SUPPLEMENTAL INFORMATION REPORT
TO THE
BIOLOGICAL ASSESSMENT AND EVALUATION
FOR
REVISED LAND AND RESOURCE MANAGEMENT PLANS
AND
ASSOCIATED OIL AND GAS LEASING DECISIONS

July 31, 2006

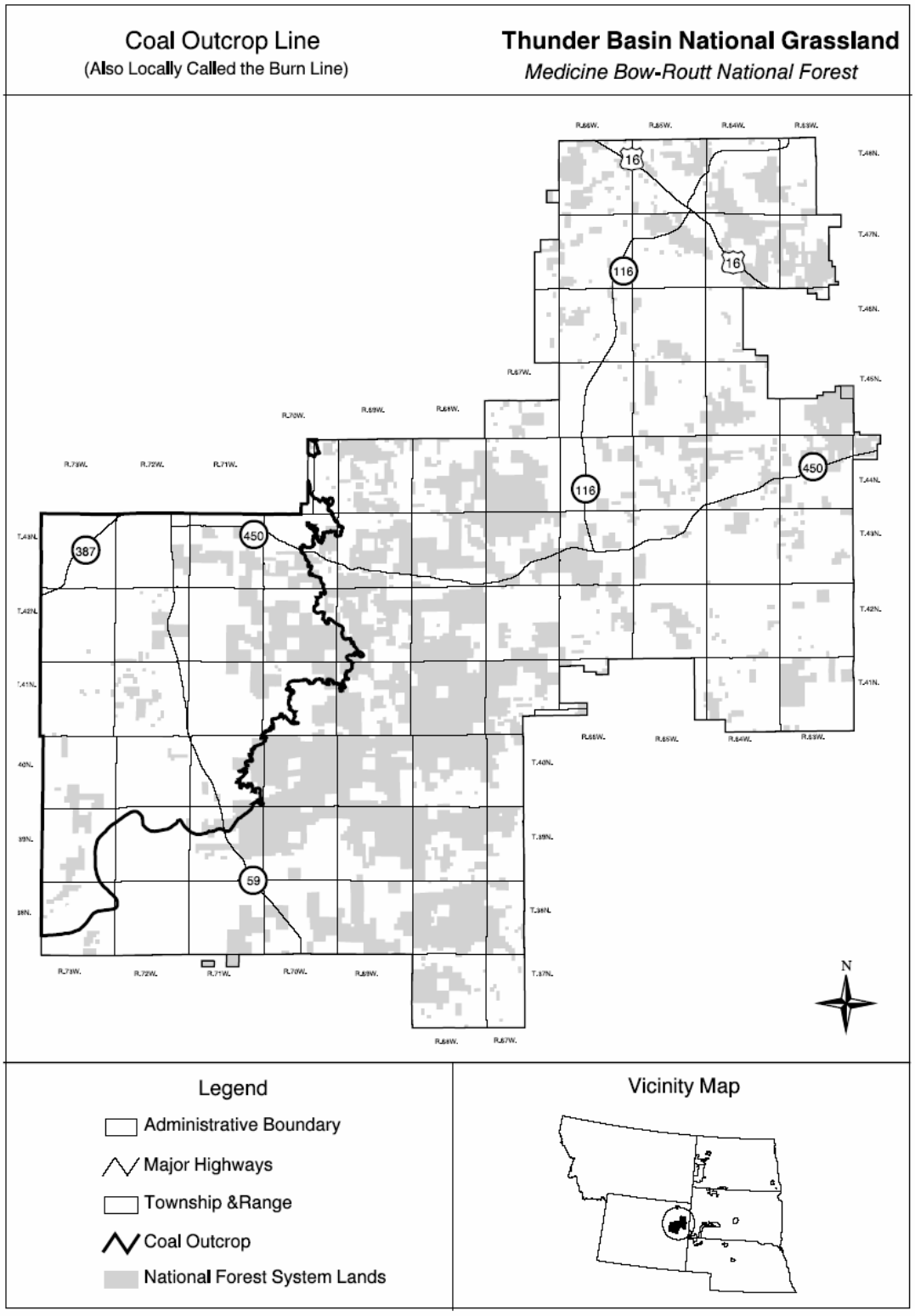
Introduction

In July of 2001, the *Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision* (NGP FEIS) (May, 2001) and the *Land and Resource Management Plan, 2001 Revision, Thunder Basin National Grassland* (Grassland Plan) was released to the public for review and comment. The Record of Decision (ROD) for the Thunder Basin National Grassland Plan was signed in July of 2002.

In the ROD a modified Alternative 3 Final was selected for implementation. New leasing decisions were deferred on National Forest System lands west of the Wyodak coal outcrop line (figure 1) until the *Final Environmental Impact Statement And Proposed Plan Amendment For The Powder River Basin Oil And Gas Project, January 2003* (PRB FEIS) disclosed the cumulative effects of coalbed methane development (ROD Component 4, page 24). The PRB FEIS and Record of Decision were released in April 2003. The Forest Service was a cooperating agency with the Bureau of Land Management (BLM) in the PRB FEIS.

Since these two analyses were completed, additional information has been collected for several wildlife species. In addition, several new sensitive species have been added to the U. S. Forest Service Region 2 Sensitive Species list since the original analysis. This report was developed to inform the Medicine Bow-Routt and Thunder Basin National Grassland Forest Supervisor, the Deciding Official for the leasing decision, of this new information so she could consider these facts prior to making any new leasing decisions for the area west of the Wyodak coal outcrop. This Supplemental Information Report (SIR) was prepared to supplement the Biological Assessment, Biological Evaluation, and Wildlife Specialist report provided for NGP FEIS and PRB FEIS. This Supplemental Information Report will provide and evaluate the impacts of the new information, but will not conduct any additional analysis itself.

Figure 1
VICINITYMAP



Questions To Be Answered

A. **Bald Eagles**: Many raptor electrocutions related to overhead power lines have occurred in the Powder River Basin.
    1. Are impacts from Coal Bed Methane development on Bald Eagles different than disclosed in Grassland Plan FEIS or PRB FEIS?
    2. Is the "Effects" determination different?
    3. Does the Forest Service need to re-consult with U.S. Fish and Wildlife Service (USFWS)?
    4. Will the Forest Service need to do a supplemental analysis for oil and gas leasing ?
    5. Does the Forest Service need to change stipulations for oil and gas leasing?

B. **The U.S. Forest Service, Region 2 Regional Sensitive Species List** has been modified since the analysis to add sage sparrow, short eared owl and several plants.
    1. Is adequate management direction provided in Grassland Wide Direction?
    2. Will current management direction adequately provide for viability of these species?
    3. Are impacts associated with these new species adequately evaluated between the two FEIS analyses?

C. **Sage Grouse populations** appear to be declining in Hilight Bill Geographic Area.
    1. Are viable populations of sage grouse being maintained on TBNG?
    2. Does the Forest Service need to change stipulations in Appendix D of the Grassland Plan?
    3. Is effects determination still consistent with PRB FEIS or NGP FEIS?

A. BALD EAGLES

INTRODUCTION

"Bald eagles are known to occur within the analysis area (National Grassland area west of the Wyodak coal outcrop – figure 1). They routinely have been documented throughout the entire year in this area. Bald eagles usually nest in trees near water, but are known to nest on cliffs and the ground. Nest sites are usually in large trees in relatively remote areas that are free of disturbance (USFWS 2005). The bald eagle typically lays a clutch ranging from one to three eggs that are incubated by both the male and female birds for approximately 35 days resulting in usually one or two eaglets produced by the pair (Stalmaster 1987). The recommended spatial buffer around nests for threatened and endangered raptors in arid landscapes, including the bald eagle, is 1.0 mile (Roman and Muck 1999)" (PRB EIS). Bald eagles nest throughout Wyoming, including the project

area. Within this project area, active nests tend to be associated with forested riparian areas, old homesteads with mature trees and reservoirs that have mature trees.

Feeding areas, diurnal perches, and night roosts are fundamental elements of bald eagle winter range. Wintering bald eagles primarily occur where all three of these elements are in close proximity, although they will fly up to 15 miles where these elements are sparsely distributed across the landscape (Swisher 1964 as cited in PRB EIS), as in this part of Wyoming. Food availability is probably the single most important factor affecting winter bald eagle distribution and abundance (Steenhof 1976 as cited in PRB EIS). Fish and waterfowl are the primary sources of food where eagles occur along rivers and lakes. Big game and livestock carrion, as well as larger rodents (e.g., prairie dogs) also can be important dietary components where these resources are available.

Throughout the last 10 years the construction of above ground powerlines has increased dramatically. From May 2003 through September 2005, the U. S. Fish and Wildlife Service recorded 82 raptor mortalities associated with powerline electrocutions within the Powder River Basin Oil and Gas Project Area of northeast Wyoming (USFWS 2005). Of these mortalities, 27 occurred at powerpoles considered new construction (since 1996) that were built to established industry standards. An additional 2 golden eagles were recorded as mid-span powerline collisions. Personal communication with Brad Rogers of the U.S. Fish and Wildlife Service also indicated that an additional bald eagle was electrocuted in 2005 on a powerline in the Powder River Basin not associated with oil and gas development.

Primary delivery lines of more than 33 kV are built above ground. For those powerlines less than 33 kV within the project area, the Thunder Basin National Grassland Plan provides direction to "*Bury electrical utility lines of 33 KV or less and telephone lines (Refer to MA direction for more specific corridor direction).* ***Guideline"***

Power lines on National Grassland surface, from individual well pads to the facilities, generally are constructed underground. These lines are expected to account for the majority of the new lines constructed during the life of a project. Possible exceptions to the burying of powerlines would be in cases where the protection of human health or safety would be accomplished better with an above ground line, 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 in the direction of the mines development.

The NGP FEIS did not analyze cumulative effects for Oil and Gas leasing west of the Coal Outcrop. The PRB FEIS supplemented the analysis of the NGP FEIS. Following is a summary of the determinations:

Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision (May, 2001) for U.S. Forest Service Regions 1 and 2 (NGP FEIS)

*Implementation of the Final 2002 Revised Land and Resource Management Plan for Thunder Basin National Grassland was determined "**not likely to adversely affect**" bald eagles.*

Final Environmental Impact Statement And Proposed Plan Amendment For The Powder River Basin Oil And Gas Project, January 2003 (PRB FEIS)

*Implementation of the preferred alternative **is likely to adversely affect** the bald eagle and its habitat. The determination is based on the evaluation of the potential adverse effects of the preferred alternative on the bald eagle including implementation of the mitigation measures presented in this BA (Biological Assessment).*

In addition, the U.S. Forest Service provided the U.S. Fish and Wildlife Service with information indicating that there would be no reasonable expectation that bald eagle would be killed due to vehicles collision on lower level, project roads (USFS May 21, 2004).

The questions to be answered for bald eagles are as follows:

1. Are impacts from CBM development on bald eagles different than disclosed in NGP FEIS or PRB FEIS?
2. Is the Effects determination different?
3. Does the Forest Service need to re-consult with USFWS?
4. Will the Forest Service need to do a supplemental analysis for oil and gas leasing ?
5. Does the Forest Service need to change stipulations for oil and gas leasing?

In reviewing the information available, it is obvious that the impacts to bald eagles disclosed in the two Environmental Impact Statements are different. The NGP FEIS deferred its cumulative effects analysis on National Forest System lands west of the Wyodak coal outcrop line (figure 1) until the PRB FEIS disclosed the cumulative effects of coal bed methane development (ROD Component 4, page 24). This analysis is the culmination of that process. The determinations were different since the NGP FEIS did not evaluate the impacts of oil and gas development west of the coal outcrop.

The U.S. Forest Service is incorporating the PRB FEIS analysis to complete this process. This means that no new consultation will be needed to complete the current proposed leasing decision. Site-specific analyses and consultation will occur before any decisions to implement any project with effects to bald eagle. This site-specific consultation also will occur for other oil and gas leasing that may occur on the National Grassland outside of this analysis area.

In conversations with U.S. Fish and Wildlife Service biologists through the Level 1 Streamlining Process, no new has been shared indicating a need to change stipulations for oil and gas leasing within the Grassland Plan. (SIR page 5).

B. U.S. FOREST SERVICE, REGION 2 SENSITIVE SPECIES

The U.S. Forest Service, Region 2 Sensitive Species List has been modified since the *Final EIS for the Northern Great Plains Management Plans* analysis to add sage sparrow, short eared owl and several plants. The questions to be answered are as follows;

1. Is adequate management direction provided in Grassland-wide Direction?
2. Will current management direction adequately provide for viability of these species?
3. Does the Forest Service need to supplement NEPA?

The following table illustrates which sensitive species were evaluated in either the NGP FEIS that developed the Grassland Plan, or as a part of the PRB FEIS.

Common Name	Scientific Name	Evaluated in PRB FEIS or NGP FEIS
black-tailed prairie dog	*Cynomys ludovicianus*	Yes
Townsend's big-eared bat	*Corynorhinus townsendii*	Yes
Spotted Bat	*Euderma maculatum*	Yes
fringed myotis	*Myotis thysanodes*	Yes
swift fox	*Vulpes velox*	Yes
northern goshawk	*Accipiter gentilis*	Yes
greater sage grouse	*Centrocercus urophasianus*	Yes
northern harrier	*Circus cyaneus*	Yes
ferruginous hawk	*Buteo regalis*	Yes
mountain plover	*Charadrius montanus*	Yes
black tern	*Chlidonias niger*	Yes
long-billed curlew	*Numenius americanus*	Yes
yellow billed cuckoo	*Coccyzus americanus*	Yes
American bittern	*Botaurus lentiginosus*	Yes
burrowing owl	*Athene cunicularia*	Yes
short-eared owl	*Asio flammeus*	No
Lewis' woodpecker	*Melanerpes lewis*	Yes
loggerhead shrike	*Lanius ludovicianus*	Yes
Brewers sparrow	*Spizella breweri*	Yes
sage sparrow	*Amphispiza belli*	No
grasshopper sparrow	*Ammodramus savannarum*	Yes
chestnut-collared longspur	*Calcarius ornatus*	Yes
McCown's longspur	*Calcarius mccownii*	Yes
Black Hills redbelly snake	*Storeria occipitomaculata pahasapae*	Yes
northern leopard frog	*Rana pipiens*	Yes
Plains minnow	*Hybognathus placitus*	Yes
Barr's Milkvetch	*Astragalus barrii*	Yes
Dakota Buckwheat	*Eriogonum visheri*	Yes
Iowa moonwort	*Botrychium campestre*	No
foxtail sedge	*Carex alopecoidea*	No
bristle-stalk sedge	*Carex leptalea*	No
larchleaf beardtongue	*Penstemon laricifolius var. exilifolius*	No
Common twinpod	*Physaria didymocarpa var. lanata*	No
highbush cranberry	*Viburnum opulus var. American*	No

PLANTS

The current Grassland-wide Sensitive Plant and Animal Species (F. Fish Wildlife and Rare Plants) direction found in the Grassland Plan that would address these new species is as follows**:**

Grassland-wide Direction (F. Fish, Wildlife and Rare Plants)

35. Do not authorize new facilities, roads, trails, fences, salting and mineral areas, water developments in habitat occupied by sensitive plant species. ***Guideline***

37 . Identify sensitive plant habitats and rare plant communities as priorities for invasive plant monitoring and control. ***Guideline****.*

38. Avoid the use of invasive plant control methods that may negatively impact sensitive plants. ***Guideline***

40. Do not authorize vegetation management and construction projects that would prevent recolonization of sensitive plant populations from adjacent populations. ***Standard***

41. Do not develop any additional springs and seeps where associated habitat for sensitive plant species would be degraded or lost. ***Standard***

Since the "BA/BE for Revised Land and Resource Management Plans and Associated Oil and Gas Leasing Decisions" was released in December 2000, there have been six new plant species added to the R2 sensitive species list that are suspected to occur on Thunder Basin National Grassland. The six new species are:

1. Botrychium campestre (Iowa moonwort),
2. Carex alopecoidea (foxtail sedge),
3. Carex leptalea (bristle-stalk sedge),
4. Penstemon laricifolius var. exilifolius (larchleaf beardtongue),
5. Physaria didymocarpa var. lanata (Common twinpod),
6. Viburnum opulus var. americana (highbush cranberry).

Evaluation Of Questions To Be Answered

1. Is adequate management direction provided in Grassland-wide Direction?
2. Will current management direction adequately provide for viability of these species?
3. Are impacts associated with these new species adequately evaluated between the two FEIS analyses?

It is highly unlikely that any of the new sensitive species that have been added to the list would occur in the area that the BA/BE covers because of lack of habitat for any of these species. Due to this fact, new surveys are not needed for the broad scale oil and gas leasing decision. However, with the possibility that habitat could exist on a small scale

within this area all six species will still be analyzed for presence/absence on a project level. Since the addition of these species, no new Grassland-wide direction has been identified to manage for these species and their viability. With the lack of occurrences of these species within the analysis area, no additional analysis beyond the two FEIS documents are needed.

SHORT-EARED OWL

The short-eared owl is a migratory raptor found across Wyoming, utilizing open grasslands, shrub-steppe (including sagebrush), and marsh habitats. This owl is listed as a priority Level 1 species in the *Wyoming Partners in Flight Bird Conservation Plans (WY PIF).* A Level 1 species is defined by WY PIF as a

> "(s)pecies that clearly need conservation action (CA). Declining population trend and/or habitat loss may be significant. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), monitoring (M), and the need for additional knowledge (K) through research into basic natural history, distribution, etc.
>
> They require large expanses of open grassland with an abundance of small rodents such as voles, but will also eat small birds and insects. The short-eared owl builds a grass and feather lined nest in a small depression on the ground. These nests are often found near low vegetation used for concealment. The short-eared owl is crepuscular, hunting at dawn and at dusk. These birds are threatened by habitat fragmentation, industrialization and intensive grazing or land conversions. These owls also tend to be more susceptible to predation by ground predators such as fox, coyotes, and domestic pets as well."

Short eared owls would fall under the "other raptor" category of the Grassland Plan. The following is existing raptor direction in the Plan.

Grassland-wide Direction(F. Fish Wildlife and Rare Plants)

> *73. To help prevent abandonment, reproductive failure or nest destruction, prohibit development of new facilities within the minimum distances (line of sight) of active raptor nests and winter roost sites as specified in the following table. For the bald eagle, golden eagle, merlin, ferruginous hawk and Swainson's hawk, a nest is no longer considered active if it's known to have been unoccupied for the last 7 years. For the burrowing owl and other raptor species, a nest is no longer considered active if it's known to have been unoccupied during the current or most recent nesting season. This does not apply to pipelines, fences and underground utilities.* ***Standard***

Species and Habitat	*Minimum Distance (miles)*
Bald Eagle Nest	*1.0*
Bald Eagle Winter Roost Area	*1.0*
Golden Eagle Nest	*0.25*
Merlin Nest	*0.25*
Ferruginous Hawk Nest	*0.25*
Swainson's Hawk Nest	*0.25*
Burrowing Owl Nest	*0.25*
Nests of Other Raptors	*0.125*

74. To help reduce disturbances to nesting and wintering raptors, prohibit the following activities within the minimum distances (line of sight) of active raptor nests and winter roost areas during the dates specified in the table below:

- *Construction (e.g., roads, water impoundments, oil and gas facilities),*
- *Reclamation,*
- *Gravel mining operations,*
- *Drilling of water wells,*
- *Oil and gas drilling,*
- *Timber harvest and fuel treatments*
- *Precommercial thinning.* ***Standard***

Species and Habitat	*Minimum Distance (miles) and Dates*
Bald Eagle Nest	*1.0 from 2/1 to 7/31*
Bald Eagle Winter Roost Area	*1.0 from 11/1 to 3/31*
Golden Eagle Nest	*0.50 from 2/1 to 7/31*
Merlin Nest	*0.50 from 4/1 to 8/15*
Ferruginous Hawk Nest	*0.50 from 3/1 to 7/31*
Swainson's Hawk Nest	*0.50 from 3/1 to 7/31*
Burrowing Owl Nest	*0.25 from 4/15 to 8/31*
Nests of Other Raptors	*0.125 from 2/1 to 7/31*[a]

[a] *Dates may vary depending on the species*

75. To help reduce disturbances to nesting and wintering raptors, do not authorize the following activities within the minimum distances (line of sight) of active raptor nests and winter roost areas during the dates specified in the previous table:

- *Construction (e.g., pipelines, utilities, fencing),*
- *Seismic exploration,*
- *Workover operations for maintenance of oil and gas wells,*
- *Fuelwood cutting,*
- *Permitted recreation events involving large groups of people.* ***Guideline***

76. If a winter roost area or nest site is discovered, ensure that the necessary habitat components are maintained, including maintenance and regeneration of woodlands. ***Standard***

Evaluation Of Questions To Be Answered

1. Is adequate management direction provided in Grassland-wide Direction?
2. Will current management direction adequately provide for viability of these species?
3. Are impacts associated with these new species adequately evaluated between the two FEIS analyses?

The Grassland Plan provides direction that does apply to the short-eared owl. Since this species was added to the Region 2 Sensitive Species List, no additional mitigation measures have been identified to improve the management or maintain the viability of the short-eared owl. The analysis provided within the two FEIS documents provides adequate analysis to address this species through the analysis of other raptors.

SAGE SPARROW

The sage sparrow is a sagebrush obligate that is common in sagebrush shrub-steppe habitat. The sage sparrow is listed as a priority species in the *Wyoming Partners in Flight Bird Conservation Plan*, and is considered a Level 1 Priority Species in Wyoming. A level 1 species is defined by WY PIF as a

> "(s)pecies that clearly need conservation action (CA). Declining population trend and/or habitat loss may be significant. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), monitoring (M), and the need for additional knowledge (K) through research into basic natural history, distribution, etc."

This summer resident nests on TBNG and winters south into Arizona and northern Mexico, requiring large blocks of un-fragmented sagebrush habitat to successfully breed and survive. They prefer to nest in tall shrubs (3-6 feet tall), with associated low grass cover where sagebrush has a mosaic patchiness.

The following Grassland Plan direction would address sage sparrow needs and protections.

Grassland-wide Direction (F. Fish Wildlife and Rare Plants)

1. Consult state and regional Partners in Flight Bird Conservation Plans for additional guidance on land bird habitat management. ***Guideline***

6. Delay mowing of grasslands until July 15 or later to protect ground-nesting birds, including their nests and young broods. Project-level analyses will determine the earliest mowing date. ***Guideline***

Grassland-wide Direction (I. Livestock Grazing)

Meet rest objectives based on, but not limited to the following desired conditions:

- *Where high structure is required for plant and animal communities (See Geographic Area), and Management Indicator Species;*
- *Where increased fuel loads are desired for prescribed burning;*
- *Where ungrazed areas are desired for monitoring vegetation structure or for research needs;*
- *Where desired to improve reproductive success of Management Indicator Species and threatened, endangered, and sensitive species, or*
- *Where ungrazed areas are desired for biological diversity.* ***Guideline***

This last guideline specifically addresses recommendations for rest found in the Region 2 Species Conservation Assessment for sage sparrow habitat management (pg 38).

Management established for sage grouse as a Management indicator also is designed to provide habitat for other sage brush obligate species. This management promotes improved sage brush conditions, as well as implementing grazing strategies that that may reduce disturbance during breeding and nesting.

54. During the AMP process or as other opportunities arise, design and implement livestock grazing strategies to provide quality nesting cover in all sagebrush stands (>15% canopy cover of big sagebrush, silver sagebrush, and greasewood) within at least 3.0 miles of active display grounds (consistent with GA vegetation objectives) where sagebrush is irregularly distributed around the display ground. This minimum distance can be reduced to 2.0 miles where sagebrush is uniformly distributed around display grounds. Consult Appendix H for a description of quality nesting habitat for sage grouse. ***Standard***

55. In big sagebrush, silver sagebrush and greasewood wintering habitat, do not prescribe burn or treat with herbicides unless it can be demonstrated to be beneficial for local sage grouse populations. Treatments should not be conducted where shrub canopy cover averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the shrub stands in the wintering habitat. Shrub stands within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed. ***Guideline***

57. During vegetation management projects, maintain or increase the size of big sagebrush (Artemisia tridentata wyomingensis) patches in sage grouse habitat. ***Guideline***

58. When conducting vegetation management projects, maintain small openings within sagebrush and greasewood stands at a ratio of no more than 25% opening and at least 75% shrub canopy (e.g., 1 acre of opening for every 3 acres of shrub within the discrete stand). ***Standard***

60. Manage for high vegetative structure in areas where it would enhance sage grouse nesting habitat. Emphasize areas characterized by:

- *Presence of moderate to highly productive soils and range sites,*
- *Plant composition dominated by mid and/or tall grasses, with sagebrush canopy cover of 15-25%,*
- *Proximity to sage grouse display grounds.* ***Guideline***

Evaluation Of Questions To Be Answered

1. Is adequate management direction provided in Grassland-wide Direction?
2. Will current management direction adequately provide for viability of these species?
3. Are impacts associated with these new species adequately evaluated between the two FEIS analyses?

As illustrated above, The Grassland Plan provides direction that does apply to sage sparrow habitat protection and enhancement. Since this species was added to the Region 2 Sensitive Species List, no additional stipulations have been identified to improve the management or maintain the viability of this species. Analysis conducted for Brewers Sparrow would also represent much of the same analysis and impacts involving sage sparrow. The analysis contained within the two FEIS documents provides adequate analysis to address this species.

SAGE GROUSE

Life History and Habitat Requirements

Sage-grouse have been documented as year-round residents of TBNG. They are found primarily in sagebrush shrubland habitats. Sagebrush is essential for sage-grouse during all seasons of the year. This relationship is perhaps tightest in the late fall, winter, and early spring when sage-grouse are dependent on sagebrush for both food and cover. During the spring and summer, succulent forbs and insects become important additional food sources. Sage-grouse require an extensive mosaic dominated by sagebrush of varying densities and heights along with an associated diverse native plant community dominated by high levels of native grasses and forbs (Wyoming Greater Sage-grouse Conservation Plan 2003).

Sage-grouse congregate on strutting grounds called leks for spring breeding. Male sage-grouse appear to form leks opportunistically within or adjacent to potential nesting habitat (Connelly, et al., 2000). Lek habitat generally tends to be areas of low vegetation, with little or no sagebrush on the site. However, often there are areas of denser sagebrush nearby the lek that are used for foraging, loafing and hiding cover (Wyoming Greater Sage-grouse Conservation Plan 2003). Once formed, grouse (both male and female) tend to return to these leks habitually each year. Males will remain in attendance at the lek until all females have left the area.

The majority of nesting sage-grouse nest within 3 miles of their breeding lek (Wyoming Greater Sage-grouse Conservation Plan 2003). Sage-grouse normally nest under tall sagebrush, but may use other plants as well. Nesting habitat in Wyoming is described as sagebrush stands with between 6% and 40% canopy cover, with higher quality nesting habitat found in the areas of higher canopy cover. Sagebrush stands used for nesting range in height from 8 to 18 inches tall, with individual nest plants reaching up to 32 inches tall (Wyoming Greater Sage-grouse Conservation Plan 2003). A dense understory of herbaceous plants (grasses and forbs) is needed in association with the nesting area. This understory needs to be greater than 6" tall (Connelly, et al., 2000). Both new spring herbaceous growth and residual cover are important in the understory for nesting sage-grouse (Wyoming Greater Sage-grouse Conservation Plan 2003). Characteristics of sagebrush stands for nesting and wintering are very similar, but in winter, at least 12 inches of the sagebrush plant needs to remain above the snow.

Habitat is the key to most species survival. Healthy populations require good, consistent habitat conditions. Most adverse impacts to sage-grouse populations can be related, in one way or another, to habitat conditions. Dobkin (1995) stated that "Declines in Greater Sage-Grouse populations are largely attributed to habitat destruction, degradation, and fragmentation. According to Dobkin and Sauder, (2004) "Nest failure, increased predation, and reduced survival rates are consequences of reduced habitat quality for sage-grouse populations." It is generally accepted that nest success and survival of adult hens are usually cited as the most significant parameters influencing sage-grouse population dynamics. These can be influenced most by the height and density of sage brush, residual grass height, habitat fragmentation or degradation, human disturbance, noise, and weather.

Sagebrush habitats have been identified as the key habitat "Within the southern Powder River Basin, moderately dense sagebrush was relatively uncommon (~7%). Dense sagebrush was very limited (~0.5%)" (McKee, 2004). The amount of potential sage-grouse habitat (sagebrush and grassland mixture) currently available to sage-grouse on Thunder Basin National Grassland is estimated at 438,000 acres (USDA Forest Service, 2002, Appendix. H). The analysis area (which includes over ½ of the Hilight Bill Geographic Area), is made up of 58,460 acres (all National Forest System lands west of the Wyodak coal outcrop line). With the exception of those acres that have been mined through as a part of coal mining operations, all of the acres within the analysis area are potentially suitable sage-grouse habitat. It is assumed that the per-cent sagebrush found

on TBNG and the analysis area in a moderately dense and dense condition is relatively consistent with those found overall in the Powder River Basin.

1. **<u>Is adequate management direction provided in Grassland-wide Direction?</u>**

The following is the Grassland-wide Direction (F. Fish Wildlife and Rare Plants) for Sage-grouse:

Sage-grouse

46. To help reduce adverse impacts to breeding sage-grouse and their display grounds, prohibit construction of new oil and gas facilities within 0.25 miles of active display grounds. A display ground is no longer considered active if it's known to have been unoccupied during the past 5 breeding seasons. This does not apply to pipelines and underground utilities. ***Standard***

47. To help reduce disturbances to nesting sage grouse, prohibit the following activities within 2.0 miles of active display grounds from March 1 to June 15:

- *Construction (e.g., roads, water impoundments, oil and gas facilities),*
- *Reclamation,*
- *Gravel mining operations,*
- *Drilling of water wells,*
- *Oil and gas drilling,*
- *Training of hunting dogs.* ***Standard***

48. To reduce disturbances to nesting sage grouse, do not authorize the following activities within 2.0 miles of active display grounds from March 1 to June 15:

- *Construction (e.g., pipelines, utilities, fencing),*
- *Seismic exploration,*
- *Workover operations for maintenance of oil and gas wells,*
- *Permitted recreation events involving large groups of people.* ***Guideline***

49. To help prevent reproductive failure, limit noise on sage grouse display grounds from nearby facilities and activities to 49 decibels (10 dBA above background noise) from March 1 to June 15. ***Guideline***

50. Pastures will be managed for sage grouse/big sagebrush only if they contain sagebrush stands with 10% or more canopy cover of big sagebrush. ***Guideline***

51. *When constructing facilities or structures within 2 miles of a sage grouse active display ground, design them to discourage raptor perching by maintaining a low profile or using perch inhibitors.* ***Guideline***

52. *Prohibit development or operations of facilities within 2 miles of a sage grouse display ground if these activities would exceed a noise level of more than 10 decibels above the background noise level (39 db), at 800 feet from the noise source, from March 1 to June 15.* ***Guideline****.*

53. *Manage display ground viewing activities to reduce disturbances and adverse impacts to the birds on the display grounds.* ***Guideline***

54. *During the AMP process or as other opportunities arise, design and implement livestock grazing strategies to provide quality nesting cover in all sagebrush stands (>15% canopy cover of big sagebrush, silver sagebrush, and greasewood) within at least 3.0 miles of active display grounds (consistent with GA vegetation objectives) where sagebrush is irregularly distributed around the display ground. This minimum distance can be reduced to 2.0 miles where sagebrush is uniformly distributed around display grounds. Consult Appendix H for a description of quality nesting habitat for sage grouse.* ***Standard***

55. *In big sagebrush, silver sagebrush and greasewood wintering habitat, do not prescribe burn or treat with herbicides unless it can be demonstrated to be beneficial for local sage grouse populations. Treatments should not be conducted where shrub canopy cover averages less than 15%. Limit treatments to less than 80-acre patches and no more than 20% of the shrub stands in the wintering habitat. Shrub stands within 100 yards of meadows, riparian areas, and other foraging habitats should not be burned or sprayed.* ***Guideline***

56. *During vegetation management practices, maintain or enhance wet and sub-irrigated meadows, seeps, riparian habitats, and other wetland areas that occur in or adjacent to sage grouse habitat as quality sage grouse foraging areas during the spring, summer, and fall. Consult Appendix H for a description of quality foraging habitat for sage grouse broods.* ***Standard***

57. *During vegetation management projects, maintain or increase the size of big sagebrush (Artemisia tridentata wyomingensis) patches in sage grouse habitat.* ***Guideline***

58. *When conducting vegetation management projects, maintain small openings within sagebrush and greasewood stands at a ratio of no more than 25% opening and at least 75% shrub canopy (e.g., 1 acre of opening for every 3 acres of shrub within the discrete stand).* ***Standard***

59. *At the onset of drought, evaluate the need to adjust land uses to reduce impacts on sage grouse nesting and brooding habitat.* ***Guideline***

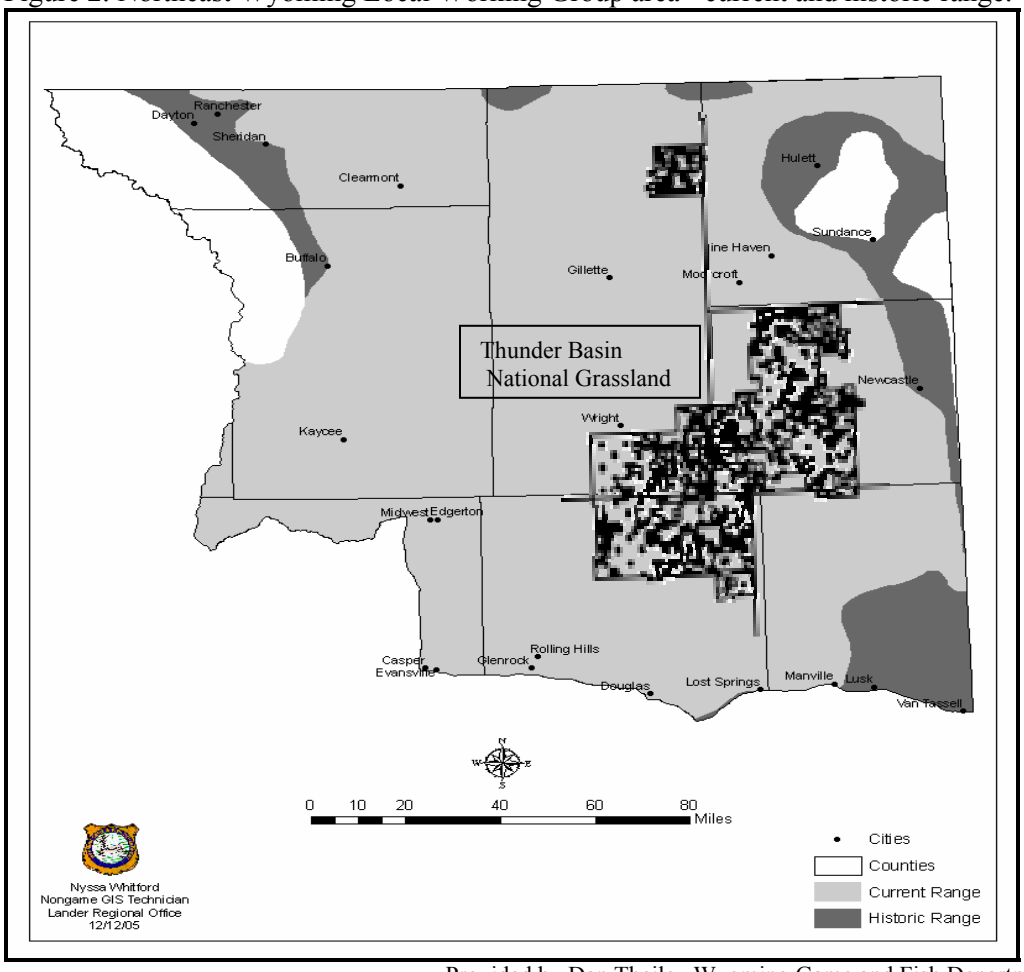
60. *Manage for high vegetative structure in areas where it would enhance sage grouse nesting habitat. Emphasize areas characterized by:*
    - *Presence of moderate to highly productive soils and range sites,*
    - *Plant composition dominated by mid and/or tall grasses, with sagebrush canopy cover of 15-25%,*
    - *Proximity to sage grouse display grounds.* ***Guideline***

As illustrated above, the Grassland Plan provides direction that does apply to sage-grouse habitat protection and enhancement. Since this species was added to the Region 2 Sensitive Species List, no additional mitigation measures have been identified to improve the management of this species. Currently the Northeast Wyoming Sage-grouse Working Group is reviewing the management of sage-grouse and its habitat in an area that includes the Thunder Basin National Grassland. Once completed, information from that Conservation Plan may provide additional Best Management Recommendations.

2. Will current management direction adequately provide for viability of this species?

Breeding populations of this species have declined by at least 17-47% throughout much of its range (Connelly, et al., 2000). Sage-grouse populations and their distribution in Wyoming have declined over the last five decades (Wyoming Greater Sage-Grouse Conservation Plan. 2003). In response to the concern over these declines in sage-grouse populations, the Wyoming Game and Fish Commission chartered several local working groups within the State in order to develop local conservation plans, design projects that benefit sage-grouse and other sagebrush obligate species, and to implement on-the-ground habitat and population related projects related to sage-grouse and their habitat. Currently, the Wyoming Game and Fish Department is providing sage-grouse information aggregated according to these different working groups. Thunder Basin National Grassland is located entirely within the Northeast Wyoming Working Group area (Figure 2). This area also coincides with the majority of the Sheridan and Casper Regions of the Game and Fish Department.

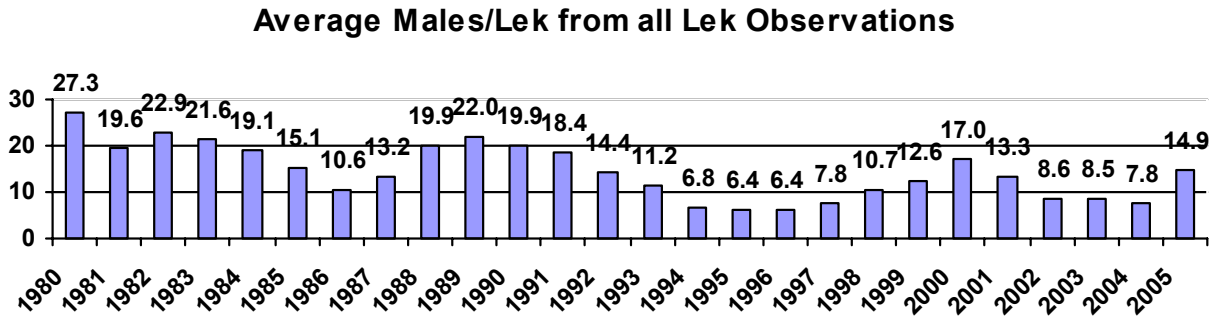
Figure 2. Northeast Wyoming Local Working Group area - current and historic range.



Provided by Dan Theile, Wyoming Game and Fish Department

The above map shows the historical sage-grouse range in northeast Wyoming (both the light and dark shaded areas) and the current range (light shading only). It also shows how the TBNG (black outline) lays in respect to the overall Northeast Wyoming Sage-grouse Working Group area.

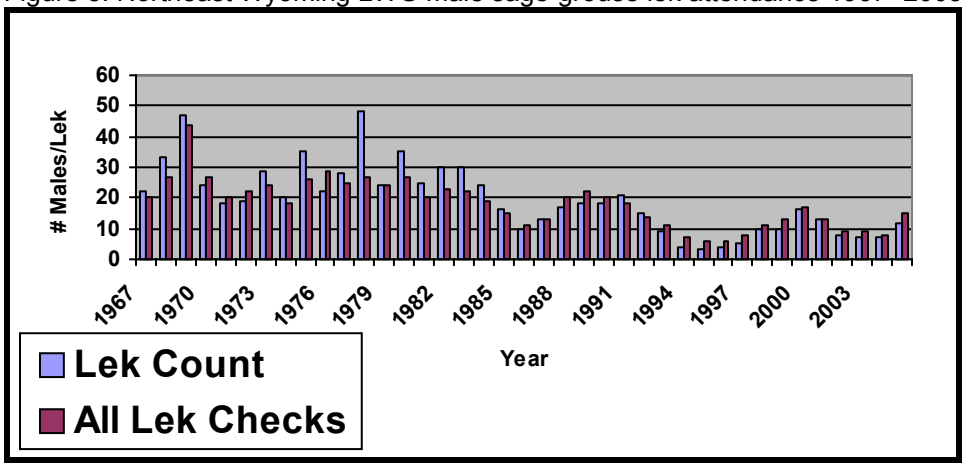
Currently, in Wyoming, trends in male attendance at leks are an accepted surrogate for determining population trends. While this information does not provide a total population size, it does provide an effective way of monitoring populations, and provides a historical database against which long term population trends can be evaluated. Below are the average males counted per lek from 1980 through 2005 for the Northeast Wyoming Working Group area (provided by Dan Thiele, Wyoming Game and Fish Dept.). Several patterns can be seen from this long term monitoring. First, is the cyclic pattern of the population, with peaks occurring approximately every 7 to 10 years. Also note that each peak is lower than the previous one. In addition, the overall trend is that of a decreasing population.



In the "*Northeast Wyoming Local Working Group Area, Annual Sage-Grouse Completion Report For 2005"* prepared by the Wyoming Game and Fish Department this population trend is also evaluated with an even longer timeframe.

"Figure 3 shows the average number of males/lek for lek counts and all lek monitoring combined from 1967 to 2005 for the Northeast Wyoming Local Working Group Area. If the average number of males/lek is reflective of the sage-grouse population, the trend suggests about a 10 year cycle of periodic highs and lows. Of concern, however, is that generally each subsequent peak in the population is usually lower than the previous peak. Additionally, each periodic low in the population is generally lower than the previous population low. The long term trend suggests a steadily declining sage-grouse population."

Figure 3. Northeast Wyoming LWG male sage-grouse lek attendance 1967- 2005

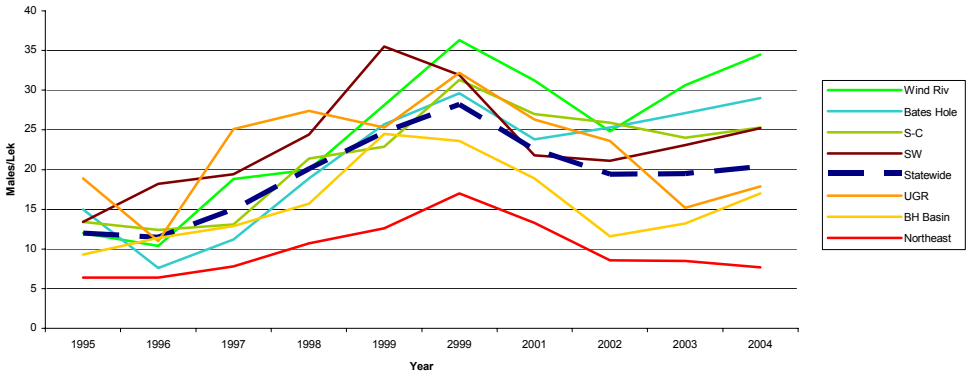


This pattern is of importance in relation to the Thunder Basin National Grassland for two reasons. First, because the Grasslands are a part of the above data set, and second, because the "males per lek" trend for Thunder Basin National Grassland follows a similar pattern to that of the Northeast Wyoming Working Group Area as illustrated on the next page. The number of males per lek is on the left side and the year reported is along the bottom axis.

Figure 4 Males Per Lek Trend

From 1994 until 2004, state and regional populations (WGFD Sage-grouse Working Group Areas) exhibited an overall increase (figure 5 below) with the exception of the Upper Green River (UGR) and Northeast Wyoming areas (Northeast). This is based on average male attendance per lek, which is accepted as a good indicator of trend in grouse populations. The upper Green River area had the highest average males per lek in '97 and '98; now it is below the state average (Tom Christiansen 03/15/05, personal communication.). From 1994 until the present the Northeast Wyoming population has remained the lowest average males per lek levels within the state and has shown an overall decline, with one exception from 1997 to 2000. Most other areas have demonstrated some rebound between 2001 and 2004. (Only information through 2004 is shown here because 2005 data for the other working groups and Statewide are not yet available.)

Figure 5:
1995-2004 Average Males/Lek by Local Working Group Area and Statewide - Wyoming



The 2005 average number of males per lek information is available for TBNG and the Northeast Wyoming Working Group Area. In both cases the average number of males per lek is higher in 2005 than in 1995. While both show increases in 2005, the average males counted per lek remains less than 2000/2001 counts, and the overall long term trend (35

years) is still believed to be downward trend for TBNG, since it has followed a pattern similar to that of the Northeast Wyoming Working Group Area.

Figure 6. Average males per lek for the Northeast Wyoming Working Group Area and for TBNG ('04 Statewide)

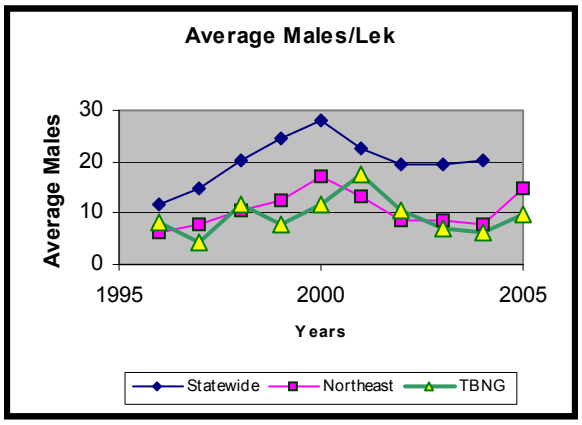
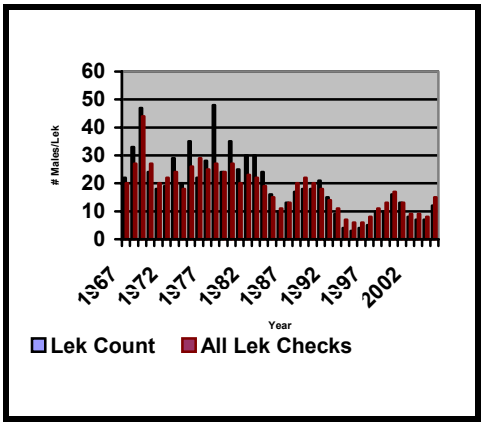
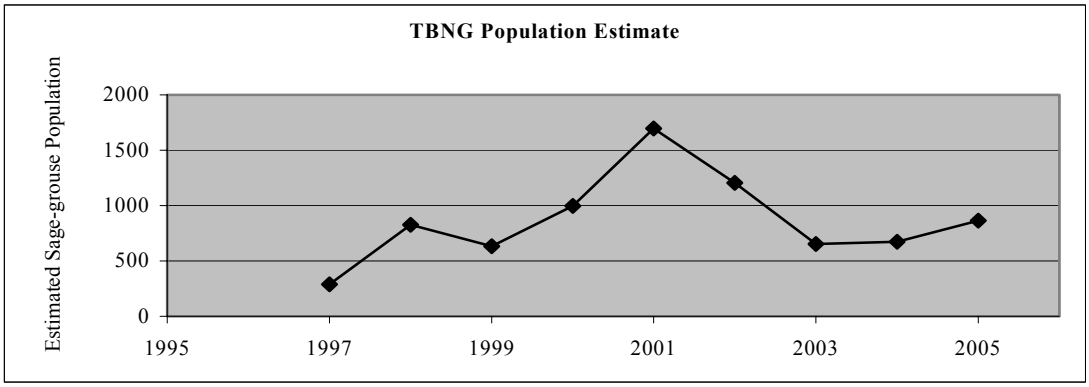


Figure 7. Northeast Wyoming LWG male sage-grouse lek attendance 1967- 2005



Deviations between years for TBNG seen in figure 6 may reflect an artifact of survey effort more than a true deviation in populations. To better illustrate fluxuations in populations, Minimum Population Estimates can be made from information available from monitoring information from TBNG. The Wyoming Game and Fish Department calculates Minimum Population Estimates from observations of the number of males/lek. This process, while different from the Average Males Per Lek process, also provides information used to analyze population trends. The TBNG trend shows that, between 2003 and 2005, there has been a 211 bird (24%) increase. However, Between 2001 and 2005 there has been a 832 bird (51%) decrease Based upon the 2005 data, the population estimate for TBNG is 864 sage-grouse (figure 8).

Figure 8: Minimum Sage-grouse Population estimates for TBNG



The impacts to sage-grouse habitat within the analysis area are consistent with impacts and potential impacts occurring across many other areas of the TBNG. Oil and gas leasing and development have been ongoing across the much of the National Grassland, however at a lower rate than that currently experienced within the analysis area. In

addition, additional impacts from drought, grazing (by both wild and domestic ungulates), coal mining, off-road vehicle use, and new fence development continue to adversely impact sage-grouse habitat, and in particular, sagebrush. It also should be noted that while drought may have adverse impacts to sage-grouse habitat, it may not necessarily cause a decline in populations. Monitoring of sage-grouse in the Bates Hole area of south central Wyoming indicates that, while that area has suffered from a prolonged, extreme drought, that population is increasing.

While these impacts can and have occurred in many places across the Grassland, several areas continue to provide suitable, occupied sage-grouse habitat. These areas provide a stronghold of habitat distributed in many areas across the Grassland.

Sage-grouse habitat, while being reduced, currently still provides enough suitable, occupied habitat to maintain a well distributed population across the TBNG (Figure 9, table 2 and Appendix A Map).

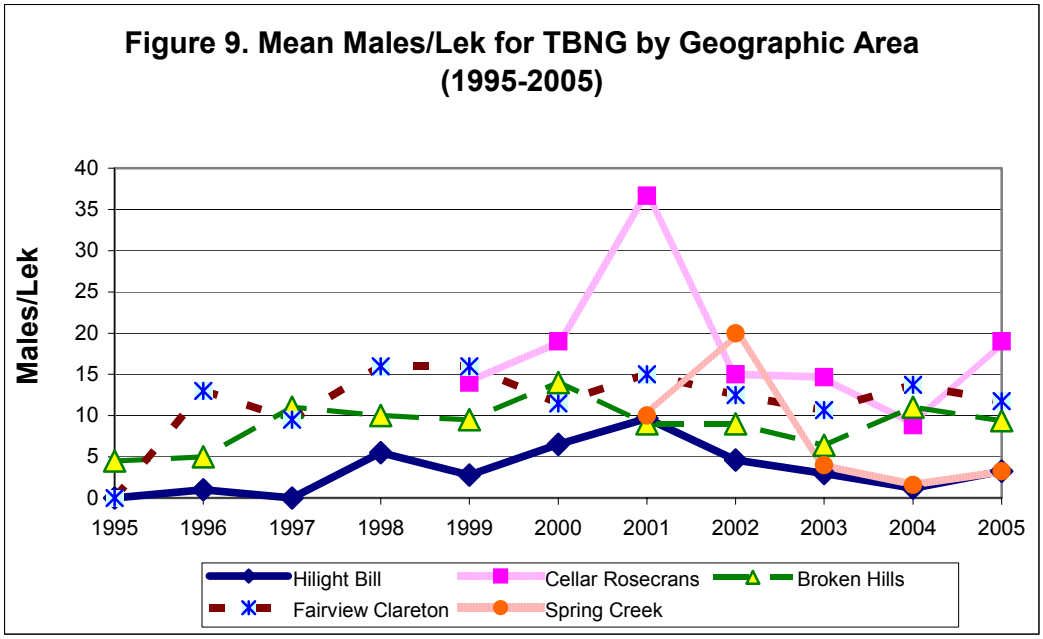


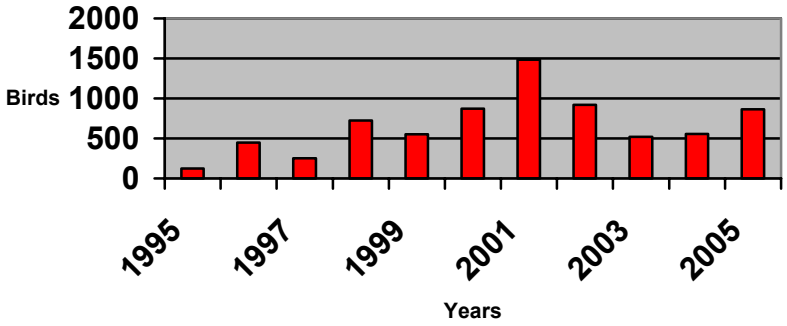
Table 2. Mean Males per Lek by Geographic area

Males/Lek by GA	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Hilight Bill	0	1	0	5.5	2.8	6.5	9.667	4.6	3	1.2	3.25
Cellar Rosecrans					14	19	36.67	15	14.67	8.857	**19**
Broken Hills	4.5	5	11	10	9.5	14	9	9	6.4	11	**9.4**
Fairview Clareton	0	13	9.5	16	16	11.5	15	12.5	10.67	13.75	**11.75**
Spring Creek							10	20	4	1.6	3.25

Population Trend Grassland-wide

The 10 year trend on TBNG is increasing from an estimated population of 126 birds in 1995 to an estimated population of 864 in 2005 (figure 10). Within this ten year timeframe the population increased dramatically until 2001. Since 2001 there has been a steady decrease in the minimum estimated sage-grouse population on TBNG. However, the TBNG trend between 2003 and 2005 indicates that there has been a 211 bird (24%) increase. It is unclear at this time whether this marks a change in overall population trend or not. It is important to remember that these numbers represent an Estimated Minimum Population, and do not represent a total inventory or the complete population size.

Figure 10: Minimum estimated sage grouse population for TBNG only



A compounding concern for sage-grouse populations on TBNG is West Nile disease. It has been found in dead sage-grouse associated with the Grassland. At this point in time West Nile is an unknown factor, but has only been a part of the cumulative impacts to sage-grouse since 2003. This disease currently appears to cause a high mortality rate in sage-grouse (possibly 75% to 100% of infected birds). Studies are ongoing to evaluate this impact, however, with this additional impact, what may have been an acceptable population level 10 years ago, may no longer meet the need to respond to new impacts associated with TBNG.

Currently, however, populations across the National Grassland appear to be off-setting any declines within any specific Geographic Area at this time. Sage-grouse still occur in all six Geographic Areas, with the majority of the population residing outside the Hilight Bill Geographic Area. The Thunder Basin National Grassland population appears to be maintaining its viability.

3. Are impacts associated with these new species adequately evaluated between the two FEIS analysis?

In reviewing the information in both analyses, it is obvious that the impacts to sage-grouse disclosed in the two Environmental Impact Statements are different. The NGP FEIS deferred its cumulative effects analysis on National Forest System lands west of the

Wyodak coal outcrop line (figure 1) until the PRB FEIS disclosed the cumulative effects of coalbed methane development (ROD Component 4, page 24). This review is the culmination of that process. The NGP FEIS did not evaluate the impacts of oil and gas development in this area and the PRB FEIS supplements the analysis in the NGP FEIS.

Information provided in the PRB FEIS on all land ownerships, including Forest Service and non-Forest Service surface, indicates within the FEIS analysis area some "local populations may be extirpated in areas of concentrated development, but viability across the Project Area or the entire range of the species is not likely to be compromised." (PRB FEIS Vol. 2 of 4, pg 4-270). This analysis for the PRB FEIS accurately reflects the impacts to sage-grouse within the proposed leasing area.

The U.S. Forest Service is incorporating the PRB FEIS analysis to complete this process. The analysis provide within the two FEIS documents provides adequate analysis to address this species.

Summary of Sage-grouse Evaluation Of Questions To Be Answered

1. Is adequate management direction provided in Grassland-wide Direction?

   The Grassland Plan provides direction that does apply to sage-grouse habitat protection and enhancement. Since this species was added to the Region 2 Sensitive Species List, no additional mitigation measures have been identified to improve the management of this species. Currently the Northeast Wyoming Sage-grouse Working Group is reviewing the management of sage-grouse and its habitat in an area that includes the Thunder Basin National Grassland. Once completed, information from that Conservation Plan may provide additional Best Management Recommendations.

2. Will current management direction adequately provide for viability of these species?

   Currently, populations across the National Grassland appear to be off-setting any declines within any specific Geographic Area at this time. Sage-grouse still occur in all six Geographic Areas, with the majority of the population residing outside the Hilight Bill Geographic Area. The Thunder Basin National Grassland population appears to be maintaining its viability.

3. Are impacts associated with this species adequately evaluated between the two FEIS analyses?

   The analysis provide within the two FEIS documents provides adequate analysis to address this species.

C. SAGE-GROUSE POPULATIONS

Sage-grouse appear to be declining in Hilight Bill Geographic Area. The following are the questions that need to be answered.

1. Are viable populations of sage grouse being maintained on TBNG?
2. Does the Forest Service need to change stipulations in Appendix D of the Grassland Plan?
3. Is effects determination still consistent with PRB FEIS or NGP FEIS?

The sage-grouse is selected as a Management Indicator Species (MIS) for sagebrush habitats that have tall, dense, and diverse herbaceous under-stories (USDA, 2001). Sage-grouse generally do not respond positively to human activities and disturbances. The decline in sage-grouse across its range has been attributed, in part, to a loss in habitat or its function, and increased human disturbances during critical periods of its life cycle. These periods include breeding, nesting, and in some cases during stressful periods due to winter conditions (USDA, 2001). This was discussed in detail in the above section.

1. Are viable populations of sage-grouse being maintained on TBNG?

This question was addressed in the above section for sage-grouse as a Region 2 Sensitive Species. As determined above, populations across the National Grassland appear to be off-setting any declines within any specific Geographic Area at this time. Sage-grouse still occur in all six Geographic Areas, with the majority of the population residing outside the Hilight Bill Geographic Area. The TBNG population appears to be maintaining its viability.

2. Do we need to change stipulations in Appendix D of the Grassland Plan?

The following is **Appendix D:** ***Oil and Gas Stipulations for Thunder Basin National Grassland*** as it currently is written:

This appendix displays the stipulations applied to oil and gas leases to be consistent with Grassland Plan Standards and Guidelines, and a short explanation of the reasons for the stipulations. This is mandated by the oil and gas regulations found in 36 CFR 228 102 (c)(1)(ii). This section also discusses the guidelines by which waivers, exceptions, or modifications may be granted. The following are the stipulations currently found in the Grassland Plan related to sage-grouse:

Wildlife - Timing Limitations (TL)

Resource: Sage Grouse Display Grounds (TL)

Stipulation

Surface use is prohibited from March 1 through June 15 within 2 miles (line of sight) of a sage grouse display ground, and noise from production facilities must not exceed 49 decibels (10 dBA above background noise) at the display ground.

Objective (Justification)

For justification refer to the Land and Resource Management Plan Grassland-wide Direction, Fish, Wildlife, and Rare Plants, number 47. The objective is to prevent abandonment of display grounds and reduced reproductive success.

Application Methodology

This stipulation applies to active sage grouse display grounds. The 2-mile radius extends outward from the center of a display ground. This stipulation applies to drilling, testing, new construction projects, and to workover operations. This does not apply to emergency repairs.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all display grounds within the leasehold or within the stipulated distance from the leasehold have not been used during the past 5 breeding seasons.

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated. An exception may be granted if the display ground has not been used by May 1 of the current year.

Wildlife - No Surface Occupancy (NSO)

Resource: Sharp-tailed Grouse and Sage Grouse Display Grounds (NSO)

Stipulation

No surface occupancy or use is allowed within 0.25 mile (line-of-sight) of a sharp-tailed grouse or sage grouse display ground.

Objective (Justification)

For justification refer to the Land and Resource Management Plan Grassland-wide Direction Fish, Wildlife, and Rare Plants, numbers 14 and 46. The objective is to prevent abandonment of display grounds, reduced reproductive success, and adverse habitat loss.

Application Methodology

This stipulation applies to active sharp-tailed grouse or sage grouse display grounds. The 0.25-mile radius extends outward from the center of a display ground.

Waivers

This stipulation may be waived if the authorized officer determines conditions have changed and all display grounds within the leasehold or within the stipulated distance of the leasehold have not been used during the last 2 breeding seasons (sharp-tailed grouse) or 5 breeding seasons (sage grouse).

Exceptions

The authorizing officer may grant an exception to this stipulation if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modifications

The boundaries of the stipulated area may be modified if the authorizing officer determines that portions of the area do not include any display grounds that have been used during the last 2 breeding seasons (sharp-tailed grouse) or 5 breeding seasons (sage grouse). The boundary of the stipulated area may also be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage grouse and the display grounds.

Sage-grouse habitat, while being reduced, currently still provides enough suitable, occupied habitat to maintain a well distributed population across the TBNG. At this time, the current oil and gas stipulations appear adequate for leasing to occur. If additional Best Management Practices are identified by the Northeast Wyoming Sage-grouse Working Group, they can be addressed at the "Application for Permit to Drill" (APD) analysis stage.

3. Is effects determination still consistent with PRB FEIS or NGP FEIS?

In reviewing the information in both analyses, it is obvious that the impacts to sage-grouse disclosed in the two Environmental Impact Statements are different. The NGP FEIS deferred its cumulative effects analysis on National Forest System lands west of the Wyodak coal outcrop line (figure 1) until the PRB FEIS disclosed the cumulative effects of coalbed methane development (reference the July 2002 ROD Component 4, page 24). This review is the culmination of that process. The NGP FEIS did not evaluate the impacts of oil and gas development in this area and the PRB FEIS supplements the analysis in the NGP FEIS.

Information provided in the PRB FEIS on all land ownerships, including Forest Service and non-Forest Service surface, indicates that, within the FEIS analysis area some "local populations may be extirpated in areas of concentrated development, but viability across the Project Area or the entire range of the species is not likely to be compromised." (PRB FEIS Vol. 2 of 4, pg 4-270). This analysis for the PRB FEIS accurately reflects the impacts to sage-grouse within the proposed leasing area.

The U.S. Forest Service is incorporating the PRB FEIS analysis to complete this process. The analyses within the two FEIS documents provide adequate analysis to address this species. The determination made in the PRB FEIS for sage-grouse is "local populations may be extirpated in areas of concentrated development, but viability across the Project Area or the entire range of the species is not likely to be compromised." (PRB FEIS Vol. 2 of 4, pg 4-270).

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