Environmental Assessment
North Grass Creek Allotment No. 00621
Livestock Grazing Permit Transfer

Location: Township. 46 N. Range 98 W. Section(s) Various/Multiple
Applicant: LU Sheep Co. C/O Mike Healy

BLM

Wind River/Bighorn Basin District – Worland Field Office

NATIONAL SYSTEM OF PUBLIC LANDS

May, 2010

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of renewing/transferring the grazing permits on the North Grass Creek Allotment. This EA is a site-specific analysis of potential impacts that could result with the implementation of the analyzed alternatives. The EA assists the BLM in planning and ensuring determination as to whether any "significant" impacts could result from the analyzed actions. An EA provides evidence for determining whether an Environmental Impact Statement (EIS) or a statement of "Finding of No Significant Impact" (FONSI) should be prepared. If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a "Finding of No Significant Impact" (FONSI) and Decision Record (DR) may be signed for the EA approving the selected alternative.

1.1 Conformance with Applicable Land Use Plan

This action is subject to the following land use plan:

Name of Plan: Grass Creek Resource Management Plan (RMP)
Date Approved: September, 1998

Remarks: The Grass Creek RMP established the following Management Objective for Livestock Grazing Management:

"Improve forage production and range condition to provide a sustainable resource base for livestock grazing while improving wildlife habitat, watershed protection, and forage for wild horses." [Page 13]

Specific livestock grazing management actions from the Grass Creek RMP, which apply to this proposed action include,

"The amounts, kinds, and seasons of livestock grazing use will continue to be authorized until monitoring indicates a grazing use adjustment is necessary, or an environmental assessment indicates that a permittee's application to change grazing use is appropriate." [Page 13]

And,

"Grazing strategies (including the timing of grazing) will be designed to accommodate the growth requirements of "desired" species within plant communities." [Page 14]

The RMP has been reviewed and it is determined that the proposed action conforms to the land use plan terms and conditions as required by Title 43 Code of Federal Regulations, part 1610.5.

1.2 Relationships to Statutes, Regulations, Policies, Plans or Other Environmental Analyses

This and other grazing related Environmental Assessments are being prepared in accordance with Washington Office (WO) Instruction Memoranda WO-IM-99-039 and 2000-022 as well as WY-IM-2000-20, which instruct all Bureau of Land Management (BLM) Field Offices to conduct National Environmental Policy Act (NEPA) review on grazing permit renewals. The primary regulations governing the analysis are 40 CFR 1500 (RE: The President's Council on Environmental Quality implementing regulations for procedural provisions of NEPA). The principal Bureau permitting regulations for livestock grazing are found in 43 CFR 4100. The principal statutes governing livestock grazing on public land are the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978.

1.3 Regulatory Decisions

The Authorized Officer (AO) must determine whether or not to issue a grazing permit to the applicant(s). The applicant for the renewal or issuance of a new grazing permit or lease, and any affiliate, shall have a satisfactory record of performance and be in substantial compliance with the terms and conditions of the existing Federal grazing permit or lease for which a new permit is sought. The AO could decide not to issue a permit, or to remove the grazing preference from the RMP grazing base, if it would cause unnecessary or undue degradation to the public lands, if it would threaten to violate another Federal law, or if the applicant has an unsatisfactory record of performance or is not in compliance with the existing permit or lease. If the AO decides to remove the grazing preference from the RMP grazing base through an RMP revision, the potential effects of removal of the grazing preference would be analyzed during the RMP revision process.

The AO must identify specific terms and conditions that apply to the permit. Livestock grazing permits and leases shall contain terms and conditions appropriate to achieve management and resource condition objectives for the public lands. These grazing permits and leases shall specify the kind and number of livestock, the period(s) of use, the allotment(s) to be used, and the amount of use, in animal unit months, for every grazing permit or lease. The authorized use shall not exceed the livestock carrying capacity of the allotment. All permits and leases shall be made subject to cancellation, suspension, or modification for any violation of these regulations or any term or condition of the permit or lease (43 CFR 4130.3). The environmental assessment will be used to identify the appropriate terms and conditions that should be included with the renewed permit.

Finally, the AO must determine whether or not implementation of the selected alternative could result in significant impact to the human environment. If not, this determination would be documented in a Finding of No Significant Impact (FONSI). If the impacts could be significant, an environmental impact statement would be necessary.

1.4 Need and Purpose of Action

NEED: This action is needed to transfer the grazing permit and to address grazing management/terms and conditions on the North Grass Creek Allotment.

PURPOSE: This action focuses on the environmental issues specific to livestock grazing management and renewing/transferring the term grazing permit associated with this allotment. The purpose of this action is to continue, modify, or cancel the current grazing management to promote healthy, sustainable rangeland ecosystems and to meet/continue to meet rangeland health standards.

The grazing permit is subject to renewal in accordance with the provisions of the Taylor Grazing Act, Federal Land Policy and Management Act, Public Rangelands Improvement Act, Administrative Procedures Act, Grass Creek Resource Management Plan/, and the grazing regulations 43 CFR Part 4100.

In order for livestock grazing to occur on public land, the livestock permittees must hold a valid grazing permit. The Code of Federal Regulations, 43 CFR 4130.2(a), states that "Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans." The Grass Creek RMP has designated the allotment as available for livestock grazing. The above mentioned applicants control base property associated with a grazing preference on the allotment and have been determined to be qualified applicants.

2.0 DESCRIPTION OF ALTERNATIVES

The Alternatives were developed based upon issues identified though internal scoping, a 30 day public scoping period, as well as through cooperation with the permittee. The alternatives were developed to address the grazing impacts on public lands within the allotments, to consider the permittee's ranching resource goals and operations as well as provide the opportunity for specific comparisons on which the decision maker could base a decision.

2.1 Alternative 1- Issue the grazing permits with no changes

Under Alternative 1, the grazing permit would be issued for a term of ten years. The grazing permit would authorize the same level of livestock grazing use as the previous grazing permit. The AUMs, season of use, and management would remain the same. The grazing permit would authorize the following livestock grazing use:

North Grass Creek Allotment No. 00621

76 Cattle 6/1-10/31 77% Public Land 294 AUMs

Other Terms and Conditions: Utilization levels on key forage species shall not exceed 50 percent of current year's growth. Allotment No. 00621-No more than 58 AUMs will be authorized for use in June.

"Grazing permit modifications (i.e., Season of Use) as well as permit transfers shall be for a period of not less than 3 years without prior approval by the authorized officer (43 CFR 4110.2-3(f) and 4130.3)."

2.2 Proposed Action - Alternative 2 - Issue grazing permit with modifications

Alternative 2 would issue a grazing permit for a term of ten years. The allocated AUMs would remain nearly the same however, as proposed by the applicant, the season of grazing use would be changed to fall/winter use. A forage utilization stipulation would be incorporated into the terms and conditions of the grazing permit as would a term allowing cattle numbers to vary within the season of use. Also, the term in Alternative 1 that states "Grazing permit modifications (i.e., Season of Use) as well as permit transfers shall be for a period of not less than 3 years without prior approval by the authorized officer (43 CFR 4110.2-3(f) and 4130.3)" shall be eliminated-it is an established regulation within the CFR and provides no direction to the grazing management of the allotment and is therefore unnecessary. A term limiting the use of off road vehicles would also be added to the permit. To comply with current policy and to account for unplanned cultural discoveries during the life of the permit, standard cultural stipulations will be added. The grazing permits would authorize the following livestock grazing use:

North Grass Creek Allotment No. 00621

64 Cattle 9/1-2/28 77% Public Land 293 AUMs

Other Terms and Conditions: Utilization levels on key forage species shall not exceed 50 percent of current year's growth.

Livestock numbers may vary so long as use is made within the defined dates of the permit and AUMs are not exceeded.

Limited cross-country vehicle travel is allowed for the purpose of maintaining existing range improvements or animal husbandry efforts if established access routes do not exist. Travel on wet or muddy roads should be avoided to prevent rutting and soil erosion. Cross-country vehicle travel off of existing routes is prohibited within any Wilderness Study Area.

The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

-whether the materials appear eligible for the National Register of Historic Places;

-the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,

-a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.

2.3 Alternative 3 - Eliminate Livestock Grazing/Remove the Preference from the Grazing Base

Under Alternative 3, no livestock grazing would be permitted on the North Grass Creek Allotment. The previous grazing permit would be cancelled. The grazing preference for the allotment would be removed from the Grass Creek RMP grazing base.

3.0 AFFECTED ENVIRONMENT

3.1 General Setting

The allotment is located approximately eleven (11) miles north of Hamilton Dome, Wyoming. The allotment is comprised of 2,348 public land acres and 648 private and state land acres for a total of 2,996 acres. Of the 2,348 public land acres 32 acres are unclassified, i.e. rock outcrop, forestland, etc. of which AUMs are not calculated for. The remaining acreage accounts for a total 2,316 (2,348 subtract 32) – Appendix 3, Table 3-4, page 249 of the GCRA RMP. The nearest BLM maintained rain gauge is approximately 3 miles east of the allotment. This gauge indicates that the area receives approximately 9 inches of precipitation per year which defines the allotment as being at the upper end of the 5-9" precipitation zone or at the lower end of the 10-14" zone. The elevation ranges from approximately 6,200 feet at the northwest area of the allotment to 5,350 feet at the southeastern area of the allotment. There are no live natural water sources/riparian resource values on the allotment. The allotment varies from rolling topography to steep rocky hills.

The following climate description is provided by US Department of Agriculture, Natural Resources Conservation Service - Ecological Site Description, a Loamy range site in the 10-14 inch precipitation zone (site ID R032XY322WY).

Annual precipitation ranges from 10-14 inches per year. The normal precipitation pattern shows the least amount of precipitation in December, January, and February, increasing to a peak during the latter part of May. Amounts decrease through June, July, and August and then increase some in September. Much of the moisture that falls in the latter part of the summer is lost by evaporation and much of the moisture that falls during the winter is lost by sublimation. Average snowfall exceeds 20 inches annually. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.

Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Winds are generally not strong as compared to the rest of the state. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool-season plants begins about April 15 and continues to about July 15. Cool weather and moisture in September may produce some green up of cool season plants that will continue to late October.

The following information is from the "Thermopolis 2" climate station:
Minimum Maximum 5 yrs. out of 10 between
Frost-free period (days): 74 149 May 23 – September 16
Freeze-free period (days): 112 180 May 8 – October 1
Annual Precipitation (inches): 7.6 21.9

Mean annual precipitation: 12.35 inches
Mean annual air temperature: 46.2 F (30.1 F Avg. Min. to 62.3 F Avg. Max.)
For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include" Grass Creek 1E", "Thermopolis", Thermopolis 25NW", "Buffalo Bill Dam" and "Black Mountain".

3.2 Hydrology/Riparian
The allotment is located within two level #6 United States Geological Survey Hydrologic Units or (HUC) watersheds.

The Lower Grass Creek watershed (HUC # 100800070608) drains 3.28 square miles of rangeland from the 45.09 total square miles of the watershed for a total of 7.2% of the watershed. There are no intermittent or perennial drainages within this watershed within this allotment. There are several ephemeral drainages that flow in direct response to rainfall and minor amounts of snowmelt in the early spring. There is a high density of drainages in the allotment that reflect the relatively dry conditions and lack of surface flow in the allotment.

The Gooseberry Creek-Gilles Draw watershed (HUC)100800070707 of which drains 1.3 square miles of rangeland from the 53.7 total square miles of the watershed for a total of 2.4% of the watershed. There are no intermittent or perennial drainages within this watershed in this allotment. There are several ephemeral drainages that flow in direct response to rainfall and minor amounts of snowmelt in the early spring. There is a high density of drainages in the allotment that reflect the relatively dry conditions and lack of surface flow in the allotment.

There is one well on the allotment that is piped to locations throughout the allotment. There are also three reservoirs that capture and store minor amounts of runoff following rain events that occur. There are no inventoried or known riparian areas or wetlands present within the allotment.

3.3 Soils

Soils in the North Grass Creek Allotment are highly variable, reflecting differences in parent material, slope and aspect. The western portion of the allotment is characterized by shallow (< 20 inches), well drained soils formed over shale and sandstone. Slopes are steep, ranging from 3 to 60 percent. These soils support a sagebrush bunchgrass plant community but production is limited due to shallow soils. In the eastern portion of the allotment, though the parent materials are similar, the soils are generally deeper and the slopes are not as extreme, generally less than 15 percent. These soils support more productive sagebrush bunchgrass plant communities.

The dominant Ecological sites are listed below:
Shallow Loamy 10-14 in. pz. (R032XY362WY)
Loamy 10-14 in. pz. (R032XY322WY)

Sandy 10-14 in. pz. (R032XY350WY)
Shallow Sandy 10-14 in. pz. (R032XY366WY)
Clayey 10-14 in. pz. (R032XY304WY)

Unless the vegetative cover has been removed through surface disturbing activities, the soils are not naturally susceptible to runoff and erosion. Based on calculations generated by the U.S. Forest Service web-based Water Erosion Prediction Project (WEPP), Disturbed WEPP model, no runoff and erosion is predicted on undisturbed sites in the sagebrush – bunchgrass plant communities, even for a 50-year storm cycle. In the western portion of the allotment where the slopes are steeper and the soils are shallower, WEPP calculations predict runoff to average 0.01 inches per year and erosion to average 0.04 tons per acre per year. In the event of a 50-year storm cycle, WEPP predicts runoff to be 0.2 inches per year with erosion increasing to 1.4 tons per acres per year on undisturbed soils; an erosion rate that is still reasonable.

3.4 Vegetation

Vegetation on the allotment includes needle-and-thread grass (key species), bluebunch wheatgrass (key species), sandberg bluegrass, sagebrush, pricklypear cactus, sedges, blue grama, western wheatgrass, winterfat, larkspur, prairie junegrass, bottlebrush squirreltail and junipers. While this listing of vegetation is far from being an "all inclusive" listing of the vegetation of the allotments it does provide a representation of vegetative species readily encountered throughout the allotment.

3.4.1 Invasive Species

The allotment is located within the Grass Creek Weed Management Area. In 2006, the allotment was inventoried and 2 small areas of invasive weeds were treated. A trace amount of cheatgrass (<1% of vegetative cover and 0% of vegetative production) was located within the permanent trend transect of the allotment in 2009.

Multiple and various treatments of undesirable species have occurred within Hot Springs County by the BLM and cooperators. Monitoring, inventory, and treatment activities will continue to occur in the future in accordance with established BLM Policy and Regulation.

3.4.2Threatened/Endangered/Sensitive Species

There are no known Threatened, Endangered, or Sensitive plant species within the allotment. As such, Threatened, Endangered, or Sensitive plant resources will not be considered in any further analysis within this document.

3.5 Range/Grazing

The North Grass Creek Allotment is utilized by only one permittee. All Animal Unit Months (AUMs) are permitted for cattle grazing. The grazing permit has 293 Active AUMs and 68 Suspended AUMs for a total Preference of 361 AUMs. A review of the record (1985 to present) indicates that for the last quarter century the allotment has been utilized by cattle only. Grazing has typically begun in late May or early June and continued into October or November. Over the 25 year period a median AUM use of 243 AUMs was determined. The high for the period was 295 (1997) and the low was 0 in 2003 during a drought and again in 2008 and 2009 when the permit was being negotiated for transfer between permittees. As currently permitted, 20% of the allocated AUMs can be utilized during the month of June which is part of the critical growing season (May and June) and the remaining 80% of AUMs can be utilized post seed ripe which usually occurs during the beginning of July. The allotment is classified as an "I" category allotment (Improve) and a permanent trend/key area was established in 1982.

In 1982, the key area indicated that the allotment was in "good" range condition. In 1999 the allotment was assessed for conformance with the Wyoming Rangeland Standards and Guidelines. The resource conditions –the standards - of the public rangelands were met. In 2009, data was collected at the key area to determine range condition. The data indicates that the allotment range conditions of the allotment have improved as the range condition score increased to 81-excellent range condition. Also, cover and key species composition has increased. A summary of the finding are found in Table 1 and 2. The monitoring indicates that the allotment uplands have maintained a vegetative component comprised of diverse and desirable native species, and that the soils are stable.

Livestock distribution is dictated by terrain, herding, livestock kind, weather, available feed, and water sources. The Allotment Map below depicts allotment fences, terrain, and developed water sources. Although there are three pastures within the allotment there is no formal rotational grazing plan the fences are used to locate cattle throughout the allotment and to utilize the allotment more uniformly.

The vegetation observed at the key area indicates that the range is at a Perennial Grass/Mixed Shrub Plant Community state. This plant community evolved with grazing and low fire frequency. It is a state that is considered to be resistant to change and well adapted to grazing according to the Natural Resource Conservation Service Ecological Site Description for a Loamy range site in the 10-14 inch precipitation zone (site ID R032XY322WY).

Table 1

Permanent Trend Transect (loamy range site)	2009 Results	1982 Results
Range Condition Score	81	66
Range Condition classification	Excellent	Good
Total Production (dry weight)	682 lbs/acre	182 lbs/acre

Range Condition Scores are based upon a 0-100 scoring system. 0-25 is poor, 26-50 is fair, 51-75 is good, and 76-100 is excellent.

Table 2

Basal Ground Cover Transects	July 21, 2009	July 20, 1982	Ecological Site Description/Ref. Sheet Expectation 10-14" Loamy
% Bare Ground	14	29.5	10-30% bare ground
% Litter	31	44	5-30% litter
% Vegetation	53	26.5	
Composition of Vegetative Hits	~62% grasses ~18% forbs ~18% shrubs <1% invasive grass	~85% grasses ~11% forbs ~4% shrubs	55-75% grasses 15% forbs 10-30% shrubs
Key species Grasses- % of grasses	Needleandthread grass = 11%	Needleandthread grass = 7.5%	
	Bluebunch wheatgrass = 24%	Bluebunch wheatgrass = 4%	

3.6 Wildlife

This allotment provides habitat for a variety of wildlife species. Antelope and mule deer can be expected throughout the allotment, year around, however the allotment is mapped as crucial winter range for the mule deer, and larger concentrations could be expected particularly in the western half of the allotment. The closest known active lek is approximately 2.5 miles east of the allotment boundary. Sagebrush habitats, primarily along the eastern edge of the allotment could support some level of sage-grouse nesting and early brood rearing. A sagebrush canopy transect was run in this eastern portion of the allotment in July of 2009 and resulted in 9% canopy cover for Artemesia tridentata var. wyomingensis, which is low compared to other preferred nesting sites in Wyoming. Another limiting factor for these potential sage-grouse nesting habitats is that they are bounded by juniper covered ridges on the west and a highway on the east inhibiting easy and safe access. This area, which comprises the eastern half of the allotment, likely provides breeding, nesting, and foraging habitat for other sagebrush obligate bird species like the sage thrasher, Brewer's sparrow and loggerhead shrike. Although they have not been documented through formal inventory efforts, these species, like the sage-grouse, are also BLM sensitive species, and are common residents of these sagebrush communities in the area, and are the only other sagebrush obligate BLM sensitive species likely to occur within this allotment. The Ferruginous hawk would be the other BLM sensitive species likely to inhabit this allotment. Other species like the badger, bobcat, and a variety of small mammals, passerines, and raptors species inhabit this allotment as well. No known threatened or endangered animal species have been documented in the allotment.

3.7 Non-renewable Resources

The area of which the North Grass Creek Allotment falls within is open to leasing and does have current oil and gas leases within it however there are no active production sites within the allotment nor are there any pending or current permits for the area. Two wells were drilled within this allotment in the 1960's but subsequently plugged and abandoned.

Because there are no active production sites within the allotment, non-renewable resources will not be considered in any further analysis within this document.

3.8 Recreation/Visual Resources

The allotment is located on BLM-administered public lands managed as an extensive recreation management area (ERMA). Recreation management is custodial and provides for minimal recreational management to address resource protection, use and user conflicts, and public health and safety. Recreational resources and associated uses are recognized in this area, but is not the primary focus or lands use within the area. The area is identified as middle-country settings where naturalness and remoteness is removed and modified by elements such as roads and facilities. Recreational opportunities exist within the allotment, but are not observed as a highly desired or popular area to recreate. Highway 120 borders the eastern edge of the

allotment, which is a popular route for destination recreation areas such as Grass Creek, Shoshone National Forest, Thremopolis, Meeteetse, Cody, and Yellowstone. Opportunities available within the allotment include hunting, sightseeing, hiking, rock hounding, driving for pleasure, wildlife viewing, and other general dispersed recreational activities. Travel and Transportation Management (TTM) manages the area as motorized use limited to existing roads and trails.

The allotment is located on BLM-administered public lands managed as Visual Resource Management (VRM) Class III. The scenic quality rating unit rated as a B and C, and sensitivity levels ranged from high to low, and classed as front country (U.S. Highway 120 as the Key Observation Point). The landscape consists of dominant rolling hills to rugged mesas scattered with a mix of vegetation which adds natural contrasts of color. Class III objectives are to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The BLM recently completed an inventory of all BLM-administered public lands containing wilderness characteristics. There are no parcels within the area that have been identified as containing wilderness characteristics.

3.9 Cultural Resources
The North Grass Creek Allotment #00621 contains two (2) recorded cultural resource sites. Both are not eligible for nomination to the National Register of Historic Places (NRHP). Other cultural resource studies indicate that the general area of the allotment has been occupied for at least 12,000 years and additional cultural resource sites should be anticipated within the allotment.

4.0 Environmental Consequences

4.1 Alternative 1- Issue Grazing Permits with no changes

4.1.1 Hydrology/Riparian
The current watershed conditions in the allotment would be maintained in their current state. The health of the watershed would depend on the amount of precipitation received during the year, ground cover, litter, and canopy provided by vegetation. The channel conditions would maintain their current conditions with occasional use of livestock during the permitted time of year and receive use by wildlife during times of year when surface water is available.

4.1.2 Soils
Alternative 1 is not anticipated to have significant impacts to the soil resource. The plant community is anticipated to maintain or improve, as monitoring as shown, thereby protecting the soil resource from erosion by wind or water influences.

4.1.3 Vegetation
A portion of the annual forage production would be removed by grazing livestock. Under Alternative 1, 20% of the active AUMs (58AUMs) could be utilized during the month of June which is part of the critical growing season of May and June for key species which are cool season bunch grasses. The remaining 80% of AUMs could be utilized post seed ripe which usually occurs during the beginning of July. The stocking rate on the allotment would vary throughout the year as depicted in the table below. Throughout the year the stocking rate is conservative when compared to the Ecological Site Description.

Stocking Rates (rounded to whole number)

	June (58 AUMS)	**July-October 31 (235 AUMs)**
Total Public Acres (2348)	40A/AUM	10A/AUM
Suitable Public Acres (2316)	40A/AUM	10A/AUM

The Ecological Site Descriptions developed specifically for the Big Horn Basin suggest a stocking rate of 3.3A/AUM for a Loamy, Perennial Grass/Big Sagebrush Plant Community (10-14” zone, Natural Resources Conservation Service –Dept. of Agriculture, 2008).

The prescribed grazing under this alternative would likely maintain or improve the upland rangeland health conditions by providing a stocking rate that is appropriate throughout the year, that defers the majority of grazing to post seed ripe and

provides for a timeframe during the critical growing season for unabated growth-the entire month of May. The prescribed grazing provides a light stocking rate of 40 A/AUM during the critical growing season which would help to ensure that the majority of the key species within the allotment would either be used lightly or not used at all during that timeframe. Plants that are grazed lightly during this timeframe would have the vegetative matter and capability to grow, produce a viable seed, and replenish energy reserves. The vast majority of the rangeland plants on public land will grow and complete a growth cycle without any domestic grazing pressure. Grazing post seed ripe would also occur at a proper stocking rate and at a time that would be least likely to cause an interruption to the plants physiological or morphological processes. After seed ripe there is little or no active plant growth that would occur because the plants would have completed the annual cycle of producing seed and the climatic conditions are often unfavorable for further substantial plant growth.

The utilization limits within the RMP varies and are as stated in Table 3-6 as follows and as pertaining to this allotment:

Average Annual Precipitation	**Appropriate Utilization for Key Forage Key Areas(1) (percentage)**	**Vegetative Community**	**Start of Spring Growth/Start of Dormancy**	**Appropriate Utilization for Plants Grazed Exclusively During the Dormant Season (percentage)**
10-14"	*30-50*	*Foothills-Mountain-Grassland/Shrub*	*May 1/October 15*	*60*

(1) Ranges in good condition or grazed partially during the dormant season can withstand the higher utilization level. Those in poor condition or those grazed during the active plant growth should receive the lower utilization limit.

In addition to the guidance provided in Table 3-6, the Grass Creek RMP states within the Record of Decision (ROD) at page 14 that "In other plant communities that are grazed during the growing season grazing strategies will be designed to allow a combined forage utilization of 30 to 50 percent of the current year's growth." Revised Table 2 (at page 43 of the Final EIS, Vol. 1) also states the same. Utilization, in accordance with the ROD at page 78, will be collected on key forage species. In this allotment the key species would be found on the loamy range site (Foothills-Mountain-Grassland/Shrub Community).

Monitoring of the allotment has shown that the range conditions are meeting the rangeland health standards and at the key area conditions have improved from "Good" to "Excellent" range condition.

Also, as stated above, the critical growing season for cool season grasses (key species) is May and June. Approximately 20% of all grazing would occur during June while 80% would occur post seed ripe- after the key species have completed a reproductive cycle but are not yet completely dormant. Approximately 10% of all permitted use would occur after October 15th -defined as the start of dormancy within Table 3-6.

Based upon the ROD, Table 2, Table 3-6, the range conditions and the fact that utilization is to be done on key species, a utilization limit of up to 50% would be considered to be appropriate and therefore implemented on the grazing permit.

4.1.3(a) Invasive Species

Grazing as described under this alternative would continue to ensure that native vegetation communities are healthy and intact. With a healthy native herbaceous community, such as that found on this allotment, there is an inherent amount of protection from invading weeds. In contrast, areas that are disturbed to the point of having exposed mineral soils present an opportunity for non-native encroachment. Areas that are commonly disturbed to a bare ground situation are the main roadways and manmade water sites. These areas may not necessarily be invaded by noxious or invasive non-native species however; given the opportunistic characteristics of many invasive species, the opportunity for such an event to occur is greater. As has been done in the past and in cooperation with local partners, the area would continue to be monitored for the presence of noxious weeds, as per the Bighorn Basin Weed Management Plan. Treatment methods for any existing or new noxious weed infestations located would be evaluated on a site specific basis.

4.1.4 Wildlife

Based on field inventories along with past, present and proposed livestock use levels, the prescribed livestock grazing proposed in this alternative should provide for the sustainability of wildlife habitats identified above in the affected environment, throughout all seasons of the year. Because there is little dietary overlap between cattle and wintering mule deer, the cattle grazing proposed in this alternative would have little direct effect on wintering mule deer use of the allotment. And the livestock use levels observed and anticipated from the grazing prescribed in this alternative, would in average years, allow for adequate amounts of herbaceous residue and litter necessary for the sagebrush obligate species nesting and brood rearing habitat needs, as well as for the long term maintenance of this plant community and all other communities providing wildlife habitat.

4.1.5 Recreation/Visual Resources
The presence of livestock and associated livestock elements and activities may interfere with the visitor's desired recreational goals, activities, experiences, and beneficial outcomes and therefore may displace users to alternative areas. Such goal interferences may include conflicts between recreationists and livestock, the impairment of solitude due to the presence of livestock operations, or impairment of the desired physical, social, and operational settings from the presence of livestock and associated operations. Historically, livestock operations have been a socially accepted land use in this area and blends with the surrounding environment. Observed recreational activities within this allotment are limited, with the exception of a possible spike in recreational presence during big game hunting season. Livestock use under this alternative will not impair recreation or associated resources. Impacts, if any, to recreation under this alternative are negligible and temporary.

Livestock operations working under the necessary tasks allowance may introduce new two tracks to the landscape; however this has not been observed or documented within the allotment. Limiting the use of motorized use off of existing roads and trails to only when it is necessary and restricting off road use during conditions such as wet soils and inclement weather where the land is susceptible to resource damage, impacts to travel management will be minimized.

Livestock operations will introduce contrasting elements of form, line, color, and texture against the surrounding natural elements. Such contrasting elements include the linear contrasts of new two-tracks created in an area devoid of such linear elements; contrasting elements of form and color created by livestock guzzlers and other watering operations and facilities; and contrasting elements of texture created by pasture and allotment fences and gates. However, these contrasting elements have been socially accepted as a part of the landscape that has historically been present in Wyoming environments, and may even be unnoticeable or obtrusive to the casual observer. Impacts to visual resources are negligible under this alternative.

BLM-administered public lands within and surrounding this allotment do not contain wilderness characteristics, so impacts to wilderness characteristics from livestock operations would not exist.

4.1.6 Cultural Resources
Alternative 1 is not expected to affect cultural resources given the fact that the rangeland health standards were met in 1999, the recent rangeland monitoring results are acceptable, and total AMUs is constant. In accordance with the Wyoming State Protocol at Appendix B.27, renewal of grazing permits where type of animals and seasons of use do not change is exempt from Class III inventory.

4.2 Proposed Action - Alternative 2- Issue grazing permit with modifications

4.2.1 Hydrology/Riparian
The current watershed conditions in the allotment would possibly improve from the current state. The health of the watershed would depend on the amount of precipitation received during the year, ground cover, litter, and canopy provided by vegetation. The channel conditions would maintain their current conditions with occasional use of livestock during the permitted time of year and receive use by wildlife during times of year when surface water is available.

4.2.2 Soils
The alternative is not anticipated to have significant impacts to the soil resource. The plant community is anticipated to improve as a result of deferring grazing until after seed ripe. Over time, these improvements will increase plant and litter cover, which will further protect the soils from the erosive forces of rain drop impact and overland flow.

4.2.3 Vegetation
A portion of the annual forage production would be removed by grazing livestock. All livestock grazing would take place post seed ripe – September through February when plants are dormant or nearly so. The stocking rate would be approximately 8A/AUM using the total acreage or 7.9 A/AUM using the suitable acreage. The stocking rate is conservative when compared to the Ecological Site Description. The Ecological Site Descriptions developed specifically for the Big Horn Basin suggest a stocking rate of 3.3A/AUM for a Loamy, Perennial Grass/Big Sagebrush Plant Community (10-14" zone, Natural Resources Conservation Service –Dept. of Agriculture, 2008).

The prescribed grazing under this alternative would likely maintain or improve the upland rangeland health conditions by providing a stocking rate that is appropriate throughout the year in addition to permitting livestock use to occur during the non-growing season use. The rangeland plants on public land will initiate growth, produce vegetative matter, produce a viable seed, and replenish energy reserves (complete the annual growth cycle May through June) without any domestic grazing pressure. Grazing post seed ripe would occur at a time that would be least likely to cause an interruption to the plants physiological or morphological processes. After seed ripe there is little or no active plant growth that would occur because the plants would have completed the annual cycle of producing seed and the climatic conditions are often unfavorable for further substantial plant growth beginning in July.

The utilization limits within the RMP varies and are as stated in Table 3-6 as follows and as pertaining to this allotment:

Average Annual Precipitation	Appropriate Utilization for Key Forage Key Areas(1) (percentage)	Vegetative Community	Start of Spring Growth/Start of Dormancy	Appropriate Utilization for Plants Grazed Exclusively During the Dormant Season (percentage)
10-14"	*30-50*	*Foothills-Mountain-Grassland/Shrub*	*May 1/October 15*	*60*

(1) Ranges in good condition or grazed partially during the dormant season can withstand the higher utilization level. Those in poor condition or those grazed during the active plant growth should receive the lower utilization limit.

In addition to the guidance provided in Table 3-6, the Grass Creek RMP states within the Record of Decision (ROD) at page 14 that "In other plant communities that are grazed during the growing season grazing strategies will be designed to allow a combined forage utilization of 30 to 50 percent of the current year's growth." Revised Table 2 (at page 43 of the Final EIS, Vol. 1) also states the same. Utilization, in accordance with the ROD at page 78, will be collected on key forage species. In this allotment the key species would be found on the loamy range site (Foothills-Mountain-Grassland/Shrub Community).

Monitoring of the allotment has shown that the range conditions are meeting the rangeland health standards and at the key area conditions have improved from "Good" to "Excellent" range condition.

Also, as stated above, the critical growing season for cool season grasses (key species) is May and June. No grazing would occur during this timeframe while 100% could occur post seed ripe- after the key species have completed a reproductive cycle and are dormant or nearly so. Approximately 76% of all permitted use would occur after October 15th -defined as the start of dormancy within Table 3-6.

Based upon the ROD, Table 2, Table 3-6, the range conditions and the fact that utilization is to be done on key species, a utilization limit of up to 50% would be considered to be appropriate and therefore implemented on the grazing permit.

4.2.3(a) Invasive Species

Grazing as described under this alternative would continue to ensure that native vegetation communities are healthy and intact. With a healthy native herbaceous community, such as that found on this allotment, there is an inherent amount of protection from invading weeds. In contrast, areas that are disturbed to the point of having exposed mineral soils present an opportunity for non-native encroachment. Areas that are commonly disturbed to a bare ground situation are the main roadways and manmade water sites. These areas may not necessarily be invaded by noxious or invasive non-native species however; given the opportunistic characteristics of many invasive species, the opportunity for such an event to occur is greater. As has been done in the past and in cooperation with local partners, the area would continue to be monitored for the presence of noxious weeds, as per the Bighorn Basin Weed Management Plan. Treatment methods for any existing or new noxious weed infestations located would be evaluated on a site specific basis.

4.2.4 Wildlife

The livestock grazing proposed in alternative 2 will also allow for the sustainability of wildlife and wildlife habitats. The reduction in growing season grazing, from alternative 1, in general, should result in enhanced herbaceous and forb communities, and enhanced distribution, particularly around watering locations. Based on field inventories along with past, present and proposed livestock use levels, the timing and amount of prescribed livestock grazing proposed in this alternative should provide for the sustainability of wildlife habitats identified above in the affected environment, throughout all seasons of the year. Because there is little dietary overlap between cattle and wintering mule deer, the cattle grazing proposed in this alternative would have little direct effect on wintering mule deer use of the allotment. And the livestock use levels observed and anticipated from the grazing prescribed in this alternative, would in average years, allow for adequate amounts of herbaceous residue and litter necessary for the sagebrush obligate species nesting and brood rearing habitat needs, as well as for the long term maintenance of this plant community and all other communities providing wildlife habitat.

4.2.5 Recreation/Visual Resources

Impacts to recreation under this alternative will be similar to those addressed under alternative 1, except that the grazing scheme may actually provide for improved visual values because, in contrast to alternative 1, the presence of livestock will be limited to the fall and winter. Recreational use will be unabated by livestock during the spring and summer when tourism of the area is at a peak. Also, hunters/recreationalist in October and November will experience a vegetative resource that has much less visual impact because livestock would have only used the allotment for one month (September) prior to hunting season. Big game hunting is a popular and important recreational use within the Bighorn Basin, and attracts many users to BLM-administered public lands from both within the region, and visitors from out of the state. Even though grazing has historically occurred during hunting season, there is always a possibility of some immeasurable degree of conflict between recreationists and livestock use which may temporarily displace some users to other areas.

Livestock operations working under the necessary tasks allowance may introduce new two tracks to the landscape; however this has not been observed or documented within the allotment. Limiting the use of motorized use off of existing roads and trails to only when it is necessary and restricting off road use during conditions such as wet soils and inclement weather where the land is susceptible to resource damage, impacts to travel management will be minimized.

As discussed above, the Impacts to visual resources will be the same or less than the impacts discussed in alternative1. Ranching operations conducted by OHV during times of wet soils could make the lands more susceptible to resource damage in the form of the creation of new two-tracks, rutting, and surface disturbance, which create a contrast against the existing surrounding natural elements. These elements may be observed or may distract the casual observers' attention away from the natural elements, but not to the degree that will dominate the visual landscape. Mitigation limiting the use of OHVs would eliminate or minimize impacts to the rangelands and would be added to the grazing permit as a Term and Condition of the grazing permit.

BLM-administered public lands within and surrounding this allotment do not contain wilderness characteristics, so impacts to wilderness characteristics from livestock operations would not exist.

4.2.6 Cultural Resources

There is a direct relationship between the rangeland health and potential effects to cultural resources. Provided rangelands remain in satisfactory condition and are not overgrazed, the potential effects to cultural resources from grazing lease renewals are expected to be minimal. Rangeland deterioration could constitute a viable threat to cultural properties. A change in season of use to fall/winter grazing will affect only those cultural properties that could be used for shelter. Alternative 2 is not expected to affect cultural resources given the fact that the rangeland health standards were met in 1999, the recent rangeland monitoring results are acceptable, total AUMs is constant, and there are no recorded cultural properties within the allotment that could be used for shelter. Affects to cultural resources are most probable in high use areas such as around water wells or bottlenecks where livestock congregate. Many of these facilities have been in place prior to the 1966 National Historic Preservation Act, thus are considered an existing disturbance. Per Section IV.D of the Wyoming State Protocol Agreement between the BLM and the State Historic Preservation Officer (SHPO), after a determination by cultural resource specialists, undertakings within previously disturbed areas are generally authorized to proceed without additional class III inventory. Away from livestock focal points, surface disturbance is minimal and impacts to cultural resources are negligible. Any and all future range development projects within the allotment will comply with the section 106 process, are subject to relevant cultural investigations prior to permit issuance, and will be analyzed under a separate and site specific EA. Because livestock grazing is a dynamic ongoing process, cultural resource specialists, in conjunction with BLM range management and the leasee, will randomly monitor and inspect heavy use areas over the life of the lease to ensure cultural resources are not being adversely impacted. Any adverse effects discovered will be mitigated accordingly at the discretion of BLM in consultation with the Wyoming SHPO.

4.3 Alternative 3 - Eliminate Livestock Grazing/Remove the Preference from the Grazing Base

4.3.1 Hydrology/Riparian

Under this alternative, watershed conditions may improve at a faster rate than under the previous alternatives. The most rapid rate of improvement in ecological condition may occur. Domestic livestock grazing would no longer affect the resource conditions of the public rangelands.

4.3.2 Soils

Under this alternative, herbaceous material would not be removed by livestock. Herbaceous production may improve when compared to alternative 1 and litter cover may increase, especially in the sagebrush – bunchgrass plant communities, and runoff and erosion rates would be reduced. In the western portion of the allotment where the slopes are steeper and the soils are shallower, these changes would be more subtle.

4.3.3 Vegetation/Range

Under this alternative, rangeland upland conditions may improve at a faster rate than under the previous alternatives. The most rapid rate of improvement in ecological condition may occur, and domestic livestock grazing would no longer affect the resource conditions of the public rangelands. In the absence of livestock grazing, no herbaceous material would be removed by livestock. The effects of domestic livestock grazing would no longer influence the plants capability to grow and reproduce. Also, domestic livestock grazing would no longer affect the amount of litter or standing plant material which does provide for raindrop interception, slows runoff and thereby increases infiltration, reducing surface temperatures and evaporation. Additionally, litter helps to maintain nutrient cycling and energy flows to support healthy biotic and abiotic systems.

4.3.3(a) Invasive Species

The possibility of noxious weeds to be introduced and/or spread by livestock and livestock management activity authorized under the grazing permit would no longer exist. However, disturbed areas associated with past livestock grazing management activities may still be present, and the opportunity for noxious weeds to be introduced and/or spread by livestock grazing on neighboring allotments, vehicular travel, waterways, wildlife movements, and other human influences would still exist on the allotments.

4.3.4 Wildlife

Livestock grazing generally occurs with some variable influence to ungulate wildlife populations, so the elimination of livestock grazing could benefit these species. That being said, it is worth noting that all of the wildlife habitats and species described above in the affected environment section have evolved with some degree of an ungulate grazing disturbance regime. In the absence of livestock grazing, any competition for forage between livestock and wildlife would be eliminated, and the public land within the allotments would be available for exclusive use by wildlife, without disturbance by the presence of livestock and by livestock management activities.

4.3.5 Recreation/Visual Resources

Recreation, travel and transportation management, and visual resources of the area would not be adversely affected by selection of this alternative. The potential for new roads or surface disturbance to be created by motorized livestock grazing management activities would not exist. In the absence of livestock grazing, healthy rangeland conditions would be maintained within the allotment. Maintaining healthy rangelands is the basis for maintaining an overall healthy landscape that provides a variety of multiple use opportunities for recreational users of the public lands. The area does not contain wilderness characteristics, but the lack of livestock operations will benefit wilderness-like characteristics under this alternative.

4.3.6 Cultural Resources

Under the No Action Alternative, the proposed grazing allotment renewal would not occur. A review of the historical records on file in the Worland Field Office indicates that Lake Creek Allotment, is not eligible for the National Register of Historic Places (36CFR§60.4(a) and (b)). No historic properties will be affected by this alternative.

The Grass Creek RMP states as a resource management objective, "Improve forage production and range condition to provide a sustainable resource base for livestock grazing while improving wildlife habitat, watershed protection, and for age for wild horses." The RMP further states, as a management action, "The amounts, kinds, and seasons of livestock grazing use will continue to be authorized until monitoring indicates a grazing use adjustment is necessary, or an environmental assessment indicates that a permittee's application to change grazing use is appropriate." Denying the renewal/transfer of this grazing permit would not be in conformance with the Grass Creek RMP and would require an RMP revision to remove the grazing preference from the RMP grazing base. No data is available to rationally support the selection of this alternative at this time.

5.0 Cumulative Impact Analysis

The lands involved in the application have historically been used for livestock grazing, wildlife habitat, and occasional recreational use. The incremental consequences identified within the alternatives, when added to other past, present, and reasonably foreseeable future actions would not significantly contribute to any Cumulative Impacts.

There is no other known existing or proposed uses or activities on or near the allotments with the potential to cause cumulative impacts with livestock grazing.

6.0 EA Preparation/Consultations

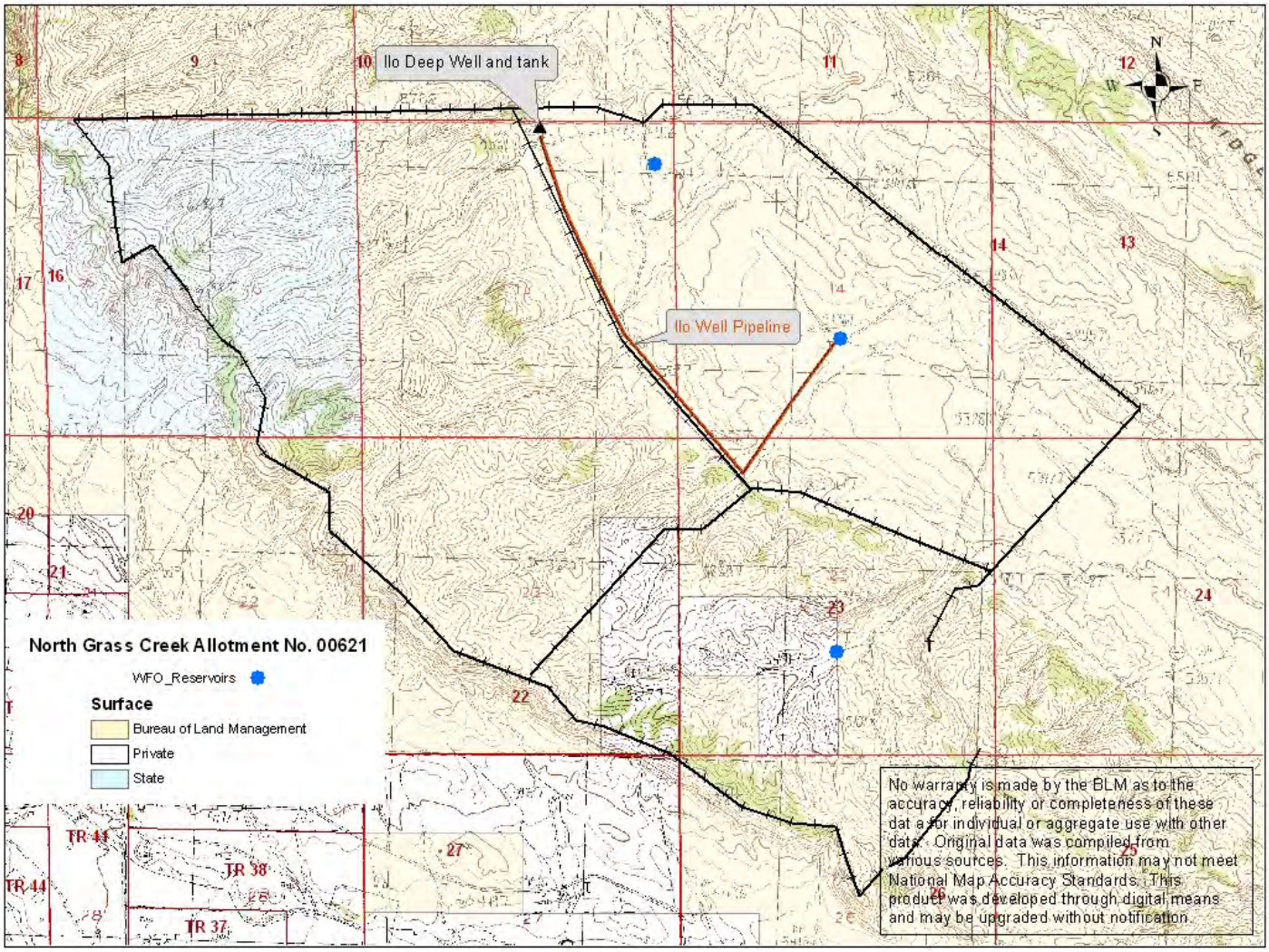
Other Persons/Agencies Consulted: LU Ranch Co., Permittee. A 30 day scoping period was made available to the public for review and to provide comments.

If the Authorized Officer determines that an alternative is to be implemented, the BLM will issue a proposed decision in accordance with 43 CFR 4160, furthering the opportunity for any affected party to make comment, provide data, or make protest prior to the Decision becoming Final.

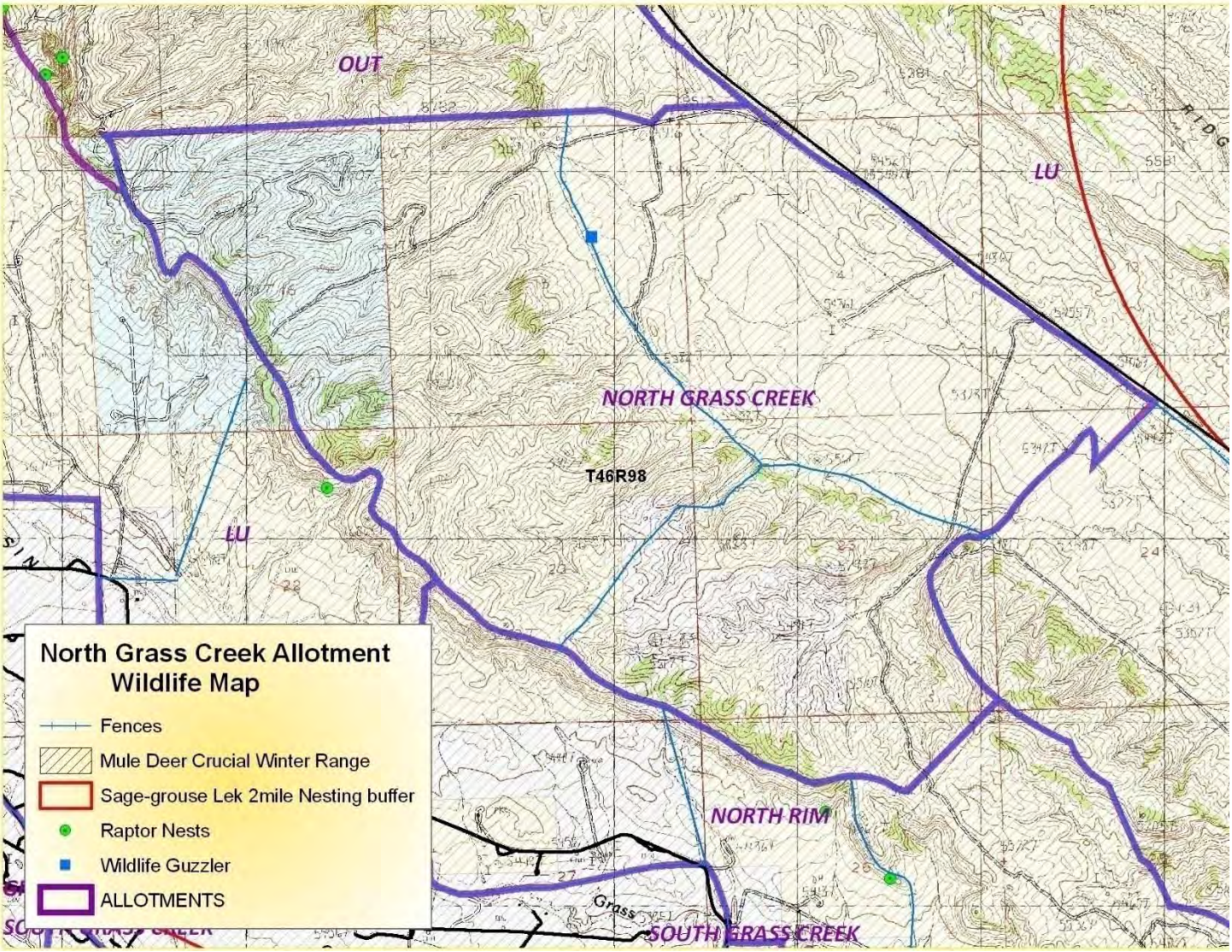
Reviewers: Karen Hepp, Rangeland Management Specialist, BLM
Tim Stephens, Wildlife Biologist, BLM
Marrit Bovee, Archaeologist, BLM
Jared Dalebout, Hydrologist, BLM
Paul Rau, Recreation, BLM
Steve Kiracofe, NRS-Soils, BLM
Holly Elliott, NRS-Oil and Gas, BLM
Jon Tietmeyer, Rangeland Management Specialist, BLM

Preparer(s): John Elliott, Rangeland Management Specialist, BLM
Date: May 25, 2010

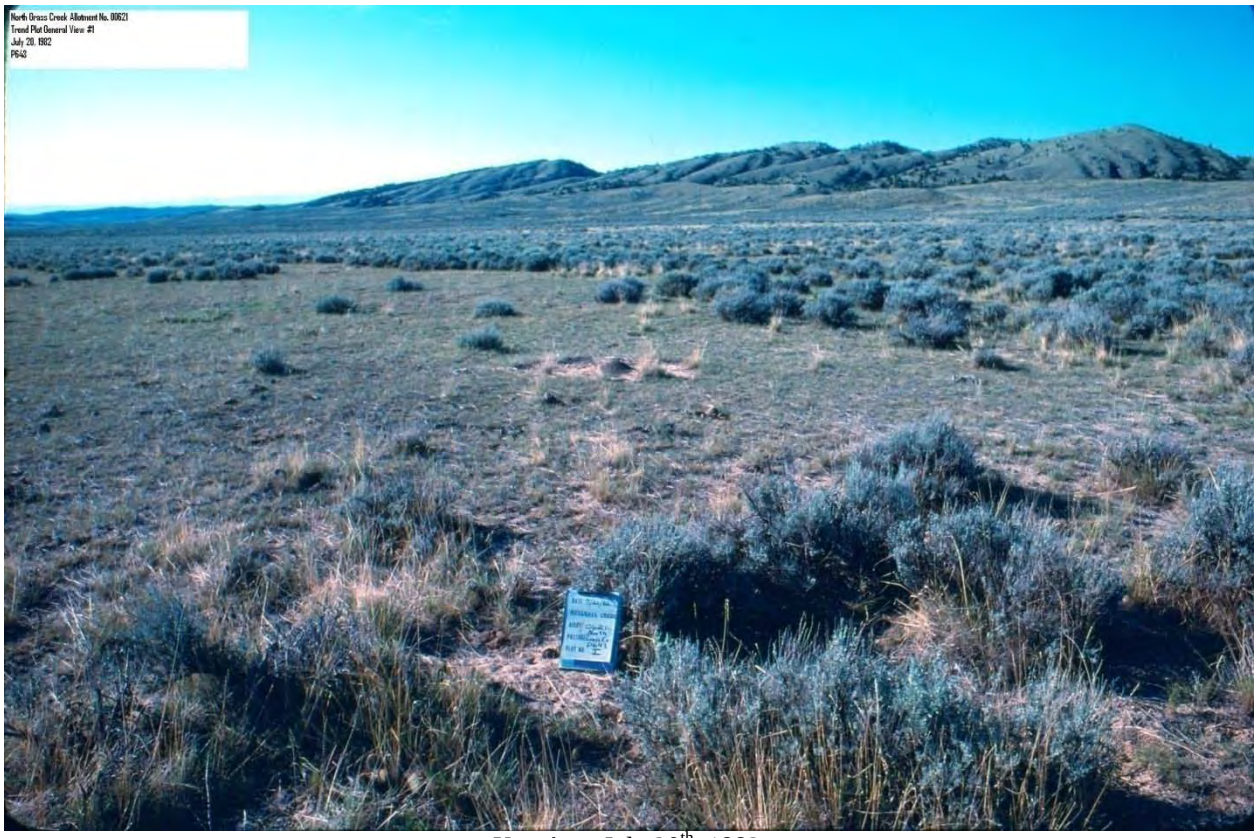
Map 1: Allotment Map



Map 2: Wildlife Habitat Areas

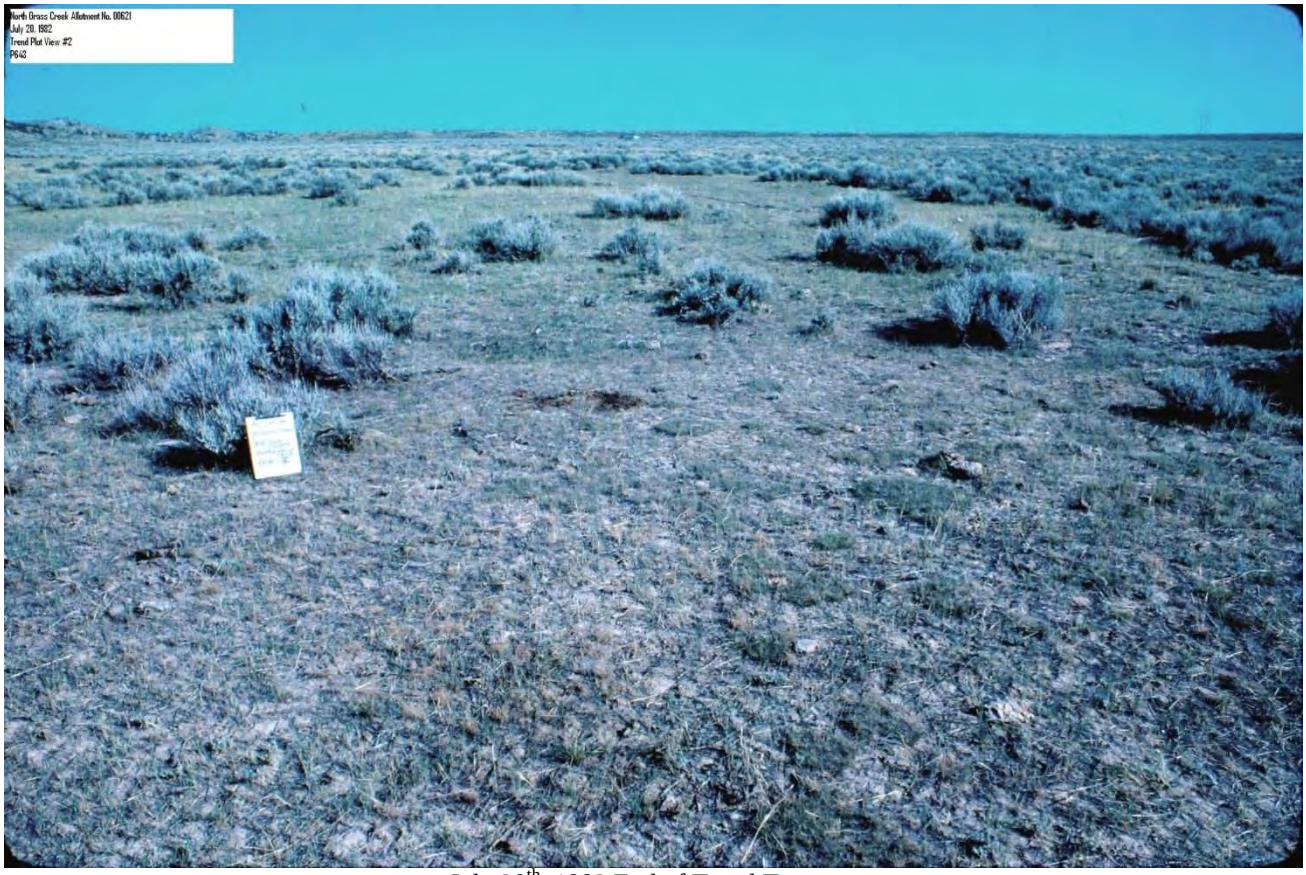


ONSITE PHOTOS

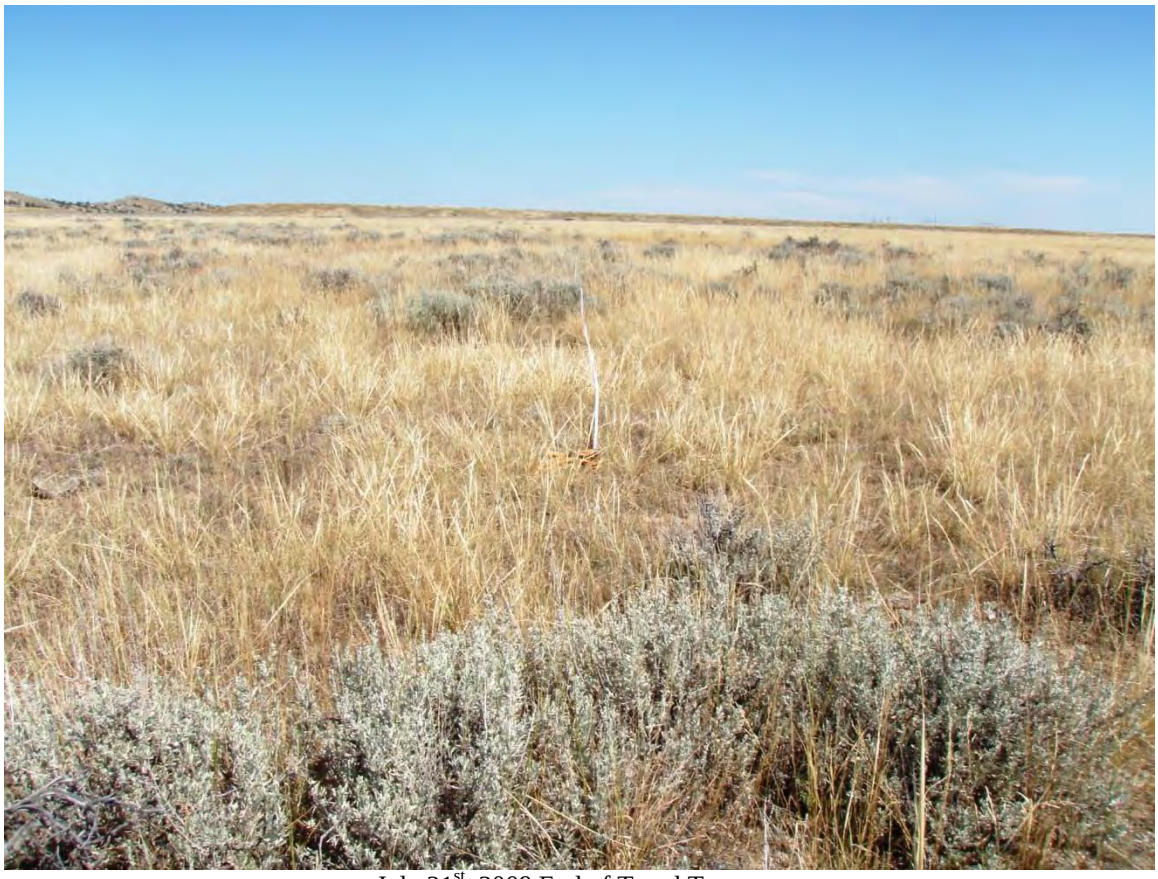


Key Area July 20th, 1982

July 21st, 2009 Key Area



July 20th, 1982 End of Trend Transect



July 21st, 2009 End of Trend Transect