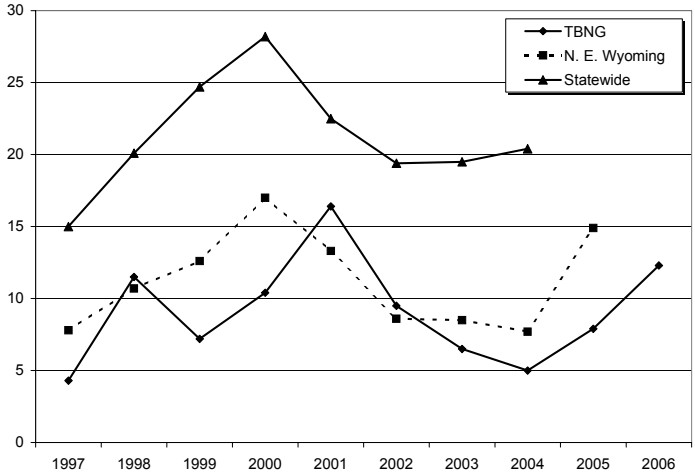


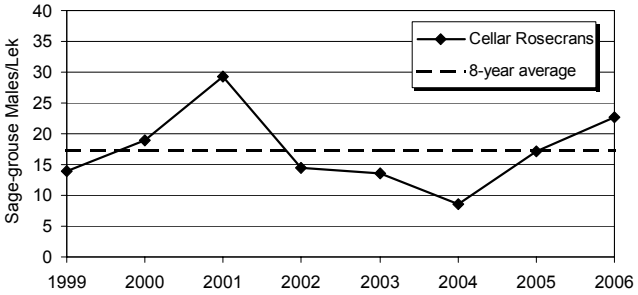
Figure 10. Mean males per lek for TBNG, Northeast Wyoming and Statewide (2007 - 2006).

Geographic Area Males/Lek: Mean sage-grouse males/lek analysis was performed for all Geographic Areas (GAs) that currently hold sage-grouse. Currently five of the six GAs on TBNG have sage-grouse leks on NFS lands. The Upton-Osage Geographic Area has historic sage-grouse leks, but none on NFS lands. This area has been searched for the past three years and no leks have been found. It is important to remember that annual variation in each GA can be substantial due to the small sample size and that the calculations are only for leks on NFS lands and not those leks on other ownerships.

The exclusion of leks on private lands makes some GAs artificially low. For comparison purposes annual males/lek was compared to the mean for the period of data for each Geographic Area.

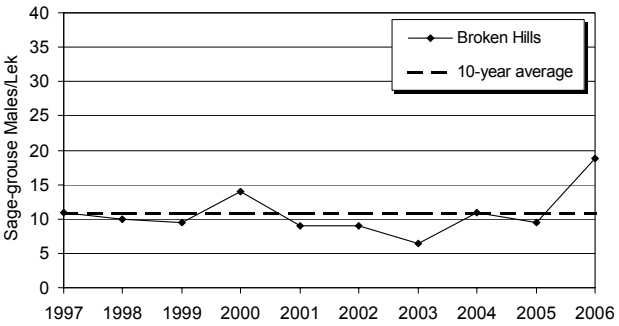
Table 8. 2006 Greater sage-grouse lek statistics by Geographic Area

Geographic Area	Total Leks	Abandoned/ Destroyed Leks	Leks Checked	Active Leks	Percentage of TBNG leks
Broken Hills	5	0	5	4	14.7
Cellar Rosecrans	10	0	8	7	29.4
Fairview Clareton	7	1	5	1	20.6
Hilight Bill	7	3	4	1	20.6
Spring Creek	5	1	5	1	14.7



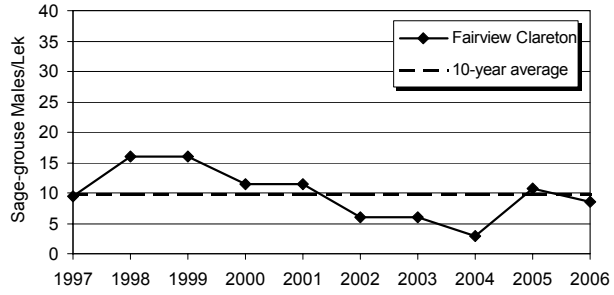
Broken Hills: In 2006 there were 18.8 sage-grouse males/lek in this GA, which is a 100% increase from 2005 (9.4 males/lek). The 2006 average is the highest males/lek over the 10 year period for this GA and is above the ten-year mean of 10.8 sage-grouse males/lek.

Figure 11. Broken Hills sage grouse males per lek (1997 - 2006).



Cellar Rosecrans: In 2006 there were 22.6 sage-grouse males/lek which was a 31% increase from 2005 (17.2 males/lek). Sage-grouse observation information for this GA only goes back to 1999, with the highest males/lek observed in 2001, with 2006 having the second highest number of observations. This GA is above the eight year mean of 17.3 sage-grouse males/lek.

Figure 12. Cellar Rosecrans sage grouse males per lek (1999-2006).



Fairview Clareton: In 2006 there were 8.6 sage-grouse males/lek in this GA which is a 20% decrease from 2005 (10.7 sage-grouse males/lek). The highest males/lek for this GA was in 1998 and 1999 with 16 sage-grouse males/lek. This GA is currently below the ten-year mean of 9.9 sage-grouse males/lek.

Figure 13. Fairview Clareton sage grouse males per lek (1997-2007).

The removal of the Dunham 9 lek, determined to be on private land, negatively affected the number of males/lek for this GA. This lek had 71 birds in 2006, which would have increased males/lek for this area.

Hilight Bill: A total of seven leks have been documented on NFS land in this GA; with three classified as abandoned or destroyed generally caused by coal mining activity. At this time there are four leks that are still considered active on NFS lands in this GA. In 2006 there were 2.5 sage-grouse males/lek ,which is an increase from 2005 (2.0 sage-grouse males/lek). This GA is currently below the ten-year mean of 3.8 sage-grouse males/lek.

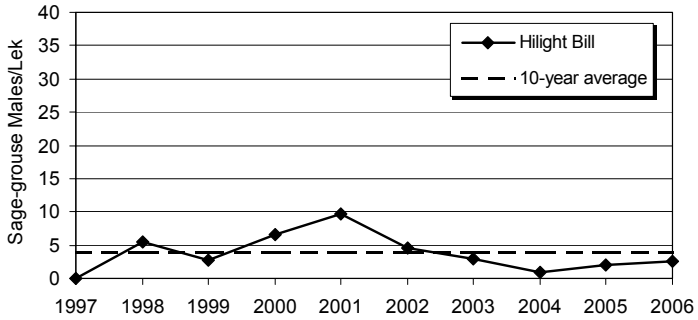


Figure 14. Hilight Bill sage grouse males per lek (1997-2006).

Spring Creek: The Spring Creek GA had 3.2 males/lek, which is higher than 2005 (2.6 males/lek). Calculations for 2006 are different than previous years because of two changes. The first is the inclusion of the Bergreen lek, which is on private land, but was originally on NFS lands (land status changed during the Boardman Land Exchange). The second is the ZV Creek II lek which was in the WYGFD spreadsheet as on NFS lands but is actually on private surface, and so was removed from the calculations. This GA is currently below the 6 year average of 5.0 sage-grouse males/lek.

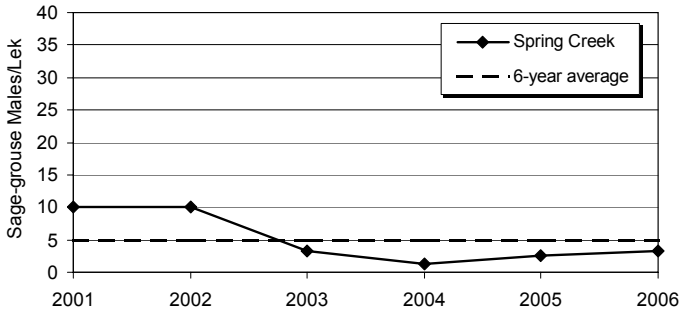


Figure 15. Spring Creek sage grouse males per lek for 2001-2006).

Discussion

The 2006 greater sage-grouse job completion reports are not currently available from the WYGFD at this time, therefore comparison of TBNG with the local working group and statewide information is not possible and therefore discussion will be restricted to TBNG.

Minimum Population Estimate: Although the 2006 minimum population estimate is higher than it has been in several years, there are cautions when interpreting this information. Due to inconsistent survey effort, these estimates are most useful in looking at long-term (10-20 year) trends. Little can be interpreted from annual variation because slight increases in effort can skew estimates. At this time the sage-grouse population appears to be increasing on TBNG.

TBNG Males/Lek: Sage-grouse males/lek for TBNG was the second highest in ten-years. This also indicates and increasing population, but it has only been in the past

five years that lek survey efforts are monitoring enough leks to get an accurate picture.

Geographic Areas: It is hard to interpret the sage-grouse males/lek for each GA because some of the areas have 4-5 leks. The exclusion of private lands leks also skews the calculations. Given the proximity of some of those private leks to NFS lands, the public land is supplying nesting and brood rearing habitat that is supporting those private leks.

There are two geographic areas above and three below the means of sage-grouse males/lek . The Broken Hills and Cellar Rosecrans are above while the Fairview Clareton, Hilight Bill and Spring Creek GAs are below the mean. With the exception of the Fairview Clareton GA the sage-grouse males/lek increased in all other GAs from 2005.

Sharp-tailed grouse: The Plains sharp-tailed grouse (Tympanuchus phasianellus jamesi) is a Management Indicator Species (MIS) for both the Upton Osage and Spring Creek Geographic Area of the Thunder Basin National Grassland. This species 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.

Figure 16. Plains Sharp Tailed Grouse.

Sharp-tailed grouse are primarily monitored through lek counts, which can then be used to generate population statistics. Although a population estimate could be generated with the available information there are insufficient survey years and total leks for that estimate to accurately reflect population change. Vacant leks are not included in the males/lek calculation because sharp-tailed grouse are less dependent on specific lek location and will move between leks.

At this time, the mean males/active lek is used to look at lek attendance fluctuations. This index is also used by the WYGFD to monitor greater sage grouse populations.

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

This year both Geographic Areas were surveyed by two observers for six days each in April. Sharp-tailed grouse surveys were performed concurrently with greater sage-grouse surveys. This allowed for three visits on known leks and for some time spent looking for additional leks. Surveys were performed by Douglas Ranger District wildlife staff with additional surveys performed by third-party wildlife contractors.

Table 9. Sharp Tailed Grouse Lek Observations[5].

Lek Name	2003	2004	2005	2006
Duck Creek				8
York 1*		2	0	0
York 2			3	9
York 3		4		0
York 4			7	0
York 5	5			0
York 6		7	2	12
ZV Creek 1*		15		0
ZV Creek 2			2	10
Horse Creek			9	23
Prairie 2 (private land)			6	
Heald				0
Skull Creek 1 (BLM)				2
Total Males	**5**	**28**	**29**	**64**
Average Males per Lek	**5**	**7**	**5**	**10.7**

There are some changes in lek identification from 2005 as additional leks were discovered, and one lek name changed. The Prairie 2 lek was discovered as part of project surveys in 2005, but will be difficult to monitor in the future because it is on private land. The Skull Creek 1 lek was discovered on BLM land adjacent to USFS land. This is the only known active lek in the Upton Osage Geographic Area. The Heald lek is a historic lek in WYGFD records and it was included because there is still appropriate habitat in the area. The Duck Creek lek was renamed Horse Creek as private wildlife contractors identified a new lek on NFS lands as Duck Creek. These leks are far enough away to be different complexes so the original Duck Creek lek was renamed Horse Creek and the new lek remains Duck Creek.

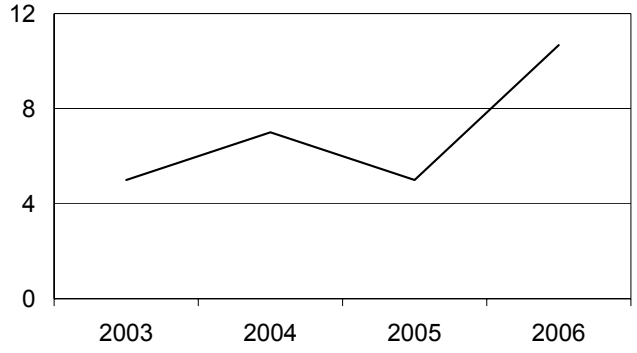


Figure 17. Mean Male Sharp-tailed Grouse per Active Lek.

More total males were observed this year and the mean males/active lek increased from 2005. There were fewer active leks, but the leks that were active had higher attendance (see table and figure above**)**. The first active lek discovered in the Upton-Osage GA was discovered in 2006. The Skull Creek 1 lek was discovered on Bureau of Land Management (BLM) surface adjacent to NFS land. Most of the leks (85%) are found on NFS administered land. One lek is on BLM and one is on private surface. The private surface lek was discovered as part of surveys for a conventional oil well project in 2005.

[5] -Leks with an asterisk are no longer considered active under the TBNG Plan.

Although this is the fourth year of sharp-tailed grouse surveys, not much can be confidently stated about sharp-tailed grouse populations on TBNG. There is still an artificial increase in numbers because of increased survey effort, although this increase is smaller than in previous years. The number of individuals observed has increased since 2003, but it will take more survey years to be able to accurately describe a trend.

Bats: In 2006 we performed active and passive surveys for all species of bats, to detect presence or absence. We have three sensitive species of bats in Region 2, all three of which have potential to occur on the Douglas Ranger District. Currently there is little to no information on bat use on the grassland, so survey are important to determine any use and what species are present. All data was collected on TBNG and MBNF. Two species were detected for the first time in 2006, Lasiurus cinereus, and Myotis septentrionalis.

Table 6. TBNG Bat Survey Results

Species	2005 No. calls detected / No. trapped	2006 No. calls detected No. trapped
Myotis lucifugus	124 /3	116 / 5
Eptesicus fuscus	85 / 1	19 / 0
Myotis evotis	*0 / 19*	15 / 0
Myotis volans	9 / 0	31 / 0
Myotis thysanodes	6 / 0	1 / 0
Myotis ciliolabrum	34 / 1	64 / 0
Lasiurus borealis	0 / 1	0 / 0
Lasiurus cinereus		4 / 1
Myotis septentrionalis		0 / 1
Total	258 / 25	250 / 28

Objective 2, Provide Research Results: Reports were provided during 2006 on the following: *A Tri-National Investigation of Ferruginous Hawk Migration.*

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

Effective Public Service

Threatened and Endangered Species

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?***

Monitoring Protocol/Data Collected: A review of the opportunities to implement national recovery plans and a description of any actions taken in support of a National Recovery Plan.

Wildlife

Results/Evaluation: There is an opportunity to implement actions in support of the Black-footed Ferret Recovery Plan. In 2006, the District continued work on a Black-footed Ferret Reintroduction Strategy, continued work on a Prairie Dog Management Strategy, and assisted the USFWS in the on-going development of a "10j Rule" for the reintroduction of black-footed ferrets in eastern Wyoming.

In 2006, consultation with the U.S. Fish and Wildlife Service has occurred on several projects to ensure project designs provide the best protection for bald eagles while still accomplishing the proposed projects purpose. As in the past, bald eagle considerations were incorporated into project design as appropriate - including the use of a 1-mile no surface occupancy buffer prohibiting construction of new above-ground structures. In addition, bald eagle communal roosts sites were identified and monitored in compliance with the Recovery Plan. Otherwise, no further opportunities were identified to implement action items in the Bald Eagle Recovery Plan on TBNG.

Recommendations: Continue to manage for prairie dog populations – especially in and around the Black-footed Ferret Reintroduction Management Prescription Area. Continue to plan and prepare for a ferret reintroduction beginning as early as Fall 2007.

Plants

There are no documented occurrences of Threatened and Endangered (T&E) plant species on the Thunder Basin National Grassland. On-going project and other inventory work continues to seek out the presence of T&E plant species that might occur.

Recommendations: Continue to monitor this item yearly over the life of the plan.

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: There was an Interdisciplinary Team (IDT) monitoring trip in July 2006 by the Forest Monitoring and Evaluation Team which reviewed three projects. In addition, the Douglas District IDT reviewed four projects during FY06. The results of these reviews are summarized below.

Forest Monitoring and Evaluation IDT Field Review July 18, 2006

Spring Creek Geographic Area (GA) Vegetation Structure and Composition Mapping

The Spring Creek GA contains approximately 48,700 acres and consists primarily of big sagebrush, dwarf shrubs, western wheatgrass, and needle grass. The Weston Hills area also contains pockets of juniper and ponderosa pine. Livestock grazing is authorized on 15 allotments, which are broken down into roughly 45 pastures. Livestock are rotated across the pastures on a year-round basis.

Desired seral stages and vegetation structure for this GA are as follows:

Late:	10-20%
Late Intermediate:	30-40%
Early Intermediate:	30-40%
Early:	10-20%

To determine if the GA is at or moving toward the desired condition, the District used Integrated Resource Inventory (IRI) data to generate maps of vegetation structure and composition. The IRI generated maps were then field truthed. Field surveys showed that existing conditions match well with the desired conditions. Survey methods included field verifying randomly selected photo points (reviewed every 2-3 years) and Parker 3-step plots (reviewed every 10 years). Riparian areas appear to be meeting or moving toward desired conditions. Consequently, current livestock management is meeting objectives and so will not likely change in this area.

Conclusions: This mapping method and assessment methodology worked well and would be used for the next assessment area.

Biological Resources (Sage Grouse) Standard 55

This standard limits treatments to 80 acre patches or less in big sagebrush and sage grouse wintering habitat. The 80 acre patch size attempts to address the large spatial needs of the sage grouse (a sensitive species) by ensuring that there will be remaining habitat for these birds to use for perpetuity. There was discussion over the

interpretation of the patch size, and that the standard could be interpreted to have a mosaic with 80 acre patches across the landscape.

The Fire Management Officer (FMO) discussed how the 80 acre patch limitation contained in this plan places undue constraints on the ability to perform economical prescribed fire fuels treatments on the grassland.

This is due to the continuous nature of the fuels found on the grassland. Some of the most important factors affecting fire behavior are the arrangement, and continuity of the fuel bed. Grass fuel types usually have a continuous arrangement and uniform continuity, which makes consumption of the majority of the fuel bed very likely. For this reason, the 80 acre patch limitation would be very difficult to obtain in a wildfire or prescribed fire situation. Although mosaic burning is natural in most fuel types, it occurs on a much larger scale and is extremely dependant on the arrangement and continuity of the fuel bed. In order to meet the 80 acre restriction for prescribed fire treatments, expensive mechanical pretreatments would be required for any proposed burn site,as which would still not guarantee that the 80 acre limitation would be attained. In addition, this 80 acre limitation eliminates the economy of scale cost benefits found in prescribed fire fuel treatments.

The 80 acres patch limitation effectively restricts fuel treatments on the grassland to expensive chemical or mechanical treatment methods. The cost of these treatments and the small scale effects make fuel treatment on the Thunder Basin Grassland generally cost prohibitive.

Consequently, it is very unlikely that fuels treatments will take place on the grassland. The natural accumulation of fuels in the sagebrush covertype likely will eventually burn. Treating the fuels in these areas would allow more effective control of naturally occurring wildfires. When these fuel types are allowed to reach their natural climatic stage, they will eventually receive a stand replacement fire.

Other observations noted that brood rearing habitat and winter range is generally in good condition. However, they have noticed that nesting sites that were occupied in the past are now vacant. This could be due to the encroachment of sagebrush into mesic draws. Some type of management may be needed to improve nesting habitat, though any change to sage grouse nesting habitat must be carefully considered to ensure there is a benefit to this species.

It also appears as though some sage grouse leks are shifting. There may be a need, in certain areas, to implement management activities to increase early to intermediate vegetation stages. This could be accomplished, on a case-by-case basis, using such strategies as mowing or brush hogging.

Possible Future Action: Map sage grouse wintering habitat with high hazard fuels to determine where this standard could be hindering the use of prescribed fire as a tool. This can help in determining if Forest Supervisor direction is needed to aid in implementation of this standard.

Recommendation: Pursue funding to map Sage Grouse wintering habitat to be able to analyze overlap with high hazard fuels and implications for management.

Big Porcupine Coal Bed Methane (CBM) Project

The IDT stopped at a spring that was developed from CBM water. Monitoring revealed that the CBM water was not meeting water quality criteria; thus, a bubbler was developed nearby. The bubbler leaches out iron to meet WYDEQ requirements and oxygenates the water to mitigate the dissolved oxygen problem. Although this is a good example of monitoring that was effective in identifying and resolving a problem, the location of the facility could have been improved. The bubbler is located too close to an ephemeral draw (now a perennial stream) and this could lead to bacterial problems due to having wildlife and cattle concentrate near the now perennial stream. Continued monitoring should occur at this site. There was a general consensus that resource monitoring was very good on this project, particularly between hydrology and wildlife.

This project changed substantially from what was authorized in the decision. The decision authorized 198 wells (of the originally proposed 400 wells) but only roughly 80 were drilled. Some roads were also constructed in areas different than what was authorized. In some places, they crossed draws that should have been avoided and, in some cases, they installed culverts without authorization. Finally, a powerline was located in a different location. The powerline remains in the changed location.

Ongoing Monitoring: Water quality monitoring data goes through WYDEQ and the NFS can obtain information from them. This has made the Forest Service job somewhat easier. One of the biggest challenges with a project like this is that it was so large and the wells go in so quickly. This makes it difficult to administer, check for compliance, and to manage. If they ever get a project of this magnitude again, they would need more people to handle the inspections. It would help if the District could develop a monitoring program just for CBM projects. There has been one in the past, which worked well, but these people got pulled into other projects.

The hydrologist has concerns over the locations of some of the vent pipes. Some are located in draws, which likely are not the best location. The pipe/stream crossings did not revegetate well, and sometimes left berms of disturbed soil in the stream channels from the pipeline construction. There should be an effort to inspect the stream crossing, although they tend to be farther from roads, making it more difficult and time consuming to reach.

Conclusions:

- Grassland standards and guidelines were effective to protect most resource areas. There are a few problems here and there, but overall this project is working well.
- There tends to be a disconnect between what was planned to occur on the ground and what is actually happening when dealing with both the company and sub-contractors.
- The Douglas District is working on hiring two more positions to help with inspections.

Recommendations: Maintain level of staffing and funding to perform inspections and monitoring of the project design criteria and mitigation measures.

Teckla 230 Substation Utility Line Corridor
This is a 71 mile corridor that is located primarily on private land. Currently the substation and only about 1 mile of the corridor is located on NFS lands, with approximately ½ mile on BLM lands. A NEPA analysis was conducted on the federal lands, although not along the majority of the corridor. Cumulative effects of the utility corridor were analyzed by including information for private lands. This information was obtained through compiling all the data we could find from other sources such as the BLM and Wyoming Game and Fish Department.

Placing any line above ground requires consultation with the USFWS.

This discussion brought up an important information need: Powerlines, CBM wells, or pipelines are not spatially mapped. The data is there, but scattered, so we could get it in a database. This would be a good project to undertake, particularly for cumulative effects analysis.

Action Item: The SO will "loan" a GIS specialist to the district to help with the mapping effort this summer. The District will pursue this as funding and time allows.

District Project Reviews
The following reviews were conducted by the Douglas District IDT.

Boss Draw Powerline District Project Review 9/20/06
This project was included in the Big Porcupine EA. Standard/guidelines relating to the following subjects were reviewed:

- Raptor insulators
- Sage grouse timing stipulations
- Noxious weed control
- Reseeding of site

The review found that these Standards and Guidelines and additional mitigation from the decision were incorporated into the decision. However, not all of the line was constructed as applied for, and stopped halfway across section 20. This was due to changes in the adjacent coal mining plans. The standards and guidelines were effective, however there is a need to continue to monitor for noxious weeds.

Recommendations: The district needs to receive an 'as built' plan for the constructed power line since it differed from the original plan.

RT Communication Phase I 9/20/06
This utility line is located along Hwy 450 west of Newcastle, WY and along the Mush Creek Road. The purpose of the review was to assess if the mitigation measures were followed and if the line was kept in the existing disturbed corridor.

The decision incorporated the relevant standards and guidelines, and incorporated the following additional mitigation measures:

- Do not clear vegetation (mowing was allowed)

- Archeologist was to be on site for inspections during work
- Reseed according to NFS instructions

The review found that the standards and guidelines, and mitigation were incorporated into the project and on the ground. A pre-construction meeting was held and the NFS was contacted so there would be an archeologist on site for inspections. These measures were effective.

Recommendations: The following recommendations were made by the IDT team:

- Ensure that the call before you dig number (Wyoming ONE-CALL) is in the operating plan
- Have as a condition in the operating plan that an 'as built plan' is submitted by the permittee (RT Communications)

Thomas Bioremediation 9/20/06

This project was remediation for oil soaked earth from a pit. The decision was a Sundry Notice with BLM, with the Forest Service providing conditions of approval.

Soil testing guidelines were provided by BLM as there were no appropriate standards and guidelines in the TBNG Plan. These were incorporated into the conditions of approval for the Sundry Notice.

The following additional mitigation measures were contained in decision:

- Place soil on plastic for testing, continual testing
- Fill pit with clean soil
- Disc soil and fertilize

Recommendations: Inspect Thomas Bioremediation site every 60 days between April and October though 2008. Make sure the operator has turned the soil with a disk or other similar implement. The soil needs turning every 30 days between April and October (as stated in operating plan). After October 2008 the operator will sample the Bioremediation and have the results sent to the Forest Soils Specialist to determine if the contaminated soil has been cleansed to BLM standards. If the soil does not meet the standards in October 2008, continue the Bioremediation project though October 2009 and have the soil retested.

Progress made towards FY05 Recommendations from 2005 Coal Bed Methane and Oil and Gas field project reviews:

Ensure BMPs are included in the decision notice and that the Conditions of Approval meet the intent of the BMPS.

All necessary BMPs are included in the Conditions of Approval for all oil and gas wells. New BMPs are being developed as new projects are processed.

Schedule additional monitoring of BMP implementation and effectiveness for CBM projects. Revisit sites monitored in 2005 during the 2006 field season to determine if improvements have been made.

All CBM sites are inspected every year, in addition to periodic monitoring trips to project locations.

All inspections are being well documented, however, not all monitoring trips have been documented appropriately.

Determine which BMPs, when implemented, may need changes to be effective. One such BMP is revegetation of pipeline crossings of stream channels. The seeding did not appear to be successful at some of the stream crossings.

BMP success depends upon many factors including the weather, especially when dealing with seeding. All of our projects are inspected every year.

Monitor and treat cheatgrass and other weeds – reseed if necessary.

The Douglas District ID-Team is working on the cheatgrass problem as time and opportunity allows. All oil and gas projects Conditions of Approval have a BMP and clause that covers noxious weed prevention and control.

Figure 18. Badger on TBNG.

Interdisciplinary Team

Carol Purchase	Monitoring and Evaluation Team Leader
Jena Hickey / Marcia Pfleiderer	Terrestrial Wildlife Biologist
Greg Eaglin	Fisheries Biologist
Kathy Roche	Ecologist / Botanist
Dave Gloss	Hydrologist
Jeff Tupala	Landscape Architect
Derek Milner	Soil Scientist
Ann Marie Verde	Transportation Planner
Ray George	Recreation Planner
Bob Mountain	Rangeland Management Specialist
Tom Florich	Minerals Specialist
Bob Sprentall	Douglas District Ranger, Scientific Technical Review Committee Liaison

Douglas District Staff contributed much of the content in addition to photographs for this report.

Photographs are from USFS personnel unless otherwise noted.

Acronyms

AMP	Allotment managment plan
APD	Application of Permit to Drill
AUM	Animal Unit Months
BLM	Bureau of Land Management
BMPs	Best Management Practices
CBM	Coal Bed Methane
COA	Conditions of Approval
DM	Decision Memo
DM&E	Dakota, Minnesota, and Eastern Railroad Corporation
DN	Decision Notice
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FFR	Ferret Family Rating
FMO	Fire Management Officer
FY	Fiscal Year
GA	Geographic Area
GIS	Geographic Information System
IDT	Interdisciplinary Team
IRI	Integrated Resource Inventory
LRMP	Land and Resource Management Plan
MA	Management Area
MIS	Management Indicator Species
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NFIM	National Forest Inventory and Monitoring funds
NFMA	National Forest Management Act
NFS	National Forest System
NGP	Northern Grasslands Plan
OHV	Off-Highway Vehicle
PFC	Proper Functioning Condition
PSD	Prevention of Significant Deterioration
R2	Region 2 (Rocky Mountain Region of USFS)
ROD	Record of Decision
SLC	Species of Local Concern
SOPA	Schedule of Proposed Actions
SS	Sensitive Species
TCP	Traditional Cultural Properties
T&E	Threatened and Endangered Species
TBNG	Thunder Basin National Grassland
USDA	United States Dept. of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WGFD	Wyoming Game and Fish Division
WYDEQ	Wyoming Department of Environmental Quality
WYNDD	Wyoming Natural Heritage Database

Appendix 1. Goals and Objectives

Goal 1: Ensure Sustainable Ecosystems: Promote ecosystem health and conservation using a collaborative approach to sustain the Nations forests, grasslands and watersheds.	
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 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 Closure was strengthened in 2005 to include products such as hay cubes and pelleted forage products.	
Objective 5. To what extent are noxious weeds, invasive species, and animal damage expanding or being reduced?	***Five Years***
A total of 580 acres of noxious weeds were treated in 2006. Treatment focused on tamarisk (saltcedar), leafy spurge, knapweeds, yellow toadflax, and Canada thistle. The current aggressive and coordinated treatment of tamarisk is preventing spread of the species, and eradication is still possible in this entire portion of Wyoming.	
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 PSD permits for review. All Class II areas on TBNG are currently in attainment of National Ambient Air Quality Standards.	
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 trails to regional standards.	**Year Due Annually**
The Inya Kara trail is maintained through a partnership with a user group. See the *Outdoor Recreation* monitoring item for more details.	
Objective 6. Provide nonmotorized and motorized trails for a wide variety of uses and experiences.	**Year Due Annually**
The Travel Management Phase II planning should address the need for motorized trails. Budgets have not been sufficient to create any plans for a non-motorized trail system.	
Objective 7. Manage trail systems to minimize conflicts among users.	**Year Due Annually**
The Travel Management Phase II planning process should help to identify conflicts by type of use, 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 when appropriate.	
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 be provide good examples of environmental practices. Improved language to increase interpretation and environmental education by outfitters is in development.	
Objective 10. When appropriate, designate, and manage outfitted camp locations.	**Year Due Annually**
There are no outfitter camps permitted on the Grassland.	
Goal 2.b: Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values.	
Heritage Sites Objectives:	

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 (TCPs), determined to be TCPs through tribal consultation, are at least partially protected by designation as Special Interest Areas under the Thunder Basin Plan. As inventories are conducted and projects are planned, American Indian Tribes and traditional elders are consulted regarding site findings to help determine if they are Traditional Cultural Properties. Some Tribes are reluctant to share information about Traditional Cultural Properties and consider knowledge about them to be their intellectual property unless the sites are threatened by a project and sharing some information in order to protect them is necessary. When stone feature sites are identified on TBNG, consultation is commenced regarding their eligibility and status as TCPs. When we have projects near TCPs one protective measure is to conduct tribal consultation regarding project design and project effects. In addition, the Northern Arapaho Tribe offered to send a list of site types on which they wish to consult. We are also starting to work with the tribe to identify traditional plant gathering areas. (Traditional implies a continuity of use over the last 50 years) These areas would be eligible to the National Register of Historic Places.	
Objective 5. Educate, interpret, and promote partnerships to increase public awareness, protect heritage resources, and further the goals of research.	**Year Due Annually**
Education and interpretation is accomplished through Passport in Time projects and talks to school groups at major events like the Wyoming Outdoor Heritage Expo in Casper and a similar Gillette event to reach the largest number of students with our limited resources. Currently a partnership exists between the Douglas District and the National Park Service for work at the National Register property LaPrele Guard Station. Conservation project work by two coal mines allows for research questions to be answered through data recovery projects. Efforts are being made to bring back research results to local communities regarding the results of data recovery projects on TBNG. Also a curriculum is being developed, and has been tested by our Project Archaeology and BLM partners, utilizing one of our special interest area stone feature archaeological sites on the Grassland. This curriculum focuses on the prehistoric housing on the Grassland and the peoples who used the Grassland. The curriculum will be available nationwide online for high school teachers and students.	
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**

The current drought, that began in 2000, has required many operators to liquidate all or parts of their base livestock herds. The economic effect has been felt in most of the counties of Wyoming as up to 40-50% of the herds were sold. The Thunder Basin Grassland weathered the drought better than many areas of the state until 2004, when much of the area received very little winter snow and virtually no spring/summer rains. Nearly 30% of the permitted grazing use was set aside for non-use for resource protection by the ranchers. Rains were a little more prevalent across parts of the Grassland for 2005. Ranchers still took non-use for rangeland resource protection for nearly 15% of their permitted numbers. The drought returned in full force in 2006. The Thunder Basin was probably the worst area of the state, receiving very little winter snow and, in all but the Spring Creek area, very little rainfall. The center area along Antelope Creek, the Cheyenne River, and the Dry Fork received virtually no precipitation at all; vegetative growth for the year was likewise virtually non-existent. About 40% of the permitted grazing use for the entire Grassland was set aside for resource protection non-use; some operators completely liquidated their herds. Wide-scale growing season deferment of any grazing will likely be needed in 2007 in the driest areas.	
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**
Analysis for 71 allotments in the main Thunder Basin Grassland area began during 2006, with completion of the analysis scheduled for 2007 and AMPs scheduled for completion and / or revision during 2007/2008. Analysis of the 95 allotments in the Inyan Kara portion of the Grassland began in 2006; 20 AMPs are scheduled for completion during 2007 and the remainder in 2008.	
Mineral and Energy Resources Objectives:	
Objective 1. Ensure reclamation provisions of operating plans are completed to standard.	**Year Due Annually**
Reclamation is always administered to standard, with inspections on 100% of projects. Bonds cannot be released until inspections are completed and formal approval is sent to the State Department of Environmental Quality.	
Objective 2. Honor all valid existing legal mineral rights.	**Year Due Annually**
Operating plans are addressed annually. New proposals are addressed through the NEPA Process. Valid legal mineral rights are honored: design criteria and mitigation necessary to ameliorate concerns are included in the approved 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**
The Forest/Grassland receives a minimal number of requests for the collection of floral products, seed collection, or medicinal plants. Each request is reviewed by the forest botanist and authorized with the appropriate permits if approved.	
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 permits "Administered to standard".	
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.	
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 aggressive pipeline of projects identified. 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 by-product of implementing the Travel Management Decision.	
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.