

APPENDIX B
WILDLIFE MITIGATION PLAN

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Wildlife Mitigation Plan

West Tavaputs Plateau Natural Gas Full Field Development Project

Version 1.7 – August 22, 2007

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I. Purpose

As described in Chapter 2 of the West Tavaputs Plateau (WTP) – Environmental Impact Study (EIS), Bill Barrett Corporation (BBC) and other operators (the Operators) drilling and/or completing wells during the winter closure period in the WTP-EIS project area propose to conduct activities on a year-round basis. This proposal diverges with traditional BLM strategy of prohibiting drilling and completions during the winter months to minimize the potential for disturbing wildlife. Rather than halt operations seasonally and remove all drilling and completions equipment and then return the equipment after winter closures, BBC is proposing to conduct limited winter activities in such a way as to avoid and reduce impacts where reasonable, and to implement compensatory mitigation that include habitat improvements and other efforts as warranted. Other operators that wish to conduct operations during these subject winter months will be able to participate with BBC in the proposed process and be obligated to a relative share of the costs. This adaptive mitigation plan is proposed using the following six basic elements as the framework.

- 1) Mitigation is framed in a geographical context suited to addressing the types of concerns we would expect to encounter. Compensatory mitigation is situated near impacted areas if good opportunities exist. A watershed-specific review of ecological conditions, limitations, foreseeable development scenarios, and mitigation options for oil and gas will be used for this program. Using this kind of watershed approach, this will be an adaptive system for designing and applying needed compensatory mitigation, which enables winter drilling and simultaneously enhances wildlife habitat and watershed conditions.
- 2) The operators propose to garner involvement from applicable wildlife groups to help identify issues in the watershed, early in the planning process. Involvement from multiple groups will lead to stronger, more fully informed, and better-supported decisions.
- 3) The best available scientific information will be used to answer key questions. Efforts to evaluate oil & gas impacts on wildlife populations are seldom conducted within any kind of experimental framework, but rather tend to be short term, anecdotal summaries. Properly designed projects are needed to gain a useful understanding of how we might mitigate more effectively for wildlife impacts.
- 4) Mitigation proposed will be approached in a specific sequence. The necessity of a sequenced approach to mitigation stems from the principle that we avoid and reduce all of the on-site impacts, which reasonably could be avoided before compensating for unavoidable effects. It is only after taking all reasonable steps to avoid and reduce impacts that compensatory mitigation options should be assessed.
- 5) An assessment of ecological needs within the watershed drives how compensatory mitigation is designed and situated. Mitigation projects and the sites for mitigation need to be selected on the basis of how specific restoration projects would address watershed needs. Where appropriate and practicable, compensatory mitigation decisions should be made from a watershed perspective, so that compensatory

mitigation follows from the assessment of ecological needs and identified public land-use values within the watershed. Using existing regional teams of natural resource agency experts, local government officials, private, state, and federal land managers, and oil and gas industry representatives, we have the ability to help answer questions about watershed needs and mitigation options. Large-scale mitigation projects would benefit from a multiple-agency process to bring more and better expertise and collaboration into the planning, approval, and oversight of habitat restoration mitigation projects.

- 6) Monitoring performance toward clearly stated objectives for the individual mitigation projects, with defined and documented performance standards set forth is an important part of any mitigation program. It is critical to note that this monitoring, although tracking population trends, will not measure specific causes of wildlife population fluctuations due to many unrelated issues affecting animal numbers, such as climatic conditions.

To foster acceptance of this concept for managing oil and gas activities while conserving wildlife habitat, the Operators within the EIS project area propose to offset not only the effect of drilling during the traditional seasonal closures, but to the extent practical, the effects of the entire development.

The purpose of this plan is to describe the strategy for avoiding and reducing impacts where possible and mitigating remaining impacts under the proposed action.

The Plan describes:

- Plan goals
- Lands on which impact reduction activities and mitigation would be conducted
- The process by which mitigation projects will be developed
- Initial commitments for reducing impacts and mitigation activities
- Monitoring
- Potential future mitigation

This plan is incorporated by reference as operator committed mitigation into BBC's Proposed Action as described in Chapter 2 of the West Tavaputs PDEIS.

II Goals

Based on an annual review of conditions, under the framework of the above six elements, the most effective combination of measures would be applied to optimize opportunities to restore and enhance sage-grouse habitat to avoid contributing to the need to list sage-grouse as threatened or endangered under the Endangered Species Act. These measures would also be applied to restore and enhance fish and wildlife habitats to support healthy self-sustaining densities of species and their natural diversity.

The mitigation strategy is focused on sage-grouse, mule deer, raptors, and elk. By improving habitat for these species, other species that are dependant on similar habitats

will also benefit. Sensitive species listed in the State Action Plan will be considered in all mitigation planning efforts.

Wildlife selects habitat on a seasonal basis. This selection is typically driven by the need to forage and to minimize the associated energy expenditures. Many species of wildlife build up energy reserves during the warm growing seasons and utilize these stored reserves during the non-growing colder seasons. Survival of the population depends on the energy expended being equal to or less than the energy consumed. This simplified concept is the basis for seasonal stipulations of O&G activities on winter habitats. The plan's goal is to improve the function of existing natural habitats such that the net energy impact to these species is not negatively affected and is hopefully positively affected.

III. Proposed Project Lands

Using a watershed approach, mitigation would be performed on lands within and near the project area, as appropriate, so that local wildlife populations could receive the benefit of the mitigation. The Operators intend that mitigation under the Plan could be accomplished on State, Federal, and private lands within or in close proximity to the development area, as available. In order to facilitate cost effective mitigation, BBC proposes using BBC owned lands that are in and immediately west of the development area and would also manage these lands to offset impacts of BBC's year-round development activities. The private lands owned by BBC also include significant grazing rights on federal lands that could also be managed, within the limits necessary to maintain and protect domestic livestock grazing rights, for the benefit of wildlife. A map of these lands is shown in **Figure 1**.

IV. Mitigation Planning Process

Wildlife populations, management objectives, and the factors affecting them are very dynamic. It is therefore impractical to identify specific mitigation efforts, in advance, for the life of the project. Throughout this plan reference is made to the initial mitigation plan describing mitigation corresponding to approximately 30 percent of the proposed maximum ultimate development. Reference is also made to the adaptive component of the mitigation plan. In subsequent years of development, an annual review of the development activities would be conducted and mitigation developed for the incremental annual disturbance. This "adaptive management" component allows decisions to remain flexible as changes occur to the environment and positive or negative impacts are identified to wildlife and habitats. This process would be maintained for a minimum of ten years or five years after active development (i.e. construction, drilling and completion operations), is completed; whichever is greater.

The BLM, in conjunction with the Utah Division of Wildlife Resources (UDWR), should lead the mitigation planning efforts, involving where applicable Utah State Institutional Trust Lands (SITLA) and the Utah Division of Oil Gas, and Mining (DOGMA) and the affected gas industry companies. A committee made up of representatives of these entities would make up the West Tavaputs Plateau Mitigation

Oversight Committee (WTPMOC). Other entities that will be kept informed of the intentions and progress of the WTPMOC are other affected private landowners where development or mitigation is proposed to occur, local governments, and applicable wildlife groups (i.e. the Sage Grouse Working Group, Mule Deer Foundation, SFH etc.). Input from these other groups will be encouraged and considered by the operators and the WTPMOC in adaptively managing this plan for the benefit of wildlife. The Operators will be responsible to carry out the approved mitigation, as appropriate, working with BLM and UDWR in implementation of appropriate activities.

In addition to supporting development of this plan, the WTPMOC would have three future responsibilities. The first responsibility would be to review prior mitigation commitments and advise the BLM if they have been completed and are likely to be effective. The second responsibility of the WTPMOC would be to provide guidance to the BLM on minimizing, to the extent practical, impacts associated with planned future development. The third function is to provide potential projects or revisions to projects for consideration by the BLM for mitigation of any unavoidable impacts.

BBC and possibly other operators are proposing to identify, on an annual basis, a limited number of well pads from which wells would be drilled and completed on a year-round basis. BBC and other affected operators would meet with the WTPMOC to provide input for consideration on multi-well and deep well locations where year-round drilling and completion would have less impact on wildlife. As is reasonable and cost-effective the operators would utilize those locations acceptable to the WTPMOC during winter season (defined as November 1 - May 15 in the Price River MFP (BLM 1982)). Where locations were determined by Operators to be infeasible or not cost-effective other impact reduction and/or mitigation would be considered. Commitments as to which wells would be drilled during the winter season as well as the appropriate associated mitigation would be made at the annual May meeting. Note that depending on timing of the EIS ROD the initial meeting will be held as close to this date as possible. Reduction of impact actions for wildlife from wells drilled outside of the winter period would be reviewed by WTPMOC prior to staking. Appropriate mitigation for impacts that cannot be avoided would be proposed by the WTPMOC utilizing the final approval by the BLM.

As indicated, the life of the mitigation plan would be a minimum of 10 years or 5 years beyond the end of active development (drilling and initial completions), whichever is greater.

V. Initial Mitigation Plan

The plans for the first three years of mitigation would be to offset approximately 30 percent of the total potential development, and would be initiated after issuance of the EIS ROD. BBC has already fully engaged BLM and UDWR representation to assist in the development of this component of the proposed mitigation plan. The following impact reducing and mitigation activities would be implemented as part of this mitigation plan.

This mitigation plan proposes a goal of approximately 4: 1 ratio of mitigation acres to long-term disturbance acres from our entire project. The flexible “adaptive management” approach this plan takes as to the form of mitigation alternatives being considered makes a defined ratio of mitigation acres to disturbance acres difficult. Most mitigation is proposed as higher than 1:1 with the knowledge that most habitat mitigation projects are enhancements of habitat that already have some wildlife value but we are mitigating for a habitat that has lost some of its value due to surface disturbance from the proposed WTP-EIS activities. Thus, the goal of 4:1 will be the overall objective for this mitigation plan. The following system will be applied for computing the relative ‘value’ of mitigation projects so that this proposal, as well as future mitigation, can be more accurately gauged and remain reasonably consistent. Certain mitigation acreage, such as lop and scatter enhancement, is typical for use in mitigation projects and characterizes what will be termed ‘diffuse’ mitigation in this plan. Diffuse mitigation will be applied at a 4:1 ratio to long-term disturbance acres. In addition, selected impact reduction or mitigation projects, such as road realignment or wet meadow enhancement represent a relatively small area in acres but are higher cost per acre and typically viewed as very high in mitigation value to wildlife.

‘High-value’ mitigation projects will be used where they can provide significant direct value to wildlife such as in impact-reduction projects, wet meadow enhancements and funding telemetry monitoring studies to track wildlife population use areas. The mechanism for comparing “High Value” mitigation projects to track the goal of 4:1 mitigation is difficult and will be determined by a consensus of the WTPMOC members. Both relative cost correlation from ‘high-value’ mitigation projects and delineated ‘value’ to wildlife will be considered in correlating ‘high-value’ mitigation projects back to the 4:1 mitigation goal. This acreage credit will then be used to track the 4:1 mitigation goal.

BBC is proposing the following mitigation projects for the initial 30 per cent of BBC’s total proposed EIS project disturbance. As other operators request winter activities they will join the project and assist with funding at their relative share based on their activity level.

Road Realignment

BBC and DWR funded a telemetry study in the winters of 2005 and 2006. This study found wintering populations of sage-grouse concentrated their use in small select patches of sagebrush on the Prickly Pear and Peters Point Mesas. Sage-grouse winter use areas are bisected by existing primary access roads to the development area. Telemetry results indicate sage-grouse are avoiding these high traffic roads and areas immediately adjacent to these roads (B. Crompton, UDWR, personal communication).

This road realignment project is considered a ‘high-value’ mitigation project and it is proposed to reduce the potential impact by re-aligning the primary access roads bisecting the two largest sage-grouse winter concentration areas. These roads would be reconstructed away from the sagebrush parks and placed in Pinyon Juniper woodlands creating both visual and acoustical screening. **Figures 2** and **3** show the existing road

segments that traverse sage-grouse winter concentration areas, and the new proposed alignment for each. BBC will upgrade the existing route to the north of the airstrip and reroute all BBC traffic in the Prickly Pear area to this proposed alignment. In addition, three new road segments will be constructed as indicated on **Figure 2**. Approximately three miles of new road will be constructed on Prickly Pear mesa. The existing roads in the northeast corner of Section 22, through the center of Section 14 and in the north half of Section 13 (**Figure 2**) will be closed and all traffic physically blocked from access. On Peters Point mesa a new road segment is proposed in the northeast quarter of section 5 the southeast quarter of Section 32 and the southwest quarter of Section 33 (**Figure 3**). The new road segment is approximately 2.5 miles long. Reclamation of the existing but proposed unused road sections in both areas are not included at this time but can be completed as mitigation in future years as deemed appropriate by the WTPMOC.

In addition to the benefit sage-grouse would derive from this project, deer, raptors, and elk will also benefit from the screening of traffic and increased forage and prey production.

This is considered as a ‘high-value’ mitigation project with BBC contributing the estimated cost of \$475,000.00 for building the new road segments on Prickly Pear mesa and \$225,000 for the new road segment on Peters Point mesa to allow continued access. Acreage estimated for this ‘high value’ mitigation project is 3500 acres.

Habitat Improvement and Connectivity

Winter habitat is being impacted by the encroachment of Pinyon and Juniper into the sagebrush parks that are essential to sage-grouse survival (Connelly et. al.2004). Disruption of the natural fire cycles and build up of fuels has made the treatment of this condition difficult. Projects designed to remove encroaching Pinyon and Juniper and increase the sagebrush park size will benefit sage-grouse. According to UDWR and Terry Messner of the Utah State University and founder of Utah Sage-Grouse Working Group, “...by creating a landscape that exhibits a heterogeneous mosaic of resource patches we can increase natality and recruitment of sage-grouse”. For existing winter habitat to be improved, park size should be increased and corridors between parks created connecting existing parks into large irregular shaped parks. Isolated trees within the sagebrush parks would also be removed to eliminate raptor-hunting perches in sage-grouse concentration areas (Girard 1937, Rassmussen & Griner 1938, Batterson & Morse 1948, Nelson 1955, Rogers 1964, Beck 1977, Dunkel 1977, Autenrieth 1981).

This is a ‘diffuse’ mitigation project and it is proposed for the approximately 1500 acres of potential treatment area identified on Figure 4. The area around Dry Farm and Sage Flat were selected for the proximity to the development as well as the predicted benefit of expanding and connecting sage-grouse winter habitat. Deer and elk utilize these same areas in the winter. Increased forage on big game winter range could also benefit deer and elk. Open productive sites could increase the prey base for raptors in the area. The 1500 acres identified for this treatment are part of a previously committed BBC mitigation project. This project has been delayed awaiting the ROD on the WTP EIS. The

importance of this treatment to sage-grouse and deer on the Sage Flat area warrants carving this smaller project out of the originally proposed treatment. Due to the limited access and limited disturbance afforded BBC during the 2005-2006 winter (approx. two months) this 1500 acres was removed from the previous 05-06 winter disturbance mitigation (3700 acres remain for 05-06 mitigation) and is being proposed as part of the initial 30 percent EIS mitigation program.

Acreage estimated for this 'diffuse' mitigation project is 1500 acres.

Wet Meadow/Summer Range Enhancement

Sage-grouse use of the limited wet meadow habitats, pond margins and spring areas indicate a preference for this habitat type during brood rearing (Gill 1965, Klebenow 1969, Connelly & Markham 1983, Connelly et al. 1988, Fisher 1996, Bunnell et al. 2000). Any projects designed to increase this habitat type would be beneficial to brood survival by increasing forbs and invertebrates. Examples of wet meadow enhancement would be to locate spring sources, and if topography allows, re-contour the area as appropriate to spread the water over as much surface area as possible creating a sub-irrigated meadow. These areas would be attractive to livestock and big game and might require fencing to protect the values for sage-grouse. Stock water can be maintained by piping the needed water to a trough. Creation of stock watering ponds would have many potential benefits; provide micro sites for brood rearing, water for all wildlife, and use as a tool in livestock distribution. Guzzler development would be used to provide water to wildlife to promote utilization of habitat that wasn't available prior, due to lack of water. Sagebrush removal using mechanical treatments in localized mesic areas on the summer range in association with fertilization could be used to increase grass and forb production critical to sage-grouse broods as well as mule deer. Small mammal populations could increase from these types of treatments providing increased prey base for raptors.

This is considered as a 'high-value' mitigation project and the operators would implement a total of six such projects of this nature on Fee Title, State Institutional Trust Lands, and, BLM lands as available. This mitigation would likely occur at higher elevation than the proposed field development, but would likely benefit the same populations of animals affected by the gas field development. The importance of good brood survival to the overall health of the sage-grouse population makes these projects important even if there is no development impact within brood rearing habitat (Dunn & Braun 1986, Klott & Lindsey 1989, Drut et al. 1994, Apa 1998).

This is considered as a 'high-value' mitigation project with BBC contributing to this project an estimated \$5,000 per enhancement (\$30,000 for six projects). Acreage estimated for this 'high value' mitigation project is 150 acres.

Grazing Practices

Grazing management can be a valuable tool in vegetation manipulation and habitat mitigation. The goal of the grazing program would be to develop the range site to its full

potential while keeping succession at its desired seral stage. This grazing program would provide healthier vegetative communities, increased forage production, and a healthier overall watershed. The benefits could be accomplished by temporary non-use of livestock grazing and/or by intensely managing grazing so that both livestock benefits and wildlife benefits are derived. A complete array of tools should be considered including, but not limited to: stocking rates, fencing needs, pasture rotation, salt placement, water developments, spring and wetland development/protection, season of use, exchange of use agreement, riparian management, and range improvement projects such as reseedings. A successful grazing management program would require a commitment by the operator to ensure the plan is followed and adapted when stated objectives are not being met.

This is considered 'high value' mitigation and it is proposed to implement one additional year of non-use in addition to the one year already committed to for past BBC mitigation for a total of two years of Temporary Non-Use on the Stone Cabin Allotment. The grazing management changes referred to above will be considered for future mitigation. In coordination with the BLM, other allotments operated under BBC control will be looked at to determine potential future wildlife mitigation value. The first year of Temporary Non-Use (for past mitigation) would begin in May of 2008 followed by the second year of non-use in 2009 for the committed initial mitigation providing the ROD has been issued. The non-use by livestock for the Stone Cabin Allotment would allow for vegetation to recuperate root reserves and increase plant vigor and reduce competition for the existing forage resource benefiting deer and elk. The mitigation value would be to big game, sage grouse and raptors. Sage-grouse could benefit from increased herbaceous cover, potentially increasing nesting success, and increased forb and insect production for pre-nesting hens and later in the spring, broods (Barnett & Crawford 1994, Gregg 1991, Greg et al. 1994, Patterson 1952, Gray 1967, Klenbenow 1969, Walestad & Pyrah 1974, Wakkinen 1990, Fisher 1994, DeLong et al. 1995, Bunnell et al. 2000). Raptors could benefit from increased small mammal populations in association with increased herbaceous cover and seed production.

There are over 30,000 acres in the Stone Cabin Allotment supporting 1625 AUMs. Acreage estimated for this 'high value' mitigation project is 315 acres. The value of the non-grazing is complicated. There are many ways to try and assign a value; forage produced, meat production, and animal unit month (AUM) values, of which there are several figures to choose from. Utilizing 1625 AUMs and estimated animal weights at auction a value of 315 acres of mitigation was assigned.

Radio Telemetry

BBC will contribute an additional \$5,000 to the UDWR to complete the sage grouse telemetry study. This is considered as a 'high-value' mitigation project with the total money contributed by BBC to this project at \$47,500. Acreage estimated for this 'high value' mitigation project is 25 acres.

VI. Monitoring.

This plan proposes to administer an ongoing annual monitoring project whereby basic information on various mitigation projects as well as limited information on wildlife populations and use areas is collected for use by the WTPMOC in planning for future mitigation projects. The operators will utilize ongoing vegetative trend transects done by the UDWR Range Inventory Crew and BLM range monitoring transects in the area to monitor changes in vegetation in relation to mitigation projects. If the need for monitoring exceeds the ability of the existing program, the Operators will contribute resources in proportion to their use/disturbance to ensure the monitoring of vegetative treatments. Animal population trends will not be monitored as part of this plan. There are a significant number of major factors, such as climatic factors, that have impacts on animal populations and are completely unrelated to oil and gas development. Thus, any attempt to gauge success or failure of this plan based on animal populations would be indeterminate at best. Production and trend data will be collected as ongoing programs with UDWR. This information can be used anecdotally to monitor population trends to direct mitigation efforts. Trend data will consist of production classifications for deer, brood production, and lek counts, for sage-grouse, helicopter trend counts and production classification on deer, elk, and helicopter nest surveys on raptors.

This is considered as a ‘high-value’ mitigation project with BBC contributing to this project at approximately \$10,000 annually (\$30,000 for 30%). Acreage estimated for this ‘high value’ mitigation project is 150 acres.

The strategies identified by the Castle Country Greater Adaptive Resource Management Local Working Group (CaCoARM) in their Conservation Plan could be utilized to filter future habitat mitigation projects that work toward the strategy goals identified in the Castle Country Greater Sage-Grouse Local Conservation Plan. The Castle Country Greater Sage-Grouse Local Conservation Plan identified 18 different strategies to address the health of Greater Sage-grouse in the Carbon, Emery, and East San Pete County area. This group is a consortium of partners including: local landowners, members of local grazing associations, Price River Soil Conservation District, Carbon Emery and San Pete County Commissioners, Intermountain Petroleum Association of mountain states (IPAMS), Utah Division of Wildlife Resources (UDWR), Department of Agriculture (USDA) Forest Service (USFS), Utah School and Institutional Trust Lands Administration (SITLA), Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), USDA Wildlife Services (WS), Farm Services Agency(FSA), Natural Resources Conservation Service (NRCS), Utah State University Extension (USU/EXT), and the Utah Farm Bureau Federation. BBC and other operators from the project area will have representation at future meetings of CaCoARM as a local land owner and gas field operators. The following eleven of eighteen Strategies will be addressed in part with actions described in this document:

- 1) By 2011, make an assessment of pinyon/juniper stands in key sage grouse habitat through out the resource area.
- 2) By 2011, assess mesic vegetation sites and identify potential new water projects.

- 3) Through 2016 identify key public/SITLA and private lands in the resource area that are recognized by the group as critical to be protected and /or managed to effectively conserve/improve sage-grouse nesting/brood rearing habitat.
- 4) Through 2016, identify key public/SITLA and private lands in the resource area that are recognized by the group to be protected and managed to conserve and improve sage-grouse lek areas and habitat.
- 5) Increase cooperation and coordination between CaCoARM and the public and private partners.
- 6) Increase informational and educational opportunities with local community and CACoARM partners.
- 7) Through 2011, work with industries involved in natural resource development within important sage-grouse use areas to minimize impacts.
- 8) Through 2016, increase population and habitat monitoring efforts for sage-grouse in the resource area.
- 9) By 2016, minimize effects of roads and utilities in the areas used by sage-grouse.
- 10) Provide for use level and management systems of domestic livestock grazing that maintains and improves both the long term stability of sage-grouse populations and habitats and livestock industry in the resource area.
- 11) Maintain and where possible, improve the perennial forb component in the understory.

VII. Summary

This mitigation plan outlines the framework under which habitat mitigation will be addressed including: 1) watershed specific review of ecological conditions, limitations, foreseeable development scenarios, and mitigation options 2) multi-group (BLM, UDWR, wildlife groups) involvement early and throughout the project, 3) utilize the best scientific information available, 4) a sequential approach that begins with avoidance, reduction, and then mitigation, 5) ecological needs of the watershed driving the compensatory mitigation, 6) monitoring the performance of the measures taken to reach clearly stated objectives.

The goals of this mitigation plan will be measured based on an annual review of conditions. The conditions contributing to this goal are the most effective combination of measures to optimize opportunities to restore and enhance sage-grouse habitat and to avoid contributing to the need to list sage-grouse as threatened or endangered under the Endangered Species Act. These measures would also be applied to restore and enhance fish and wildlife habitats to support healthy self-sustaining densities of species and their natural diversity.

The location of mitigation projects will be driven by a watershed and ecological need approach, making both private and public lands available for the projects.

Adaptive is the approach this plan takes to ensure the best project at the best time is considered for mitigation by the BLM and the WTPMOC. The plan covers specific projects and types of projects for 30% of the potential full field development. The long term disturbance acreage for the proposed alternative in the EIS is 2080 acres. Thirty percent of 2080 acres is approximately 700 acres. For the 4:1 ratio goal, 2800 acres would need to be mitigated for the initial 30 per cent of the project. BBC is proposing 5640 acres of mitigation in this wildlife mitigation plan. BBC proposes to initiate this plan immediately upon a ROD being issued on the EIS with the initial 30 per cent mitigation completed in the first three years of the project. The adaptive mitigation required to offset any disturbance after the initial 30 per cent will depend on the level of development that occurs and includes, but is not limited to, the list in Appendix A.

VIII. Appendix A

- Passive
 - Grazing Management Plan
 - Stocking rates
 - Pasture rotation
 - Salt placement
 - Water developments
 - Spring protection and development
 - Wetland protection
 - Season of use
 - Relinquishment of AUMs on Private land
 - Temporary nonuse on Fed AUMs
 - Livestock exclusion from riparian and wetland habitats
 - Sportsman access allowing Unit Management objectives to be met (participate in Walk In Access Program)
 - Cow elk hunter access to assist UDWR in maintaining elk population objective
 - Limited trophy hunting opportunities to be allocated by Mule deer foundation Sportsman for Fish and Wildlife and or Rocky Mountain Elk Foundation
 - Access to other public lands that are not currently readily available to the public
 - Conservation easements designed to protect conservation values in perpetuity
 - Purchase of easements to prevent habitation of domestic sheep in 9 mile proximity to Bighorns
 - Purchase of federal grazing permits to change class of livestock use from domestic sheep to cattle
 - Continue supporting and funding sage-grouse telemetry project and or other identified research needs
 - Financially support monitoring efforts utilizing CaCoARM, CCAA and associated expertise

- Active
 - Road reclamation
 - Reclamation of existing roads not required for access due to construction of new road segments will reduce traffic and provide additional forage and continuous habitat for sage grouse.
 - In addition to the benefit sage-grouse would derive from this project, deer, raptors, and elk will also benefit from the screening of traffic and increased forage and prey production.
 - Agricultural lands in crop production (maintains or improves property value while attracting wildlife)
 - Provides spring/fall deer and elk forage (could be used to draw wildlife off of intolerant neighbors saving the DWR depredation payments)
 - Creates elk concentration areas that will assist sportsman in harvesting antlerless elk allowing the herd population objective to be maintained.
 - Year around Rio Grande Turkey habitat
 - Winter food plots of small grains and winter wheat for Turkey
 - Food and cover for Chukar
 - Food and cover for cottontail rabbits
 - Show case or demonstration area for proper management of noxious weeds
 - Riparian management (enlarge the green belt and increase canopy stories)
 - Ecotone between Agriculture land and the Riparian is very rich in songbird diversity. Opportunities to work with the Greasewood vegetative type to inter-seed a more diverse array of vegetation
 - Healthy riparian can be demonstration for other users in the canyon to see 1) what healthy riparian looks like, 2) how it functions in watershed protection. Would be better to include other sections along Nine Mile Creek.
 - Increase roosting and loafing areas for Rio Grande Turkey
 - Demonstration area for control of tamarisk, and Russian olive making room for native riparian vegetation to function as it use to.
 - Multi canopy riparian will lower the temp of the water allowing native fish to potentially inhabit Nine Mile Creek. (Potential habitat for the three conservation species- Blue Head, Flannel Mouth suckers, and Round Tail Chub
 - Stream enhancement structures to change stream morphology (i.e. depth to width and pool to riffle ratios
 - Mountain Brush maintenance (important deer fawning and elk winter range Mast crops produced will provide important forage for Turkey and Black Bears)
 - Chain or crush decadent over mature service berry and mahogany plants to stimulate re-sprouting

- Monitor and control Pinyon and Juniper invasion into the Mountain Brush type
- Water developments
- Sage Steppe (Sage grouse yearlong, and deer and elk seasonal use)
 - Manage sage brush parks for uneven age classes to prevent stands from dying out
 - Manipulate crown cover for optimum sage grouse forage and cover
 - Inter-seed with diverse forb mixes for sage grouse forage and brood rearing areas, deer and elk spring forage
 - Careful development of natural water sources to provide free water and form wet meadow habitats
 - When compatible with all concerns create man made water sources (guzzlers)
 - Monitor and control Pinyon and Juniper invasion into sage parks
 - Eliminate raptor perching areas near sage grouse leks and high concentration brood rearing areas
- Pinyon Juniper (big game winter ranges)
 - Place small openings into over mature stands with poor understory and deep soils
 - Maintain past investments by removing encroaching and young Pinyon and Juniper from past chainings
 - Utilize anchor chains as a method where appropriate to provide demonstration areas of properly designed and planned projects
 - Utilize exposure and cover to provide needed thermal cover
 - Careful development of natural water sources to provide free water
 - When compatible with all concerns create man made water sources (guzzlers)
 - Prescribed fire can be used to reduce fuels so natural fire cycles can be used as a tool
- Mixed conifer (big game summer ranges, Goshawk and forest grouse)
 - Evaluate remnant and potential aspen types in conifer stands through various treatments set success ional stages back to promote aspen
 - Prescribed fire can be used to reduce fuels so natural fire cycles can be used as a tool
 - Timber harvest can be used as a tool to set back the success ional process allowing productive understories to develop
 - Use conifer removal to increase free water by reducing transpiration
 - Develop water sources and protect springs and wetlands
- Aspen (big game summer ranges, Goshawk and forest grouse)
 - Develop projects that will maintain aspen types
 - Stimulate suckers to provide forage and regeneration of aspen
- Steep Talus slopes (Bighorn Sheep, raptor nest opportunities)

- Reduce shrubby and tree vegetation to increase line of sight visibility
- Projects designed to increase grass production
- Prescribed fire can be used to reduce fuels so natural fire cycles can be used as a tool
- Projects designed to increase small mammal populations for foraging raptors (large foraging areas not necessarily in cliffy areas)

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Figure 1-BBC fee title and associated BLM grazing permits

BBC Fee Title



BLM allotment boundaries

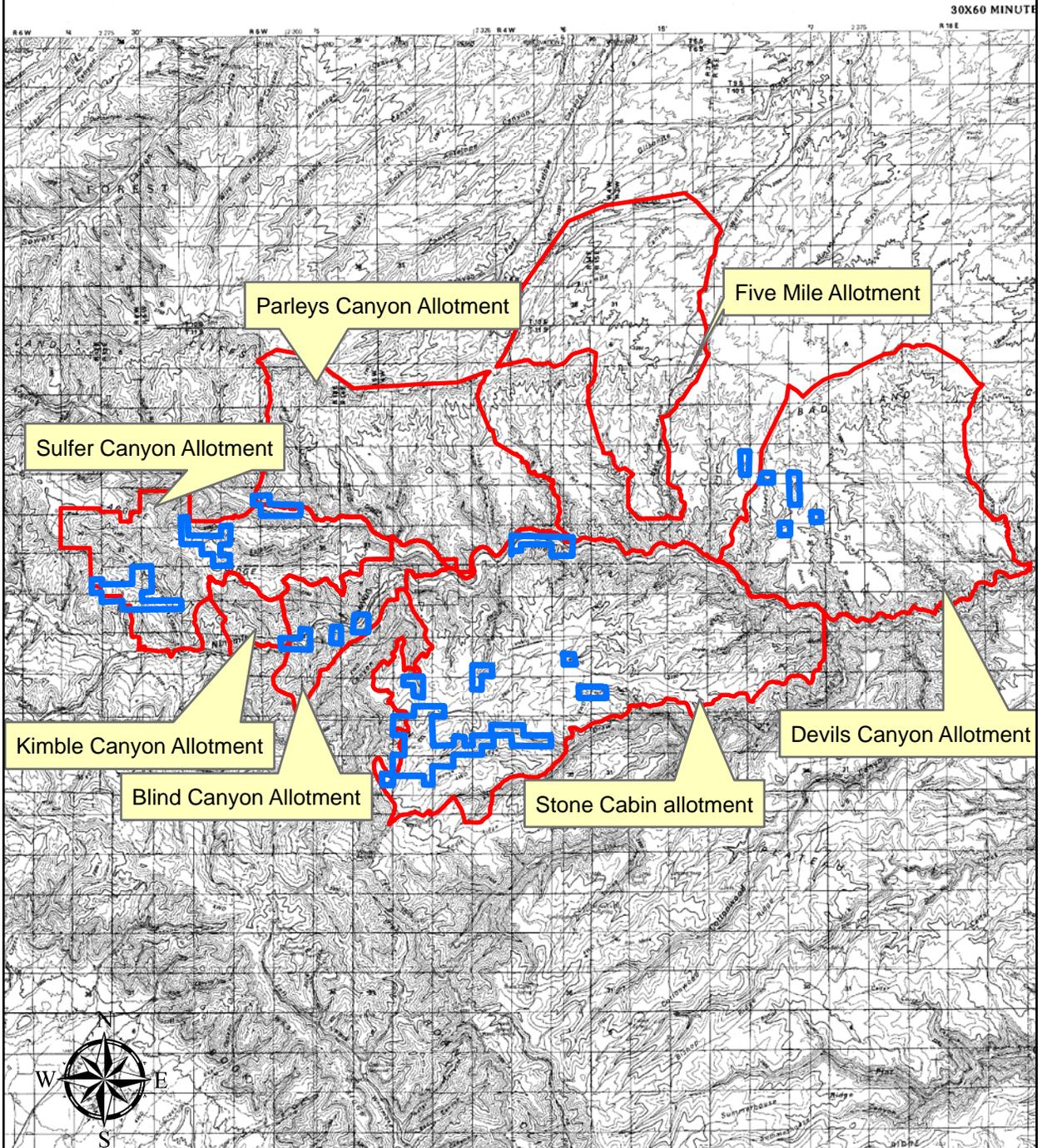
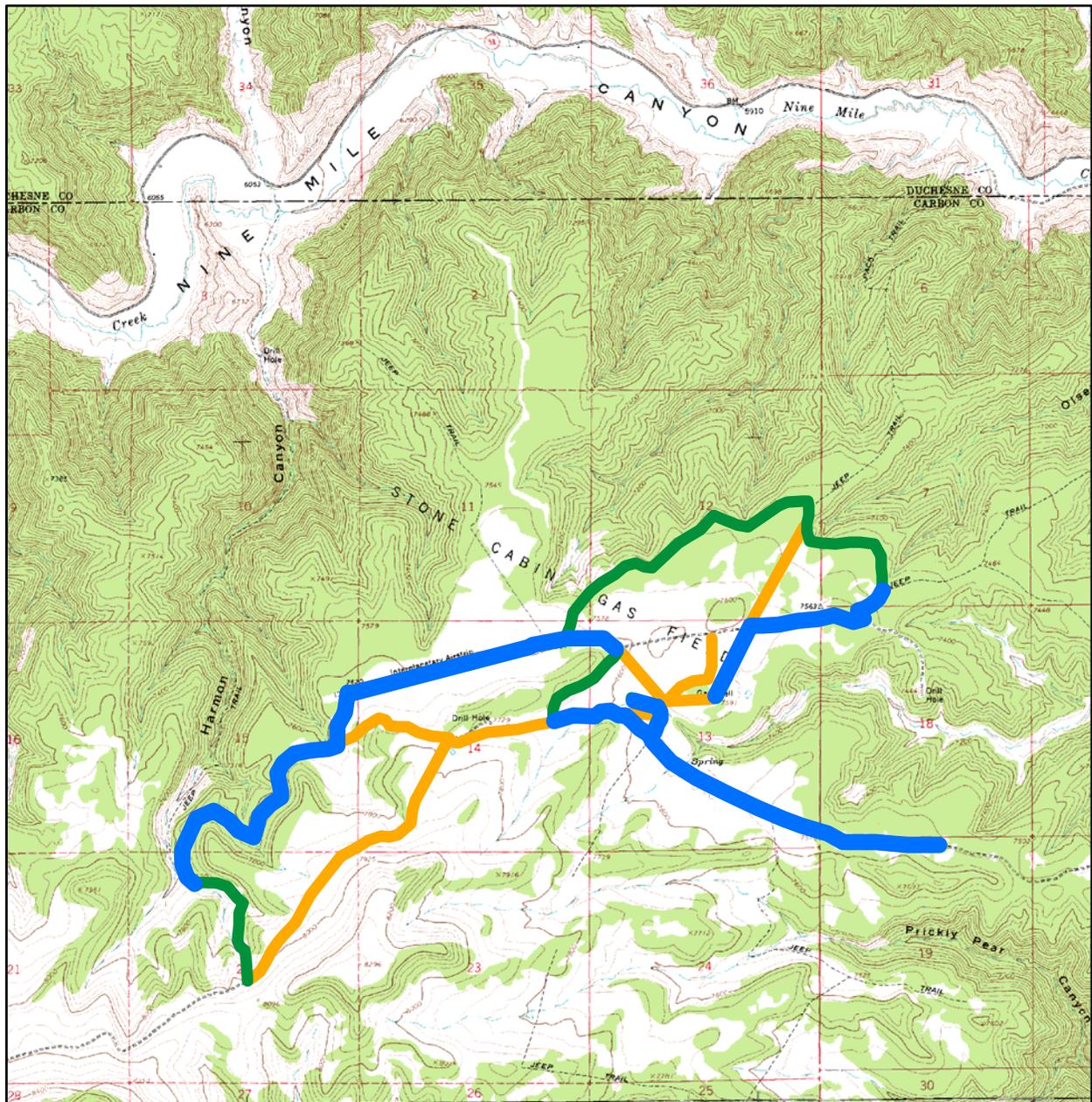


Figure 2- Prickly Pear mesa road closure and realignment



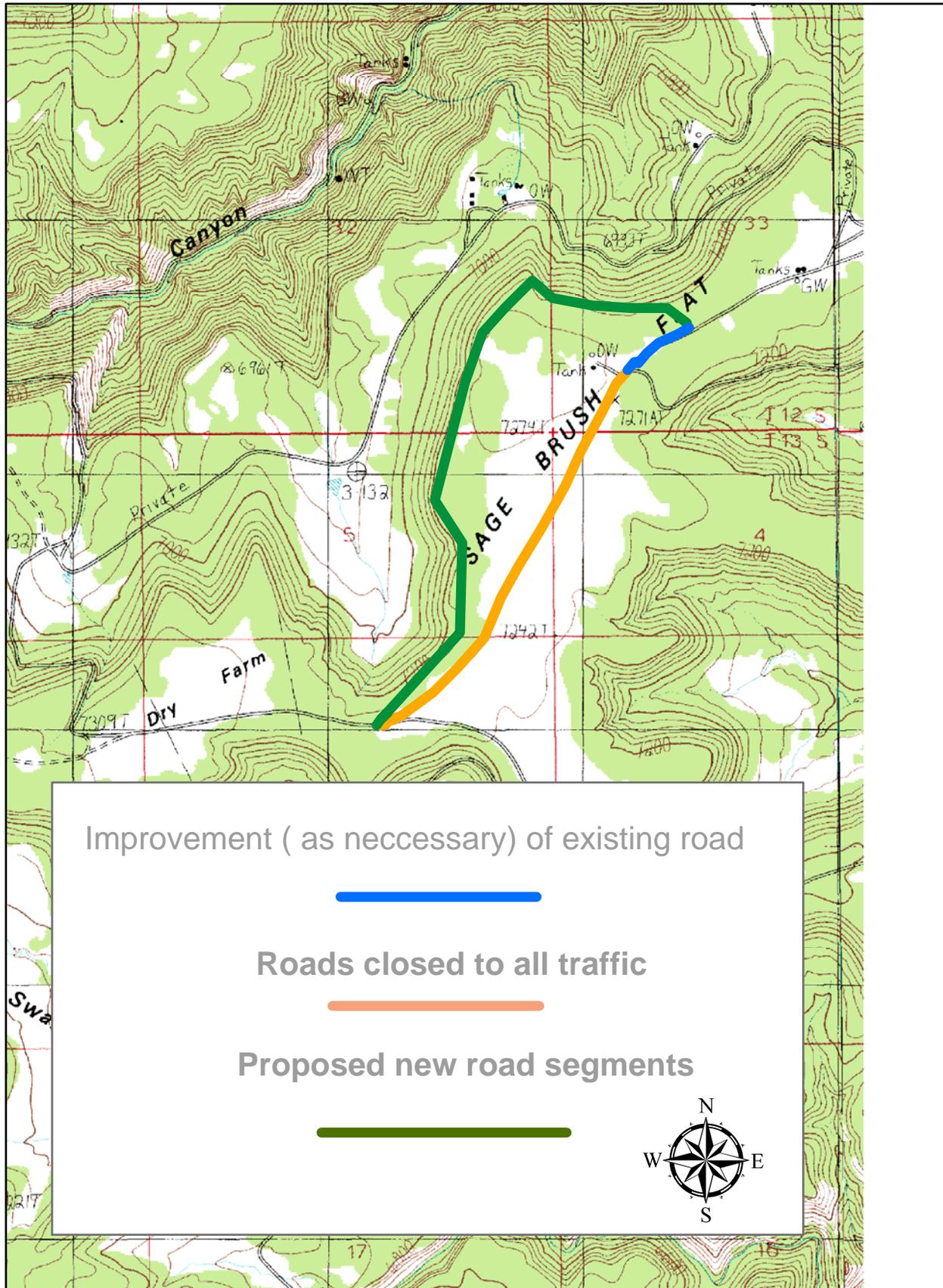
Improvement (as necessary) of existing roads

Roads closed to all traffic

Proposed new road segments



Figure 3 -Peter's Point mesa road closure and realignment



**Figure 4 -Proposed Pinyon
Juniper treatment**

