

# ENVIRONMENTAL ASSESSMENT

## EAST ROSEBUD, WEST ROSEBUD, BUTCHER CREEK, RED LODGE CREEK ALLOTMENTS & BLACK BUTTE WILDLIFE HABITAT AREA

### RANGELAND PROJECT



USDA Forest Service  
Custer National Forest  
Beartooth Ranger District  
Stillwater and Carbon Counties, Montana  
T. 6 S., R. 16 & 17 E., T. 7 S., R 18 E.  
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Responsible Official - Traute Parrie, District Ranger

For Further Information Contact - Terry Jones, IDT Leader



Beartooth Ranger District  
6811 US Highway 212  
Red Lodge, Montana 59068  
(406) 446-2103



Cover photo looking southwest near the Custer Forest boundary across the Shorey Homestead and up the West Rosebud drainage.

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## **INTRODUCTION**

On July 27, 1995, Public Law 104-19 (1995 Recissions Act) became law. According to Part (a) of Section 504; each Forest shall develop and adhere to a schedule for the completion of allotment analyses and decisions as required by the National Environmental Policy Act (NEPA). Analysis must be completed on all allotments that are not in compliance with applicable laws, regulations, and *Custer National Forest Management Plan (Forest Plan)* (USDA Forest Service 1986) standards, including NEPA. The Beartooth District created an Allotment Schedule for NEPA Analysis in accordance with PL 104-19. The West Rosebud, East Rosebud, Butcher Creek and Red Lodge Creek Allotments were scheduled to go through the NEPA process between 2006 and 2008.

One of the primary purposes of this environmental assessment is to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact (40 CFR 1508.9).

## **NEED FOR ACTION**

### **PREVIOUS ENVIRONMENTAL ANALYSIS**

An environmental analysis was completed for West Rosebud Allotment and Red Lodge Creek in 1983. The East Rosebud and Butcher Creek Allotments and the Black Butte Wildlife Habitat Area have never been analyzed in the NEPA process. In 1986 the *Custer National Forest Management Plan* was approved and includes general direction for range management (USDA Forest Service 1986). Direction from the *Forest Plan* was not incorporated into previous environmental analysis for this area.

### **GRAZING PERMITS BACKGROUND**

Currently there are two permittees running livestock on the four allotments of this planning area. The Term Grazing Permits<sup>1</sup> for these Allotments are as follows:

- The *Term Grazing Permit* for the West Rosebud Allotment authorizes 175 cow/calf pairs to graze from June 15 through September 15 (not to exceed 226 AUMs), for a total of 171 head months (HMs) or 226 animal unit months (AUMs).
- The *Term Grazing Permit* for the East Rosebud Allotment authorizes 200 cow/calf pairs to graze from September 1 1 through November 15 (not to exceed 150 AUMs after Labor Day), for a total of 114 HMs or 150 AUMs.
- The *Term Grazing Permit* for the Butcher Creek Allotment authorizes 200 cow/calf pairs to graze from June 15 through September 15 (not to exceed 69 AUMs), for a total of 52 HMs or 69 AUMs.
- The *Term Grazing Permit* for Red Lodge Creek Allotment authorizes 155 cow/calf pairs to graze from August 1 through August 28, for a total of 145 HMs or 191 AUMs.
- Currently there is no grazing permit for the Black Butte Wildlife Habitat Area.

### **ALLOTMENTS LOCATION**

Allotment locations in this analysis area are (see Figure 1 - Analysis Area Allotment Location Map below):

- The West Rosebud Allotment is in Township 6 South, Range 16 East, Sections 19 - 21, and 26 - 35.

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<sup>1</sup>Term Grazing Permit = permit normally written for 10 years and provides priority for renewal to the holder (FSH 2209.13 11.11).

- The East Rosebud Allotment is in Township 6 South, Range 17 East, Section 36, Township 7 South, Range 17 East, Sections 1 - 2, 10 - 11, 14 - 15 and Township 6 South, Range 18 East, Sections 30 - 31.
- The Butcher Creek Allotment is located in Township 7 South, Range 18 East, Sections 3 - 4, and 9 - 10.
- The Red Lodge Creek Allotment is in Township 7 South, Range 18 East, Sections 2 - 3, and 10 - 11.
- The Black Butte Wildlife Habitat Area is in Township 6 South, Range 16 East, Sections 25 - 26 and 35 - 36.

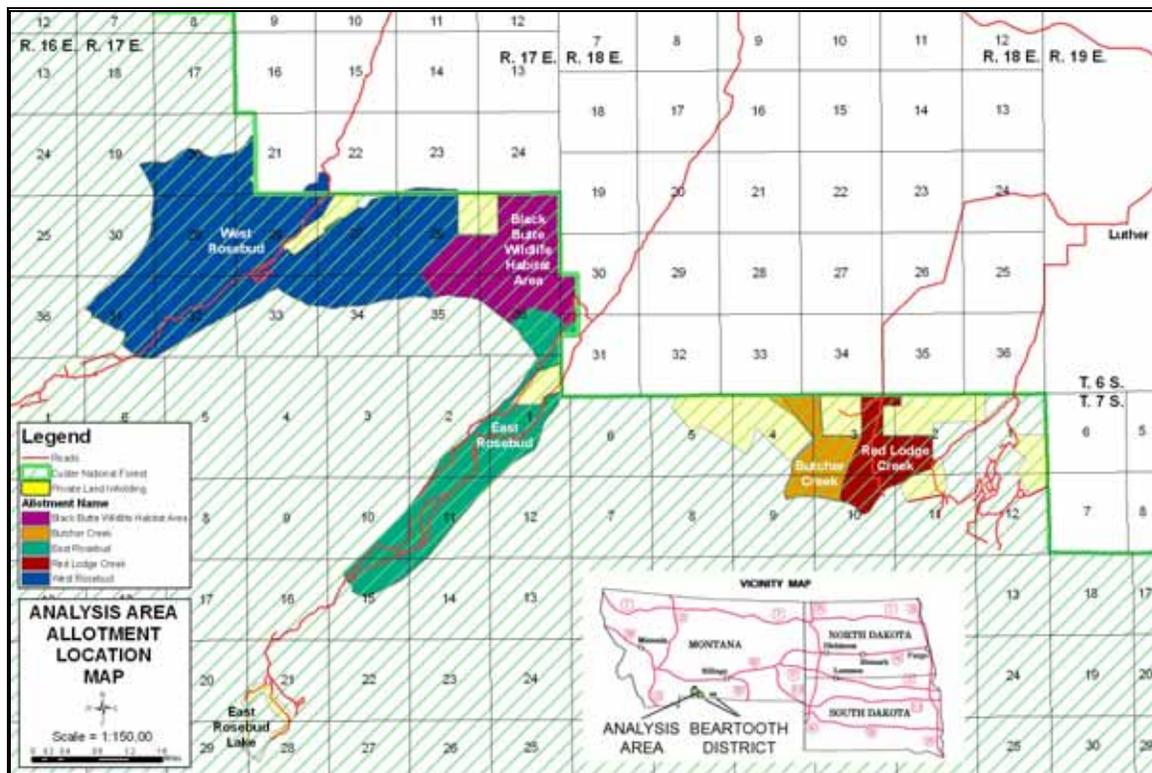


Figure 1. Analysis Area Allotment Location Map

The West Rosebud Pasture of the West Rosebud Allotment is in Stillwater Country, while most of the Morris Creek Pasture is in Carbon County. The Black Butte Wildlife Habitat Area, East Rosebud, Butcher Creek and Red Lodge Creek Allotments are all within Carbon County. These allotments are all within the Beartooth Ranger District of the Custer National Forest (see Maps 1-A, 1-B & 1-C, Custer National Forest Management Areas). The West Rosebud Allotment is accessed via the West Rosebud Road (FS 2072) from Stillwater County Road 425. The East Rosebud Allotment is accessed via the East Rosebud Road (FS 2177) from Roscoe, Montana. The Butcher Creek and Red Lodge Creek Allotments are accessed via the Red Lodge Creek Trail from the Red Lodge Creek Loop Road (FS 2141) south of Luther, Montana.

## **WEST ROSEBUD ALLOTMENT BACKGROUND**

### **ECOLOGICAL BACKGROUND**

The West Rosebud Allotment is made up of two main pastures, West Rosebud and Morris Creek with two very small pastures on either side of the Shorey Homestead private inholding that were recently fenced to exclude most of the private land from National Forest (see Map 1-A, Custer National Forest Management Areas). There are approximately 3,382 acres in the West Rosebud Allotment, of these, about 757 are suitable for livestock grazing (see Appendix I, Upland Rangeland Ecosystem Report). The suitable rangeland in the West Rosebud

Pasture is situated in the West Rosebud valley bottom at elevations between 6,200 feet to the southwest and 6,000 feet to the northeast at Reeves Lake (see Figure 2 - looking southwest up west rosebud drainage). The valley bottom is made up of a combination of low benches of dry sagebrush and grass, lodgepole pine forest, aspen, and riparian areas, most of which are well armored with rock and deciduous trees and shrubs. Noxious weeds include spotted knapweed, Canada thistle, houndstongue and meadow hawkweed, all of which are being treated for control (noxious weed management and treatment is covered in the 2006 Final Environmental Impact Statement and Record of Decision for Weed Management on the Custer National Forest).



Figure 2. Looking Southwest Up West Rosebud Drainage Across Vegetation Polygon 20871-1-27

The Morris Creek Pasture is situated in more mountainous topography with the Morris Creek drainage (and side drainages) bisecting it from southwest to northeast. Elevations range from 6,800 feet on the ridgetops to 6,100 feet where Morris Creek exits the Pasture. Southeast facing open parks are covered with sagebrush and grass, northwest facing open parks are covered with a combination of native and introduced Timothy grass. Stream drainages in the Allotment are narrow and well armored with rock and deciduous trees and shrubs. Lack of natural fire on the landscape due to fire control has allowed trees and shrubs to reduce the overall suitable range for wildlife and livestock over the past 100 years. Heavy fuel buildup in the West Rosebud drainage has set the stage for a large stand replacement fire sometime in the near future. Other than a few scattered areas with Canada thistle and houndstongue, noxious weeds are few and far between, but have not been under a control or treatment program due to lack of funding.

#### GRAZING HISTORY

According to records at the Beartooth District office, the West Rosebud Allotment has been grazed by sheep, horses and cattle during different historic periods. Sheep grazing occurred for a short time in the early 1940s and took place on the Fishtail Plateau just west of the current West Rosebud Pasture. The Allotment also previously included the whole drainage from the Mystic Lake Powerplant northeast to private land that was fenced with National Forest. From 1946 to 1970, cow/calf pairs numbered between 129 and 583 and averaged 349 head or 467 AUMs actual use during this 25 year period. Season of use was June 1<sup>st</sup> to September 30<sup>th</sup> for most of this period. In the late 1960s this Allotment was only used during the month of September and part of October. Beginning in 1976, 312 cow/calf pairs were permitted, the season of use was from September 6<sup>th</sup> - October 5<sup>th</sup>

and the permitted AUMs were 412. The 1983 grazing permit authorized 320 cow/calf pairs from September 6<sup>th</sup> - September 25<sup>th</sup> on the West Rosebud Pasture, 30 cow/calf pairs from July 1<sup>st</sup> - October 15<sup>th</sup> on the Morris Creek Pasture, 11 cow/calf pairs on the On portion of the West Rosebud On/Off<sup>2</sup>, and 3 cow/calf pairs on the On portion of the Reeves On/Off. The 1994 grazing permit authorized 500 yearling cattle from June 15<sup>th</sup> - September 10<sup>th</sup> not to exceed 281 AUMs on the West Rosebud Pasture and 85 yearling cattle from June 1<sup>st</sup> - October 15<sup>th</sup> on the On portion of the West Rosebud On/Off not to exceed 253 AUMs (this included all the On/Off area and the Morris Creek Pasture that did not have a working boundary fence at the time this permit was issued). In May of 1994 a permit modification dropped the On/Off portion of the permit (the permittee fenced most of the National Forest boundary) and added 300 to 1,000 yearling cattle from June 16<sup>th</sup> - October 15<sup>th</sup> not to exceed 90 AUMs on the Morris Creek Pasture. In 2003 another permit modification changed the use on both the West Rosebud and Morris Creek Pastures to 40 horses after Labor Day not to exceed 114 AUMs in Morris Creek Pasture and 112 AUMs in West Rosebud Pasture. This was a voluntary reduction by the permittee after the Forest Service analyzed grazing capacity of both pastures. The 2004 grazing permit authorized 40 horses from September 9<sup>th</sup> - March 31<sup>st</sup> not to exceed 226 AUMs on the West Rosebud and Morris Creek pastures combined. In March 2004, the most recent permit modification was completed in which horses were dropped and 175 cow/calf pairs were authorized from June 15<sup>th</sup> - September 15<sup>th</sup> not to exceed 226 AUMs on the West Rosebud and Morris Creek pastures combined.

Actual use as reported by the permittee shows that between 1990 and 2007, the West Rosebud Allotment was used 10 of these 18 years. The Allotment was rested from grazing for 8 years due to the permittee not owning livestock. The average number of reported actual use AUMs for the ten years that the Allotment was grazed for this period was only 153, 35% less than currently permitted AUMs. The current management plan as outlined in the most recent permit modification (2004), specifies the following: "the Annual Operating Instructions (AOI) will specify whether the livestock will be cows, cow/calf pairs, yearlings, bulls, horses, or a combination. The AOI will also specify the grazing season for the allotment and the period of use for each pasture. Generally, the turn-on date will not be before July 1<sup>st</sup>, and will never be before June 15<sup>th</sup>, to provide for range readiness of forage plants. The pastures will be rotated so that a pasture is never grazed during the same period of time two years in a row. Generally, the pasture grazed first in any given year, will be grazed last the next year, and in the middle of the rotation sequence the third year. A pasture grazed as part of this deferred rotation system will be in one of the following use periods each year: 1) early use June 15<sup>th</sup> to July 31<sup>st</sup>, 2) mid season use July 15<sup>th</sup> to August 31<sup>st</sup>, and 3) late season use August 15<sup>th</sup> to September 30<sup>th</sup>".

## CURRENT MANAGEMENT AND MANAGEMENT CONCERNS

In recent years, the permittee has made a substantial effort to improve livestock management on the West Rosebud Allotment. For the most part, utilization standards have been met and vegetation is moving toward desired conditions. The Allotment is meeting *Forest Plan* standards (see 2005 - 2007 range inspections and forage production/utilization studies on file at the Beartooth District). Range improvements, as specified in the proposed action would aid the permittee in efficiently managing the Allotment.

## **EAST ROSEBUD ALLOTMENT BACKGROUND**

### ECOLOGICAL BACKGROUND

The East Rosebud Allotment includes approximately 4.5 miles of the East Rosebud drainage, with the primary rangeland all in the valley bottom (see Map 1-B, Custer National Forest Management Areas). There are approximately 1,491 acres in the East Rosebud Allotment, of these, about 519 are suitable for livestock grazing (see Appendix I, Upland Rangeland Ecosystem Report). The entire drainage was burned in the 1996 Shepard Mountain Wildfire. Previous to the wildfire, the drainage was predominantly lodgepole pine with a few grassland parks and numerous riparian areas. The fire opened up the timbered areas, especially in the valley bottom increasing the acreage of open parks and stimulating regrowth of deciduous species such as aspen, cottonwood, willow, and chokecherry (see Figure 3 - looking southwest up east rosebud drainage). The riparian zone along the East Rosebud is well armored with rock and heavy deciduous trees and shrubs. Most of the remaining riparian vegetation has a high water table and is swampy. Noxious weeds are found mostly along the East

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<sup>2</sup> On/Off: A pasture or allotment with both federal (On) and private (Off) land.

Rosebud Road and include spotted knapweed, Canada thistle, houndstongue, leafy spurge and sulfur cinquefoil. Weed treatment has been on-going in the East Rosebud drainage for many years. Elevation ranges from 5,800 feet at the southwest boundary of the Allotment to 5,400 feet where the East Rosebud River exits the Custer National Forest boundary in the vicinity of the Black Butte Ranch subdivision.



Figure 3. Looking Southwest Up East Rosebud Drainage Across Vegetation Polygon 20842-1-14

## GRAZING HISTORY

Historically, the East Rosebud Allotment included the whole drainage on National Forest land from the Black Butte Bar Ranch subdivision to the East Rosebud Lake. Historic grazing permits authorized 50 cow/calf pairs from June 1<sup>st</sup> - October 1<sup>st</sup>. Although there were two pastures, the allotment was under season-long use. In 1955 the upper pasture that included East Rosebud Lake was removed from the main East Rosebud permit and the permitted livestock on the lower pasture (current East Rosebud Allotment) was 32 cow/calf pairs from June 1<sup>st</sup> - September 30<sup>th</sup> for 172 AUMs. Between 1956 and 1973, the average number of reported actual use AUMs was 158. Allotment records are incomplete between 1973 and 1989. Between 1990 and 2007, the average number of reported actual use AUMs for the thirteen years that the Allotment was grazed for this period was only 114, 24% less than currently permitted AUMs. During this period the Allotment was rested from grazing for five years (three in a row after the Shepard Mountain Fire in 1996). The East Rosebud Allotment was under season-long use until the Shepard Mountain Fire in 1996. Beginning with a the *Term Grazing Permit* issued in 2000, the allotment was deferred from grazing until after Labor Day to avoid conflicts with recreation use and the stocking rate was reduced from 172 to 150 AUMs (13% voluntary reduction).

## CURRENT MANAGEMENT AND MANAGEMENT CONCERNS

Since livestock grazing resumed after the 1996 Shepard Mountain Fire, the combination of late season use and post-fire vegetative recovery have improved the forage conditions for both wildlife and livestock on the East Rosebud Allotment. The permittee has improved management on the Allotment over the last seven years by keeping the fences maintained, salt distributed in good locations and some herding of livestock. Forage utilization standards have been met and vegetation is moving toward desired conditions. Based on the 2005 - 2007 range inspections and forage production/utilization studies on file at the Beartooth District, the Allotment is meeting

Forest Plan standards). Other than the temporary corral specified in the proposed action, no new range improvements are needed on this allotment to improve livestock management.

## **BUTCHER CREEK ALLOTMENT BACKGROUND**

### ECOLOGICAL BACKGROUND

The Butcher Creek Allotment is situated along the Custer National Forest boundary between two private land inholdings (see Map 1-C, Custer National Forest Management Areas). The Allotment is timbered with two forks of the East Fork of Butcher Creek on either side divided by a low ridge. Meadows and scattered parks of native grasses and non-native Timothy make up the suitable livestock range (see Figure 4 - looking northwest toward east fork of butcher creek). There are approximately 431 acres in the Butcher Creek Allotment, of these, about 101 are suitable for livestock grazing (see Appendix I, Upland Rangeland Ecosystem Report). Elevation of the primary rangeland is from 6,200 feet on the south side of the Allotment to 5,800 feet at the Custer National Forest boundary on the north. Narrow stream drainages in the Allotment are well-armored with rock and deciduous trees and shrubs. Lack of natural fire on the landscape due to fire control has allowed trees and shrubs to reduce the overall suitable range for wildlife and livestock over the past 100 years. Heavy fuel buildup in the area has set the stage for a large stand replacement fire sometime in the near future. There are a few scattered areas with Canada thistle and houndstongue. About 12 years ago sulfur cinquefoil was found on the Allotment. Early detection and treatment caught the infestation in time to prevent it from spreading and becoming a problem.



Figure 4. Looking Northwest Toward East Fork of Butcher Creek Across Vegetation Polygon 20838-1-8

### GRAZING HISTORY

Historically the grazing permit for the Butcher Creek Allotment was for 25 cow/calf pairs to graze from July 15<sup>th</sup> - September 15<sup>th</sup> for 69 AUMs. In 1994, at the request of the permittee, a high intensity - short duration grazing system was implemented. The grazing permit authorized 200 cow/calf pairs from June 15<sup>th</sup> - September 15<sup>th</sup> not to exceed 69 AUMs. This reduced the grazing season to 8 days. In 2005 when the permit was issued to a new permittee the same permitted numbers were authorized, however, the following statement was included in the terms of the permit: "livestock on the Butcher Creek Allotment will be managed under a one pasture deferred or

rest rotation grazing system with entry onto the Allotment with flexible dates each year. Generally, the Allotment will be grazed early the first year, late the next year and mid-season the third year with the flexibility to rest the Allotment once every third or fourth year. The exact dates of use will be determined annually and be authorized in the *Annual Plan of Use (Annual Operating Plan)*". Between 1990 and 2007, the average number of reported actual use AUMs for the fourteen years that the Allotment was grazed for this period was 62, 10% less than currently permitted AUMs. During this period the Allotment was rested from grazing for four years in a row between 2001 and 2004 due to drought and a change in the permittee's livestock business.

## CURRENT MANAGEMENT AND MANAGEMENT CONCERNS

Since 2005, when a new permittee started grazing the Butcher Creek Allotment, livestock handling has been the largest problem. New livestock were not accustomed to the terrain, natural barriers did not hold livestock, and distribution of forage use in a few areas was poor causing overgrazing in livestock key use areas<sup>3</sup>. According to the 2006 and 2007 production/utilization studies, the Allotment appears to be overstocked by about 20% - 30%. The permittee has made an effort to improve management on the Allotment, even as they are learning to manage grazing on the Allotment, however, it may not be possible to meet the Forest Service utilization standards in all key use areas without some reduction in AUMs. The Allotment is meeting *Forest Plan* standards in spite of the higher forage use in a few areas (see 2005 - 2007 range inspections and forage production/utilization studies on file at the Beartooth District). The division fence between the Butcher Creek Allotment and the Red Lodge Creek Allotment may have to be extended to reduce the potential for livestock to go around the fence, especially if yearling cattle are placed on the Allotment.

## **RED LODGE CREEK BACKGROUND**

### ECOLOGICAL BACKGROUND

The Red Lodge Creek Allotment is situated along the Custer National Forest boundary between three private land inholdings (see Map 1-C, Custer National Forest Management Areas). The Allotment is timbered with the West Fork of Red Lodge Creek running along the southeast side of the Allotment and several irrigation ditches that provide livestock water. Meadows and scattered parks of native grasses and introduced Timothy make up the suitable livestock range (see Figure 5. looking south up irrigation ditch overflow). There are approximately 562 acres in the Red Lodge Creek Allotment, of these, about 267 are suitable for livestock grazing (see Appendix I, Upland Rangeland Ecosystem Report). Elevation of the primary rangeland is from 6,200 feet on the south side of the Allotment to 5,850 feet at the Custer National Forest boundary on the north. The West Fork of Red Lodge Creek is well armored with rock and deciduous trees and shrubs. Lack of natural fire on the landscape due to fire control has allowed trees and shrubs to reduce the overall suitable range for wildlife and livestock over the past 100 years. Heavy fuel buildup in the area has set the stage for a large stand replacement fire sometime in the near future. Other than a few scattered areas with Canada thistle and houndstongue, noxious weeds are few and far between; some control effort has been made in the area in recent years.

### GRAZING HISTORY

Historically the grazing permit for the Red Lodge Creek Allotment included 38 cow/calf pairs from June 1<sup>st</sup> - September 15<sup>th</sup> for 178 AUMs. It also included a pasture called the Red Lodge Creek On/Off, of which approximately 6% of the unit was on National Forest for an additional 12 to 14 AUMs. The 1984 Allotment Management Plan specified a single pasture deferred rotation system with variable numbers and dates of use. This plan did not work for the permittee and was never fully implemented. In 1995 the grazing permit authorized 155 cow/calf pairs from August 1<sup>st</sup> - August 26<sup>th</sup> for 177 AUMs. When the permit was transferred to a new permittee in 2005, the Red Lodge Creek On/Off portion of the permit was dropped due to the new permittee fencing out the private land. 14 AUMs were added to the 2005 grazing permit for Red Lodge Creek Allotment for the additional 20 acres of suitable range added to the main Allotment making the total permitted AUMs 191. Between 1990 and 2007, the average number of reported actual use AUMs for the eighteen years that the

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<sup>3</sup> Livestock key use areas are generally small portions of a grazing unit or pasture that livestock have a preference to use over other areas of a grazing unit or pasture. These areas tend to be on flatter ground, near water, mineral (salt ground) and/or fence-lines.

Allotment was grazed for this period was 158, 17% less than currently permitted AUMs. During this period the Allotment was grazed mostly in the mid-season phenological plant development stage.



Figure 5. Looking South Up Irrigation Ditch Overflow Across Vegetation Polygon 20860-1-7

#### CURRENT MANAGEMENT AND MANAGEMENT CONCERNS

Since 2005, when a new permittee started grazing the Red Lodge Creek Allotment, as with the Butcher Creek Allotment, livestock handling has been the largest problem. New livestock were not accustomed to the terrain, natural barriers did not hold livestock, and distribution of forage use in a few areas was poor causing overgrazing in livestock key use areas. According to the 2005 - 2007 production/utilization studies the Allotment appears to be overstocked by about 20% - 30%. The permittee has made an effort to improve management on the Allotment even as they are learning to manage grazing on the Allotment, however, it may not be possible to meet the Forest Service utilization standards in all livestock key use areas without some reduction in AUMs. The Allotment is meeting *Forest Plan* standards in spite of the higher forage use in a few areas (see 2005 - 2007 range inspections and forage production/utilization studies on file at the Beartooth District). As specified in the proposed action, the division fence between the Butcher Creek Allotment and the Red Lodge Creek Allotment may have to be extended to reduce the potential for livestock to go around the fence, especially if yearling cattle are placed on the Allotment.

#### **BLACK BUTTE WILDLIFE HABITAT AREA BACKGROUND**

##### ECOLOGICAL BACKGROUND

The Black Butte Wildlife Habitat Area is made up of one pasture with approximately 1,184 acres of which about 601 acres are suitable for livestock grazing (see Appendix I, Upland Rangeland Ecosystem Report & Map 1-A, Custer National Forest Management Areas). It is situated between the Morris Creek Homestead and Morris Creek Pasture of the West Rosebud Allotment to the west and the northern end of the East Rosebud Allotment to the south. Elevations range from 6,300 feet at the top of the open parks to the west to 5,400 feet on the East Rosebud River. The area offers a mosaic of vegetation types including open grasslands on south, southeast, east and northeast facing slopes intermingled with aspen and shrub dominated sites with deeper soils (Figure 6 -

looking northwest toward Black Butte Wildlife Habitat Area). There are two unnamed perennial streams, one on the south side flowing southeastward, and the other on the north side flowing northeastward. Most of these stream courses are heavily armored with rock and vegetation, especially on the steeper reaches. Near the National Forest boundary to the east, where the topography flattens somewhat, there are several wetland riparian areas with open ponds. The high diversity of the topography and vegetation in the area produces high quality habitat for many wildlife species. According to the records on file at the Beartooth District, the area has not been grazed by livestock since 1968. Rest from livestock grazing initially was undoubtedly helpful in restoring the health of forage plants that were, up until 1968, grazed under season-long livestock use. In 1996, the Shepard Mountain wildfire burned all of the eastern (open grasslands) side of the area. In the past eleven years, after the fire, lack of any type of disturbance has caused grasses on the drier sites to become less robust and healthy. The plants on sites with deeper soils and better water holding capability are less affected by lack of disturbance by fire and grazing. Noxious weeds are found in a few scattered areas, mostly Canada thistle and houndstongue, however, there has not been a control program over most of the pasture to date due to lack of funding.



Figure 6. Looking Northwest Toward Black Butte Wildlife Habitat Area Across Black Butte Ranch Subdivision

## GRAZING HISTORY

Historically, the Black Butte Wildlife Habitat Area was a typical National Forest grazing allotment (Black Butte Allotment). Records show that the allotment was grazed by livestock since the creation of the National Forest (and probably was grazed previous to this as well). Between 1941 and 1968, 25 to 30 cow/calf pairs grazed generally from June 1<sup>st</sup> - September 30<sup>th</sup> for an average of 139 AUMs for this 27 year period (data is missing for one year). The last *Term Grazing Permit* issued in 1966, was for 25 cow/calf pairs from June 1<sup>st</sup> - September 30<sup>th</sup> for 134 AUMs. In 1970, the permittee gave up his grazing permit for the Black Butte Allotment. The Allotment was then closed by the Custer Forest Supervisor to manage the area as a Forest Service administrative site and for wildlife habitat. Since 1970, the area has not been used as an administrative site, except for occasional grazing by Forest Service horses during the winter months previous to the mid 1980s. The area has not been grazed by livestock since the mid 1980s.

## CURRENT MANAGEMENT AND MANAGEMENT CONCERNS

Other than a small amount of noxious weed treatment along Forest Road 21778A, the Black Butte area has received no management from the Forest Service in recent years. The potential for forage plants to become less healthy, especially on drier, shallow soil sites, due to lack of disturbance from grazing animals (and fire) exists (see Appendix I - Upland Rangeland Ecosystem Report). Properly managed livestock grazing can promote healthier forage plants in all forage vegetation types across the area, including riparian areas. The Black Butte Wildlife Habitat Area is located within Management Area B in the *Forest Plan*, an area that emphasizes livestock (USDA Forest Service 1986, page 42).

### **PURPOSE AND NEED**

The purpose and need of this proposed action is to adhere to Public Law 104-19, implement the direction in the *Custer National Forest Management Plan*, and comply with applicable laws, regulations and policies in the grazing permits that authorize livestock use on West Rosebud, East Rosebud, Butcher Creek and Red Lodge Creek Allotments and Black Butte Wildlife Habitat Area. This may require adjusting livestock management practices, stocking rates, and developing or reconstructing range improvements as determined through this environmental analysis.

### **ALTERNATIVES**

#### **ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT**

##### **WEST ROSEBUD ALLOTMENT ALTERNATIVE 1**

A *Term Grazing Permit* for the West Rosebud Allotment would not be issued and no livestock grazing would occur on this Allotment in the future.

Range improvements on the West Rosebud Allotment would be removed or abandoned as they would no longer be needed. Numerous range improvements currently exist on the West Rosebud Allotment (see Table 1 and Map 2-A, Existing & Proposed Range Improvements). The Forest Service would be responsible for removing range improvements. Removal of range improvements would be accomplished dependent upon available funding.

**TABLE 1 - WEST ROSEBUD ALLOTMENT  
EXISTING IMPROVEMENTS ESTIMATED REMOVAL COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Remove
200047A	East End Drift Fence	0.20	Miles Fence	\$1,600	\$0	\$320	\$0	\$320	2011
200047B	East End Drift Fence	0.30	Miles Fence	\$1,600	\$0	\$480	\$0	\$480	2011
200048	Pine Grove Campground Fence	1.00	Miles Fence	\$1,600	\$0	\$1,600	\$0	\$1,600	2011
200050	East Morris Creek Fence	1.10	Miles Fence	\$1,600	\$0	\$1,760	\$0	\$1,760	2011
200050A	East Morris Creek Fence	0.70	Miles Fence	\$1,600	\$0	\$1,120	\$0	\$1,120	2011
200454	Gravel Pit Fence	0.80	Miles Fence	\$1,600	\$0	\$1,280	\$0	\$1,280	2011
200455A	Emerald Lake Drift Fence	0.40	Miles Fence	\$1,600	\$0	\$640	\$0	\$640	2011
200455B	Emerald Lake Drift Fence	0.10	Miles Fence	\$1,600	\$0	\$160	\$0	\$160	2011
200055	Shorey Swamp Division Fence	0.20	Miles Fence	\$1,600	\$0	\$320		\$320	2011
-	<b>Total Miles of Fence Removal</b>	<b>4.80</b>	-	-	<b>\$0</b>	<b>\$7,680</b>	<b>\$0</b>	<b>\$7,680</b>	-

Note: Total cost estimates from 1999 *Custer National Forest Unit Costs Spreadsheet* using 2006 cost values as adjusted for inflation using the Consumer Price Index.

## EAST ROSEBUD ALLOTMENT ALTERNATIVE 1

A *Term Grazing Permit* for the East Rosebud Allotment would not be issued and no livestock grazing would occur on this Allotment in the future.

Range improvements on the East Rosebud Allotment would be removed or abandoned as they would no longer be needed. Several range improvements currently exist on the East Rosebud Allotment (see Table 2 and Map 2-B, Existing & Proposed Range Improvements). The Forest Service would be responsible for removing range improvements. Removal of range improvements would be accomplished dependent upon available funding. The Forest Service would bear the cost of removing range improvements.

**TABLE 2 - EAST ROSEBUD ALLOTMENT  
EXISTING IMPROVEMENTS ESTIMATED REMOVAL COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Remove
200021	North East Rosebud Boundary Fence (remove jack & pole fence)	0.49	Miles Fence	\$1,600	\$0	\$784	\$0	\$784	2010
200021A	Burnt Fork/Red Lodge Creek Boundary Fence (remove barbed wire fence)	0.25	Miles Fence	\$1,600	\$0	\$400	\$0	\$400	2010
200005	South East Rosebud Boundary Fence (remove jack & pole & barbed wire fence)	0.31	Miles Fence	\$1,600	\$0	\$496	\$0	\$496	2010
-	<b>Total Miles of Fence Removal</b>	<b>1.05</b>	-	-	<b>\$0</b>	<b>\$1,680</b>	<b>\$0</b>	<b>\$1,680</b>	-

Note: Total cost estimates from 1999 Custer National Forest Unit Costs Spreadsheet using 2006 cost values as adjusted for inflation using the Consumer Price Index.

## BUTCHER CREEK ALLOTMENT ALTERNATIVE 1

A *Term Grazing Permit* for the Butcher Creek Allotment would not be issued and no livestock grazing would occur on this Allotment in the future.

The range improvement on the Butcher Creek Allotment would be removed or abandoned as it would no longer be needed (see Table 3 and Map 2-C, Existing & Proposed Range Improvements). The Forest Service would be responsible for removing this range improvement. Removal of this improvement would be accomplished dependent upon available funding.

**TABLE 3 - BUTCHER CREEK ALLOTMENT  
EXISTING IMPROVEMENTS ESTIMATED REMOVAL COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Remove
200001B	Butcher Creek/Red Lodge Creek Fence (remove barbed wire fence)	0.20	Miles Fence	\$1,600	\$0	\$320	\$0	\$320	2010
-	<b>Total Miles of Fence Removal</b>	<b>0.20</b>	-	-	<b>\$0</b>	<b>\$320</b>	<b>\$0</b>	<b>\$320</b>	-

Note: Total cost estimates from 1999 Custer National Forest Unit Costs Spreadsheet using 2006 cost values as adjusted for inflation using the Consumer Price Index.

## RED LODGE CREEK ALLOTMENT ALTERNATIVE 1

A *Term Grazing Permit* for the Red Lodge Creek Allotment would not be issued and no livestock grazing would occur on this Allotment in the future.

Range improvements on the Red Lodge Creek Allotment would be removed or abandoned as they would no longer be needed. Several range improvements currently exist on the Red Lodge Creek Allotment (see Table 4 and Map 2-C, Existing & Proposed Range Improvements). The Forest Service would be responsible for removing

range improvements. Removal of range improvements would be accomplished dependent upon available funding.

**TABLE 4 - RED LODGE CREEK ALLOTMENT  
EXISTING IMPROVEMENTS ESTIMATED REMOVAL COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Remove
200001A	Butcher Creek/Red Lodge Creek Fence (remove barbed wire fence)	0.20	Miles Fence	\$1,600	\$0	\$320	\$0	\$320	2010
20007A	Burnt Fork/Red Lodge Creek Boundary Fence (remove barbed wire fence)	0.20	Miles Fence	\$1,600	\$0	\$320	\$0	\$320	2010
200005	Red Lodge Creek Drift Fence (remove pole fence 7 steel gate)	0.10	Miles Fence	\$1,600	\$0	\$160	\$0	\$160	2010
-	<b>Total Miles of Fence Removal</b>	<b>0.50</b>	-	-	<b>\$0</b>	<b>\$800</b>	<b>\$0</b>	<b>\$800</b>	-

Note: Total cost estimates from 1999 Custer National Forest Unit Costs Spreadsheet using 2006 cost values as adjusted for inflation using the Consumer Price Index.

**BLACK BUTTE WILDLIFE HABITAT AREA ALTERNATIVE 1**

As is currently the case, no livestock grazing would be authorized on the Black Butte Wildlife Habitat Area. There are no range improvements within the Black Butte Wildlife Habitat Area.

**ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

**WEST ROSEBUD ALLOTMENT ALTERNATIVE 2**

**LIVESTOCK PERMIT**

Alternative 2 would continue current management practices through the issuance of a new *Term Grazing Permit* for a ten year period. As is currently the case, the new grazing permit for the West Rosebud Allotment would authorize 175 cow/calf pairs to graze from June 15 through September 15 (not to exceed 226 AUMs) at 2.2 acres/AUM West Rosebud Pasture and 1.7 acres/AUM Morris Creek Pasture.

**LIVESTOCK MANAGEMENT**

The Allotment would continue to be managed under a two pasture deferred rotation system with maintenance of existing range improvements (see West Rosebud Allotment Range Improvement Table 1 above under Alternative 1 for existing range improvements and Map 2-A, Existing & Proposed Range Improvements). Grazing would continue to take place as displayed in Tables 5 - 7 below (exact dates of pasture use would be authorized through the Annual Operating Instructions).

**TABLE 5 - WEST ROSEBUD ALLOTMENT - YEAR 1**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Morris Creek	15	8/18	9/1	114
West Rosebud	14	9/2	9/15	112
<b>Totals</b>	<b>29</b>	-	-	<b>NTE 226</b>

**TABLE 6 - WEST ROSEBUD ALLOTMENT - YEAR 2**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Morris Creek	15	7/18	8/1	114
West Rosebud	14	8/2	8/15	112
<b>Totals</b>	<b>29</b>	-	-	<b>NTE 226</b>

**TABLE 7 - WEST ROSEBUD ALLOTMENT - YEAR 3**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Morris Creek	15	6/15	6/29	114
West Rosebud	14	6/30	7/14	112
<b>Totals</b>	<b>29</b>	-	-	<b>NTE 226</b>

Year 4 - Repeat Year 1

**EAST ROSEBUD ALLOTMENT ALTERNATIVE 2**

**LIVESTOCK PERMIT**

Alternative 2 would continue current management practices with the issuance of a new *Term Grazing Permit* for a ten year period. As is currently the case, the new grazing permit for the East Rosebud Allotment would authorize 200 cow/calf pairs to graze from September 1 through November 15 (not to exceed 150 AUMs after Labor Day) at 3.5 acres/AUM.

**LIVESTOCK MANAGEMENT**

The Allotment would continue to be managed under a late season use system with maintenance of existing range improvements (see East Rosebud Allotment Range Improvement Table 2 above under Alternative 1 for existing range improvements and Map 2-B, Existing & Proposed Range Improvements). Grazing would continue to take place as displayed in Table 8 below (exact dates of pasture use would be authorized through the Annual Operating Instructions).

**TABLE 8 - EAST ROSEBUD ALLOTMENT - YEAR 1 AND BEYOND**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
East Rosebud	17	variable dates	variable dates	150
<b>Totals</b>	<b>17</b>	-	-	<b>NTE 150</b>

NTE = not to exceed

**BUTCHER CREEK ALLOTMENT ALTERNATIVE 2**

**LIVESTOCK PERMIT**

This Alternative would continue current management practices with the issuance of new *Term Grazing Permit* for a ten year period. As is currently the case, the new grazing permits for the Butcher Creek Allotment would authorize 200 cow/calf pairs to graze from June 15 through September 15 (not to exceed 69 AUMs) at 1.1 acres/AUM.

**LIVESTOCK MANAGEMENT**

The Allotment would continue to be managed under a one pasture high intensity/short duration deferred rotation system (with the flexibility to rest the Allotment every third or fourth year) with maintenance of existing range improvements (see Butcher Creek Allotment Range Improvement Table 3 above under Alternative 1 for existing range improvements and Map 2-C, Existing & Proposed Range Improvements). Grazing would continue to take place as displayed in Tables 9 - 11 below (exact dates of pasture use would be authorized through the Annual Operating Instructions).

**TABLE 9 - BUTCHER CREEK ALLOTMENT - YEAR 1**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Butcher Creek	8	8/15	9/15	69
<b>Totals</b>	<b>8</b>	-	-	<b>NTE 69</b>

**TABLE 10 - BUTCHER CREEK ALLOTMENT - YEAR 2**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Butcher Creek	8	8/1	8/8	69
<b>Totals</b>	<b>8</b>	-	-	<b>NTE 69</b>

**TABLE 11 - BUTCHER CREEK ALLOTMENT - YEAR 3**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Butcher Creek	8	6/16	6/23	69
<b>Totals</b>	<b>8</b>	-	-	<b>NTE 69</b>

Year 4 - Repeat Year 1 or Rest

**RED LODGE CREEK ALLOTMENT ALTERNATIVE 2**

**LIVESTOCK PERMIT**

Alternative 2 would continue current management practices with the issuance of a new *Term Grazing Permit* for a ten year period. As is currently the case, the new grazing permit for the Red Lodge Creek Allotment would authorize 155 cow/calf pairs to graze from August 1 through September 28 (not to exceed 191 AUMs) at 1.2 acres/AUM.

**LIVESTOCK MANAGEMENT**

The Allotment would continue to be managed under a single pasture mid to late season system with maintenance of existing range improvements (see Red Lodge Creek Allotment Range Improvement Table 4 above under Alternative 1 for existing range improvements and Map 2-C, Existing & Proposed Range Improvements). Grazing would continue to take place as displayed in Table 12 below (exact dates of pasture use would be authorized through the Annual Operating Instructions; the AOI documents exactly how the grazing allotment or area is to be used on any given year).

**TABLE 12 - RED LODGE CREEK ALLOTMENT - YEAR 1 AND BEYOND**

Pasture Name	Total Days of Grazing	Livestock On Date	Livestock Off Date	No. of AUMs Permitted
Red Lodge Creek	28	variable dates	variable dates	191
<b>Totals</b>	<b>28</b>	-	-	<b>NTE 191</b>

NTE = not to exceed

**BLACK BUTTE WILDLIFE HABITAT AREA ALTERNATIVE 2**

As is currently the case, no livestock grazing would be authorized on the Black Butte Wildlife Habitat Area.

**ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

This proposed action includes the following:

- Bring the Allotments into compliance with the *Custer National Forest Plan* standards and guidelines.

- Bring the Allotments into compliance with federal and state laws and regulations (Endangered Species Act, Clean Water Act, National Historic Preservation Act, etc.).
- Continue livestock grazing on the Allotments with stocking rate adjusted according to proper use capacity of the forage resource while providing for other resource objectives (wildlife habitat, watershed, cultural resources, etc.).
- Provide additional grazing permit terms and conditions that control livestock, improve vegetation condition and riparian area function. This would be accomplished by adjusting the stocking rate, implementing an improved deferred rotation grazing system and increasing the intensity of livestock management practices where appropriate.
- Provide light grazing of livestock (forage utilization in key livestock use areas not to exceed 40%) in the Black Butte Wildlife Habitat Area to maintain the health of forage plants and enhance forage palatability for wildlife using a rest rotation grazing system.

## WEST ROSEBUD ALLOTMENT PROPOSED ACTION

### LIVESTOCK PERMIT

Livestock grazing would take place under management direction contained in *Part Three, Special Terms and Conditions*, of the new *Term Grazing Permit (Allotment Management Plan)*. The new grazing permit for the West Rosebud Allotment would authorize up to a maximum of 226 AUMs at 3.3 acres/AUM (no reduction).

### LIVESTOCK MANAGEMENT

The Annual Operating Instructions would specify whether the livestock would be cows, cow/calf pairs (c/c), yearlings (yrlgs), bulls, horses, or a combination. The AOI would also specify the grazing season for the allotment and the period of use for each pasture. Generally, the turn-on date would not be before July 1<sup>st</sup>, and would never be before June 15<sup>th</sup>, to provide for range readiness of forage plants. The pastures would be rotated so that a pasture is never grazed during the same period of time two years in a row. Generally, the pasture grazed first in any given year, would be grazed last the next year, and in the middle of the rotation sequence the third year. The grazing period of any given pasture would never be more than 30 days per season. Number/class of livestock and dates of pasture use would be authorized through the AOI. Table 13 shows an example of one possible scenario for the use of the West Rosebud Allotment before all proposed range improvements have been constructed.

**TABLE 13 - WEST ROSEBUD ALLOTMENT DEFERRED ROTATION GRAZING  
EXAMPLE SCENARIO PRE IMPROVEMENT CONSTRUCTION**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season Of Use	Permitted AUMs	% Permitted AUMs
Morris Creek	175 c/c	14	9/1 - 9/15	Late	106	47%
West Rosebud	175 c/c	15	9/16 - 9/30	Late	120	53%
<b>Totals</b>	<b>175 c/c</b>	<b>29</b>	<b>-</b>	<b>-</b>	<b>NTE 226</b>	<b>100%</b>

NTE = not to exceed

After construction of all range improvements described in Table 16 below, management direction would include a livestock rotation schedule utilizing a modified five pasture deferred rotation system. The five pastures would be grazed in the following order to facilitate efficient livestock movement between pastures: 1) Morris Creek, 2) Gravel Pit, 3) West Rosebud, 4) Shorey Jungle, and 5) Shorey Swamp. A pasture grazed as part of this deferred rotation system would be in one of the following use periods each year: 1) early use June 15<sup>th</sup> to July 31<sup>st</sup>, 2) mid season use July 15<sup>th</sup> to August 31<sup>st</sup>, or 3) late season use August 15<sup>th</sup> to September 30<sup>th</sup>. The rotation system

would require that the grazing sequence of all pastures combined provide for early season use one year, late season use the next, and mid season use the third year. This deferment would allow for recovery of leaf and root volume during the critical growth periods. It would also allow for forage plants to attain seed set stage on over 50 to 75 percent of West Rosebud Allotment each grazing season. The number/class of livestock and dates of the rotation would be flexible depending on the planned use within the pastures on adjoining private land, but would never be more than 30 days per season. Table 14 shows an example of one possible scenario for the use of the West Rosebud Allotment after all proposed range improvements have been completed.

**TABLE 14 - WEST ROSEBUD ALLOTMENT DEFERRED ROTATION GRAZING  
EXAMPLE SCENARIO POST IMPROVEMENT CONSTRUCTION**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season of Use	Permitted AUMs	% Permitted AUMs
Morris Creek	175 c/c	11	7/1 - 7/11	Early	84	37%
Gravel Pit	175 c/c	1	7/12 - 7/12	Early	11	5%
West Rosebud	175 c/c	13	7/13 - 7/25	Early	95	42%
Shorey Jungle	175 c/c	2	7/26 - 7/27	Early	18	8%
Shorey Swamp	175 c/c	2	7/28 - 7/29	Early	18	8%
<b>Totals</b>	<b>175 c/c</b>	<b>29</b>	<b>-</b>	<b>-</b>	<b>NTE 226</b>	<b>100%</b>

NTE = not to exceed

Management intensity to improve livestock distribution would be increased through herding and improved mineral distribution (salting away from water sources, fence-lines, and other key livestock use areas). When utilization approaches 55% in livestock key use areas (not to exceed 60% in key use areas primarily composed of timothy grass), the permittee would be required to either herd livestock daily away from these areas, use temporary electric fence to exclude livestock from these key use areas, or move livestock off the pasture or allotment earlier than planned for that particular grazing season.

In order to enhance palatability of forage species for big game, a periodic high disturbance or flash vegetation treatment would be allowed through the use of high stock density/short duration grazing. The current permittee does not own a large enough permitted cow/calf herd to provide this type of vegetation treatment. To accommodate this type of treatment, the permittee would take non-use of their *Term Grazing Permit* for one grazing season out of every 5 to 6 years and apply for a *Temporary Grazing Permit*. This would allow owned, leased and/or managed livestock to be authorized in order to run a higher number of animals for the proposed flash grazing treatment. For example, between 2,000 and 2,500 cattle would graze the West Rosebud and/or the Morris Creek Pastures for a period of 1 to 2 days every 5 or 6 years. The treatment would occur soon after Labor Day to minimize the potential conflict with recreation use, especially in the West Rosebud drainage. Daily herding of livestock would be required to avoid livestock overusing forage near fences and impacting riparian areas. On the ground monitoring would be required by the permittee and/or Forest Service to insure that vegetation objectives were met. If objectives are not met using high stock density/short duration grazing, then it would not be used again. Table 15 shows an example of one possible scenario for the use of the West Rosebud Allotment with high intensity/short duration flash grazing.

**TABLE 15 - WEST ROSEBUD ALLOTMENT FLASH GRAZING  
EXAMPLE SCENARIO POST IMPROVEMENT CONSTRUCTION**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season of Use	Permitted AUMs	% Permitted AUMs
Morris Creek	2,000 yrlds	1.5	9/5 - 9/6	9/5	84	37%
Gravel	no use	0	-	-	11	5%

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season of Use	Permitted AUMs	% Permitted AUMs
Pit						
West Rosebud	2,000 yrlds	1.5	9/6 – 9/7	Early	95	42%
Shorey Jungle	no use	0	-	-	18	8%
Shorey Swamp	no use	0	-	-	18	8%
<b>Totals</b>	<b>2,000 c/c</b>		-	-	<b>NTE 226</b>	<b>100%</b>

NTE = not to exceed

## RANGE IMPROVEMENTS

Several existing old fences would be removed, while other existing fences would be extended in order to create additional viable pastures. Several electric fences would be converted to barbed wire. The Gravel Pit Pasture would be reconfigured to include all the ground northwest of the Shorey Homestead (private land) and northeast of the West Rosebud Pasture. The Pinegrove Campground Fence and Emerald Lake Drift Fence would be converted from electric fence to barbed wire. The southeast end of the Emerald Lake Drift Fence would be moved to exclude livestock from a small stream and dispersed campsite. The Pinegrove Campground Fence would be extended to completely enclose the campground and allow for easy trailing of livestock on a new stock driveway to be constructed in the timber just southeast of the campground. The newly constructed West Rosebud Stock Driveway would run from an open grassland park ½ mile southwest of the campground, northeast through the Shorey Jungle and Shorey Swamp Pastures. The driveway would be created by cutting trees and brush about 10 feet wide by 8 feet high, there would be no ground disturbing trail construction. An existing old fence, Shorey Swamp Division Fence, would be reconstructed to separate the Shorey Jungle and Shorey Swamp Pastures. Table 16 displays the type, cost, and construction schedule for range improvements that would be required under this proposed action (see Map 2-A, Existing & Proposed Range Improvements).

**TABLE 16 - WEST ROSEBUD ALLOTMENT PROPOSED RANGE IMPROVEMENTS, ESTIMATED COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Build <sup>^</sup>
200454	Gravel Pit Fence (remove barbed wire fence)	0.80	Miles Fence	\$0	\$1600	\$0	\$1,280	\$1,280	2010
200047B	East End Drift Fence (remove old wires)	0.30	Miles Fence	\$0	\$800	\$0	\$240	\$240	2010
200048	Pinegrove Campground Fence (remove electric fence)	1.00	Miles Fence	\$0	\$800	\$0	\$800	\$800	2011
200455A & B	Emerald Lake Drift Fence (remove electric fence wire)	0.50	Miles Fence	\$0	\$800	\$0	\$400	\$400	2011
-	<b>Total Miles of Fence Removal</b>	<b>2.60</b>	-	-	-	<b>\$0</b>	<b>\$2,720</b>	<b>\$2,720</b>	-
200048A	Pinegrove Campground Fence Extension	0.60	Miles Fence	\$2,400	\$6,200	\$1,440	\$3,720	\$5,160	2010
200047B	East End Drift Fence (install 4 barbed wires)	0.30	Miles Fence	\$1,200	\$3,100	\$360	\$930	\$1,290	2010
200055	Shorey Swamp Division Fence	0.20	Miles Fence	\$2,400	\$6,200	\$480	\$1,240	\$1,720	2010
200455C	Emerald Lake Drift Fence Extension	0.20	Miles Fence	\$2,400	\$6,200	\$480	\$1,240	\$1,840	2011
200455A & B	Emerald Lake Drift Fence (install 4 barbed wires)	0.60	Miles Fence	\$1,200	\$3,100	\$720	\$1,860	\$2,580	2011
200048	Pinegrove Campground Fence	1.00	Miles Fence	\$2,400	\$6,200	\$2,400	\$6,200	\$8,600	2011
200047C	East End Drift Fence North Extension*	0.30	Miles Fence	\$2,400	\$6,200	\$720	\$1,860	\$2,580	2011
-	<b>Total Miles of</b>	<b>3.20</b>	-	-	-	<b>\$6,600</b>	<b>\$17,050</b>	<b>\$23,770</b>	-

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Build <sup>^</sup>
	<b>Fence to Build</b>								
	West Rosebud Stock Driveway	1.50	Miles Trail	\$0	\$2,000	\$0	\$3,000	\$3,000	2010
-	<b>Total Miles of Stock Driveway to Build</b>	<b>1.50</b>	-	-	-	<b>\$0</b>	<b>\$3,000</b>	<b>\$3,000</b>	-
-	<b>Total Costs</b>	-	-	-	-	<b>\$6,600</b>	<b>\$22,770</b>	<b>\$29,490</b>	-

Note: Total cost estimates from 1999 Custer National Forest Unit Costs Spreadsheet using 2006 cost values as adjusted for inflation using the Consumer Price Index. Estimated costs are for Billings area including commercial equipment, labor and move in cost. The permittee would be responsible for all labor and equipment, while the Forest Service would provide all of the materials and technical design assistance required. Fence specifications include 4-wire barbed using 5½ foot steel T-posts on 12 foot centers, 8' single brace every 250 feet with double rapped barbless wire, no stays.

\* This fence would be constructed only if it is determined by the Forest Service to be needed to maintain control of livestock.

<sup>^</sup> The build date is estimated and would be dependent on range improvement funding.

## RED LODGE CREEK, BUTCHER CREEK, & EAST ROSEBUD ALLOTMENTS PROPOSED ACTION<sup>4</sup>

### LIVESTOCK PERMIT

Livestock grazing would take place under management direction contained in *Part Three, Special Terms and Conditions*, of the new *Term Grazing Permit (Allotment Management Plan)*. The new grazing permit for the Red Lodge Creek Allotment would authorize up to a maximum of 134 AUMs at 2.0 acres/AUM (a 30% reduction), for the Butcher Creek Allotment, 48 AUMs at 2.1 acres/AUM (a 30% reduction), and for the East Rosebud Allotment 150 AUMs at 3.5 acres/AUM (no reduction) respectively. Stocking rate reductions would follow Forest Service Manual 2231.61, implementing the reduction in two phases; 20% the first year and the remaining 10% the next year.

### LIVESTOCK MANAGEMENT

For all three allotments, the Annual Operating Instructions (AOI) would specify whether the livestock would be cows, cow/calf pairs, yearlings, bulls, horses, or a combination. The AOI would also specify the grazing season for the allotments and the period of use for each. Generally, the turn-on date would not be before July 1<sup>st</sup>, and would never be before June 15<sup>th</sup>, to provide for range readiness of forage plants. The allotments would be rotated so that they are never grazed during the same period of time two years in a row. The exception to this would be the East Rosebud Allotment. It would only be used after Labor Day weekend to avoid conflicts with high recreation use during the main recreation season. Generally, if the allotment is grazed first in any given year, it would be grazed last the next year, and in the middle of the rotation sequence the third year. The Red Lodge Creek and Butcher Creek Allotments would be in one of the following use periods each year: 1) early use June 15<sup>th</sup> to July 31<sup>st</sup>, 2) mid season use July 15<sup>th</sup> to August 31<sup>st</sup>, or 3) late season use August 15<sup>th</sup> to September 30<sup>th</sup>. This deferment would allow for recovery of leaf and root volume during the critical growth periods. It would also allow for forage plants to attain seed set stage on over 50 to 75 percent of allotments each grazing season. The East Rosebud Allotment would be in a late season treatment. The number/class of livestock and dates of the rotation would be flexible depending on the planned use within the pastures on adjoining private land, but would never be more than 30 days per season. Tables 17 -19 show examples of possible scenarios for the use of each of the three allotments.

**TABLE 17 - RED LODGE CREEK ALLOTMENT EXAMPLE SCENARIO**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season Of Use	Permitted AUMs	% Permitted AUMs
Red Lodge Creek	250 c/c	12	9/19 - 9/30	Late	NTE 134	100%

<sup>4</sup> Red Lodge Creek, Butcher Creek and East Rosebud Allotments Proposed Action have been combined to reduce repetition in the description of the alternative and the same permittee is currently permitted on all three allotments.

**TABLE 18 - BUTCHER CREEK ALLOTMENT EXAMPLE SCENARIO**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season Of Use	Permitted AUMs	% Permitted AUMs
Butcher Creek	250 c/c	4	9/15-9/18	Late	NTE 48	100%

**TABLE 19 - EAST ROSEBUD ALLOTMENT EXAMPLE SCENARIO**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season Of Use	Permitted AUMs	% Permitted AUMs
East Rosebud	150 c/c	22	9/2-9/23	Late	NTE 150	100%

NTE = not to exceed

Management intensity to improve livestock distribution would be increased through herding and improved mineral distribution (salting away from water sources, fence-lines, and other key livestock use areas). When utilization approaches 55% in livestock key use areas (not to exceed 60% in key use areas primarily composed of timothy grass), the permittee would be required to either herd livestock daily away from these areas, use temporary electric fence to exclude livestock from these key use areas, or move livestock off the pasture or allotment earlier than planned for during that particular grazing season.

**RANGE IMPROVEMENTS**

No range improvements are proposed for the Red Lodge Creek Allotment. There is only one potential range improvement proposed for the East Rosebud Allotment. This improvement would be a temporary portable holding and loading corral provided by the permittee to assist loading cattle into semi trucks at the end of the grazing season. It would be set up for a period of no more than two days at the allotment boundary fence gate on Forest Road 21778 in section 15, township 7 south, range 17 east (a spur road to a dispersed campsite on East Rosebud Creek). Depending on the turning radius of the semi truck/trailer combination that would be used, it may be necessary to increase the width of FS Road 21778 by 4 - 6 feet for about 100 feet from the junction of FS Road 2177. There is one potential range improvement proposed for the Butcher Creek Allotment. It is an extension of the existing allotment boundary fence between the Butcher Creek and Red Lodge Creek Allotments. This fence would only be installed if livestock start to trail along the existing fence and find their way around the fence breaching the barrier between these two allotments. Table 20 displays the type, cost, and construction schedule for range improvements that would be required under this proposed action (see Map 2-C, Existing & Proposed Range Improvements).

**TABLE 20 - BUTCHER CREEK ALLOTMENT PROPOSED RANGE IMPROVEMENT, ESTIMATED COSTS & SCHEDULE**

INFRA No.	Unit Name	No. Of Units	Unit Type	FS Unit Cost \$	Permittee Unit Cost \$	Total FS Cost \$	Total Permittee Cost \$	Total Cost \$	Year To Build <sup>^</sup>
200001C	Butcher Creek/Red Lodge Creek Fence Extension*	0.20	Miles Fence	\$2,400	\$6,200	\$480	\$1,240	\$1,720	2012

Note: Total cost estimates from 1999 Custer National Forest Unit Costs Spreadsheet using 2006 cost values as adjusted for inflation using the Consumer Price Index. Estimated costs are for Billings area including commercial equipment, labor and move in cost. The permittee would be responsible for all labor and equipment, while the Forest Service would provide all of the materials and technical design assistance required. Fence specifications include 4-wire barbed using 5½ foot steel T-posts on 12 foot centers, 8' single brace every 250 feet with double rapped barbless wire, no stays.

\* This fence would be constructed only if it is needed to maintain control of livestock.

<sup>^</sup> The build date is estimated and would be dependent on range improvement funding.

## BLACK BUTTE WILDLIFE HABITAT AREA PROPOSED ACTION

### LIVESTOCK PERMIT

Grazing would be authorized under a *Vegetation Management Livestock Use Permit* under the following conditions as outlined in Forest Service Manual and Handbook direction FSM 2230 & FSH 2209.13:

- Issue livestock use permits subject to specified terms and conditions authorizing livestock use where the primary reasons for grazing are for purposes other than livestock production.
- Use *Vegetation Management Livestock Use Permits* to authorize livestock use on annual, perennial, and transitory ranges where the objective is to manipulate vegetation to accomplish other resource objectives.
- Ownership of livestock is not required for livestock use permits.
- Charge appropriate fees if the use is of a commercial nature.
- The authorizing officer shall require written application for issuance of livestock use permits.
- Livestock use permits are for periods of 1-year or less.

The following conditions must be satisfied before a livestock use permit can be issued:

- Vegetation, soils, and watershed conditions will be improved or move toward desired conditions by the authorized grazing activity (as analyzed in this EA).
- A current NEPA analysis and decision has been approved (this environmental analysis satisfies this requirement).
- Monitoring indicates that objectives from the forest or grassland plan and/or allotment management plan are being met or that satisfactory progress is being made toward those objectives (during and after grazing).
- The permit administration responsibilities associated with the livestock use permit will not interfere with, or detract from, term grazing permit administration responsibilities.
- In determining who may be most qualified, consider the elements listed in FSH 2209.13, Grant Process.

Depending on the amount of interest shown for grazing this area under the prescribed conditions of this proposal, it may be possible for different applicants to be authorized to share in grazing livestock on the Black Butte Wildlife Habitat Area by rotating the permits among them through the years. If there are not too many applicants, then the Grant Process would be used. The livestock use permit would authorize up to a maximum of between 80 and 110 AUMs, at between 6.0 and 7.5 acres/AUM depending on if a "normal" grazing treatment or "flash" grazing treatment would be used (see discussion below).

### LIVESTOCK MANAGEMENT

Light grazing of livestock is proposed to manage forage plants to maintain health and enhance forage palatability for wildlife using a rest rotation grazing system. Grazing could occur every other year under a rest rotation grazing system (1 year of complete rest would be required between grazing treatments). Allowable use would be set at no more than 35% to 40% use by dry weight in all key use areas (including riparian zones). Daily herding of livestock may be required in order to meet this allowable use standard. The livestock use permit and Annual Operating Instructions would specify whether the livestock would be cows, cow/calf pairs (c/c), yearlings (yrlgs), bulls, horses, or a combination. The AOI would also specify the grazing season for the area and the period of

use. Generally, the turn-on date would not be before July 1<sup>st</sup>, and would never be before June 15<sup>th</sup>, to provide for range readiness of forage plants. The turn-off date could be as late as October 15<sup>th</sup> (before the general hunting season starts) provided there is enough water available for the livestock. If grazing is going to be permitted after July 15<sup>th</sup>, the pasture must be checked to determine if there would be enough water available for livestock. The grazing period would be in one of the following use periods: 1) early use June 15<sup>th</sup> to July 31<sup>st</sup>, 2) mid season use July 15<sup>th</sup> to August 31<sup>st</sup>, or 3) late season use August 15<sup>th</sup> to October 15<sup>th</sup>. The grazing period for the Black Butte Wildlife Habitat Area would never be more than 30 days per season under a normal grazing regime and could be as short as one or two days under flash grazing. Table 21 shows an example of one possible scenario for the use of the Black Butte Wildlife Habitat Area under a normal grazing regime.

**TABLE 21 - BLACK BUTTE WILDLIFE HABITAT AREA EXAMPLE SCENARIO**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season of Use	Authorized AUMs	% Permitted AUMs
Black Butte Wildlife Habitat Area	175 c/c	10	7/15 - 7/24	Mid	77	100%

While the general grazing treatment would be light use under a more normal grazing regime, every 4 to 6 years, an opportunity to provide a high disturbance vegetation treatment through the use of high stock density/short duration grazing would be an option. This flash grazing treatment would provide quicker response for enhancing the palatability of forage species for the benefit of wildlife. Under this scenario, a large number of livestock would be authorized to graze the Black Butte Wildlife Habitat Area for a period of 1 to 3 days. Water availability/amount for livestock would have to be determined previous to entering the area and all livestock would have to be watered just previous to moving them into the pasture to prevent overuse and crowding in riparian areas. Daily herding of livestock would also be required to avoid livestock piling up on fences and overuse of riparian areas. On-the-ground monitoring would be required by the permittee and/or Forest Service to insure that vegetation objectives are being met. Table 22 shows an example of one possible scenario for the use of the Black Butte Wildlife Habitat Area under a flash grazing regime.

**TABLE 22 - BLACK BUTTE WILDLIFE HABITAT AREA EXAMPLE SCENARIO**

Pasture Name	No. & Class of Livestock	Total Days of Grazing	Livestock On - Off Date	Season of Use	Authorized AUMs	% Permitted AUMs
Black Butte Wildlife Habitat Area	2,000 yrlg	2	6/15 - 6/16	Early	107	100%

**RANGE IMPROVEMENTS**

While there are no Forest Service range improvements in the Black Butte Wildlife Habitat Area (with the exception of an old wire fence in the southeast corner), the private fence along the National Forest boundary may need to be maintained by the permittee due to absentee private landowners. It would be the permittees responsibility to work with the adjoining landowners to see that the boundary fence is in condition to hold livestock on the National Forest. If the Forest Service gets complaints from the adjoining landowners about livestock breaching the boundary fence due to poor livestock management on the Black Butte Wildlife Habitat Area, it could jeopardize the future use of livestock in the Area. Adjoining landowners, however, need to know that the Federal rule for boundary fences is that these fences are considered the property of the private landowner and that the maintenance of these fences is entirely the landowners responsibility.

## ADAPTIVE MANAGEMENT FOR ALL OF ANALYSIS AREA

Alternative 3 would utilize adaptive management. Adaptive management is defined as *a type of natural resource management that implies making decisions as part of an on-going process. Monitoring the results of actions will provide a flow of information that may indicate the need to change a course of action. Scientific findings and the needs of society may also indicate the need to adapt resource management to new information* (People's Glossary of Ecosystem Management Terms at [www.fs.fed.us/land/emterms.html](http://www.fs.fed.us/land/emterms.html)). If monitoring shows that desired conditions are or are not being met, then changes in livestock management may be needed. The intensity of livestock management could be adjusted up or down (herding, salting, water distribution, fencing, season of use, duration of grazing, and stocking rate) in the Annual Operating Plan. Additional monitoring would then take place to see if adaptive management worked as planned.

## CUSTER NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN AND GRAZING FORAGE UTILIZATION STANDARDS FOR ALL OF ANALYSIS AREA

Alternative 3 would implement the 1986 *Custer National Forest Land and Resource Management Plan (Forest Plan)* standards and guidelines for range management related to Management Areas B, D, F, G, and M (see specific direction below). Emphasis would be placed on improving the vegetative community to achieve desired conditions in historic livestock concentration areas (livestock key use areas). For upland areas desired conditions would be to provide conditions conducive to maintaining healthy, vigorous vegetative cover that would provide forage and cover for wildlife habitat, soil stability, as well as livestock forage. For riparian areas, desired conditions would include improving the vigor and production of key wildlife browse species and to manage riparian vegetation, including shrub and overstory tree cover along all perennial streams with defined channels, to provide shade, to maintain streambank stability and in-stream cover, and to promote filtering of overland flows.

When utilization approaches 55% in livestock key use areas (not to exceed 60% in key use areas primarily composed of timothy grass & 35% to 40% for Black Butte Wildlife Habitat Area key use areas), the permittee would be required to herd livestock daily away from these areas, use temporary electric fence to exclude livestock from these key use areas, or move livestock off the pasture or allotment earlier than planned for during the grazing season.

## CUSTER NATIONAL FOREST MANAGEMENT PLAN DIRECTION

As stated in the Need for Action and Purpose and Need sections of this environmental assessment, "direction from the *Forest Plan* was not incorporated into previous environmental analysis for this area and the purpose and need of this proposed action is to implement the direction in the *Custer National Forest Management Plan*", therefore the proposed action includes bringing the allotments into compliance with the *Custer National Forest Plan* standards and guidelines.

Forest-wide goals, objectives and standards are identified in the 1986 *Custer National Forest Land and Resources Management Plan*; this direction is intended to guide land management activities and include: *the goal of rangeland management is to achieve a diversity of beneficial uses of rangeland resources through a cooperative and integrated approach. Use of the forage resource will be planned in a manner that will also be sensitive to other valuable Forest resources. Riparian areas will be managed for water quality, diverse vegetation and protection of wildlife and fish habitats.* The management standards identified in the *Forest Plan* are intended to supplement National and Regional policies, standards and guidelines (USDA Forest Service 1986, page 12).

Specific Forest-wide management standards applicable to this project include, but are not limited to, the following:

- Significant, evaluated cultural resource sites will be preserved in-place whenever possible. When such resources are threatened by another resource activity or project development, an effort to avoid or minimize adverse impact by project redesign will be made (USDA Forest Service 1986, page 14).
- An inventory survey for cultural resources will be made for surface disturbing activities. Projects such as stock dams or spring developments will require the survey of an the area of potential impact or at least a

10 acre tract centered on the disturbance. Linear features such as pipelines will require survey of a 150 foot corridor (USDA Forest Service 1986, page 15).

- Discovered cultural resources will be evaluated in relation to published Advisory Council on Historic Preservation criteria for eligibility to the National Register of Historic Places. Cultural resource sites determined eligible will be nominated to the National Register (USDA Forest Service 1986, page 15).
- Management activities, including prescribed fire, will be conducted to maintain or enhance a variety of successional vegetative stages (USDA Forest Service 1986, page 18).
- Grazing systems will attempt to provide residual nesting cover and other wildlife habitat consistent with management area goals and objectives (USDA Forest Service 1986, page 18).
- Riparian vegetation, including shrub and overstory tree cover, will be managed along all perennial streams with defined channels to provide shade, to maintain streambank stability and in-stream cover, and to promote filtering of overland flows (USDA Forest Service 1986, page 19).
- Livestock and human access routes to water bodies will be managed to protect the aquatic resource, as well as allow consumptive use by livestock and recreation use by the public (USDA Forest Service 1986, page 19).
- State water quality standards will be met (USDA Forest Service 1986, page 20).
- Soil and water resources will be managed to maintain or improve quality of watershed, including soil productivity and water quality. Best Management Practices will be applied to project activities to assist in meeting or exceeding state water quality standards (USDA Forest Service 1986, page 25).

The lands included in this analysis are in Management Areas B, D, F, G, and M (see Maps 1-A, 1-B & 1-C, Custer Forest Management Areas and *Custer Forest Plan Management Prescription Areas*). The main drainage of both the West and East Rosebud Allotments are found within Management Area F (East Rosebud Allotment is entirely within F). Portions of the West Rosebud Allotment are also in found within Management Areas B, D, and G. The Black Butte Wildlife Habitat Area is entirely within Management Area B. The Butcher Creek Allotment is entirely within Management Area D, while the majority of the Red Lodge Creek Allotment is found within Management Area B (a minor amount of the west side of the allotment is in Management Area D). Less than 5 percent of these Allotments are found within Management Area M (riparian areas within the analysis area are displayed on Maps 5-A, 5-B & 5-C, Riparian Functioning Condition Plot Inventory). The goals for Management Areas B, D, F, G, and M include:

- Management Area B (Commodity and Development - Livestock Emphasis). The goal for management area B is to provide for continued livestock grazing and to improve wildlife habitat through intensive range management, with emphasis on livestock production (USDA Forest Service 1986, page 42).
- Management Area D (Wildlife - Multiple Use Emphasis). The goal for management area D is to maintain or improve the long-term diversity and quality of habitat for selected species as well as accommodating other resource management activities including timber harvest and livestock grazing. Some short-term habitat impacts may be necessary to achieve long-term wildlife goals. The goal will be achieved through direct wildlife habitat improvement, as well as selection, scheduling and implementation of cultural practices associated with other multi-resource management activities (USDA Forest Service 1986, page 53). On key wildlife areas, range management will be aimed at mitigating adverse impacts to wildlife. On the remainder of the management area, range management practices will be consistent with the wildlife habitat needs (USDA Forest Service 1986, page 54).
- Management Area F (Recreation Emphasis). The goal for management area F is to provide a spectrum of recreation opportunities and settings in and around developed sites and the access corridors to the sites in the categories of Semiprimitive Non-motorized/Motorized Roaded Natural Appearing and Rural.

Resource management conflicts are resolved in favor of maintaining or enhancing the recreation opportunities including the visual setting (USDA Forest Service 1986, page 61). Livestock grazing will not be allowed in developed sites, unless it can be accommodated before or after the recreation use season and is instrumental in the management of the site. Grazing along access corridors may occur, creating a limited traffic hazard that can be identified by warning signs (USDA Forest Service 1986, page 62).

- Management Area G (Timber Management Emphasis). The goal for management area G is to manage these areas for the maintenance and improvement of a healthy diverse forest and as a source of wood products for dependent local markets. Silvicultural systems will consider other resource needs such as wildlife habitat, visual impacts, and livestock management. Efforts will be made to avoid or mitigate resource conflicts (USDA Forest Service 1986, page 64). Domestic livestock grazing may occur in this area and silvicultural systems used are to consider the effects of livestock grazing on regeneration. Forage production realized through timber management activities will be treated as transitory range. Livestock use will not be encouraged if regeneration problems occur (USDA Forest Service 1986, page 64).
- Management Area M (Riparian Emphasis). The goal for management area M is to manage to protect riparian areas from conflicting uses in order to provide healthy, self-perpetuating plant and water communities that will have optimum diversity and density of understory and overstory vegetation (USDA Forest Service 1986, page 80). Riparian zones will be evaluated and mapped during the range analysis phase of an allotment management plan (AMP). AMPs will specifically address the riparian areas and identify impacts livestock will have on these areas. Management practices such as fencing, grazing deferment, burning or planting may be tried on selected areas to determine their effectiveness in maintaining or improving the riparian zone conditions. Large scale fencing efforts to protect riparian areas are neither practical nor planned. Structural range improvements will be located to attract livestock out of this management area (USDA Forest Service 1986, page 81).

Further detail of the Forest Plan goals, objectives and standards can be found in the 1986 *Custer National Forest Land and Resources Management Plan, Chapter II, pages 3-7, and Chapter III, pages 45-48 and 80-82.*

## MONITORING

Monitoring would be a part of any decision made concerning the Red Lodge Creek, Butcher Creek, East Rosebud, and West Rosebud Allotments and the Black Butte Wildlife Habitat Area. Monitoring is the basis for decision-making; it assesses impacts on the land, and the land's response to those impacts. It should take place in representative areas, critical areas or treatment areas. The method used would address management goals and objectives and measure items that would provide feedback to improve management.

Both short term and long term monitoring methods for streambank condition/trend and upland and riparian vegetation condition/trend would be incorporated into any decision. Methods that may be used for determining riparian condition/trend include:

- Channel Geometry (using semi-permanent cross-sections)
- Bank Alteration (Forest Service Region 1 Bank Alteration Protocol)
- In-stream Surface Fines (grid method)
- Photo Points (Forest Service Photo Point Monitoring Handbook)

Methods that may be used for determining riparian and upland vegetation condition/trend include:

- Forage Production/Utilization Studies (Forest Service Rangeland Inventory & Monitoring Protocols)
- Grazing Response Index (Colorado State University Extension Service)

- Ecological Data Studies (Forest Service Rangeland Inventory & Monitoring Protocols)
- Nested Frequency (Forest Service Rangeland Inventory & Monitoring Protocols)
- Photo Points (Forest Service Photo Point Monitoring Handbook)

Other methods may also be considered where appropriate. Grazing permittees would be encouraged to assist the Forest Service in any monitoring that would be conducted.

## COMPARISON OF ALTERNATIVES

Table 23 below compares the three alternatives.

**TABLE 23 - COMPARIASON OF ALTERNATIVES**

Parameter	Alternative 1 No Action/No Livestock Grazing	Alternative 2 Current Livestock Management	Alternative 3 Proposed Action
<b>Issue Term Grazing Permit</b>	no	yes	yes
<b>Number of AUMs</b>			
Red Lodge Creek Allotment	na	NTE 191 AUMs	NTE 134 AUMs <sup>^</sup>
Butcher Creek Allotment	na	NTE 69 AUMs	NTE 48 AUMs <sup>^</sup>
East Rosebud Allotment	na	NTE 150 AUMs	NTE 150 AUMs
West Rosebud Allotment	na	NTE 226 AUMs	NTE 226 AUMs
Black Butte Wildlife Habitat Area	na	na	NTE 80 - 110 AUMs~
<b>Analysis Area Total</b>		<b>NTE 636 AUMs</b>	<b>NTE 558 - 668 AUMs</b>
<b>Stocking Rate</b>			
Red Lodge Creek Allotment	na	1.4 acres/AUM	2.0 acres/AUM
Butcher Creek Allotment	na	1.5 acres/AUM	2.1 acres/AUM
East Rosebud Allotment	na	3.5 acres/AUM	3.5 acres/AUM
West Rosebud Allotment	na	2.3 acres/AUM	3.3 acres/AUM
Black Butte Wildlife Habitat Area	na	na	6.0 - 7.5 acres/AUM
<b>Number Livestock Permitted</b>			
Red Lodge Creek Allotment	0 cow/calf pairs	155 cow/calf pairs	Flexible number of livestock on all allotments. Permittees could choose to run cow/calf pairs, cows, yearlings, bulls or horses.
Butcher Creek Allotment	0 cow/calf pairs	200 cow/calf pairs	
East Rosebud Allotment	0 cow/calf pairs	200 cow/calf pairs	
Black Butte Wildlife Habitat Area	0 cow/calf pairs	175 cow/calf pairs	
<b>Analysis Area Total</b>	<b>0 cow/calf pairs</b>	<b>730 cow/calf pairs</b>	
<b>Season of Use</b>			
Red Lodge Creek Allotment	na	8/1 - 9/28	Flexible turn-on dates on all allotments, but never before June 15 <sup>th</sup> , and usually not before July 1 <sup>st</sup> , variable season ending dates.
Butcher Creek Allotment	na	6/15 - 9/15	
East Rosebud Allotment	na	9/1 - 11/15*	
West Rosebud Allotment	na	6/15 - 9/15	
Black Butte Wildlife Habitat Area	na	na	
<b>Number Days of Grazing</b>			
Red Lodge Creek Allotment	na	No limit on maximum number of days of grazing in any given	Flexible number of days on all allotments but must have a deferred rotation system of grazing and cannot exceed 30
Butcher Creek Allotment	na		
East Rosebud Allotment	na		
West Rosebud Allotment	na		

Parameter	Alternative 1 No Action/No Livestock Grazing	Alternative 2 Current Livestock Management	Alternative 3 Proposed Action
Black Butte Wildlife Habitat Area	na	allotment or pasture on all allotments.	days of grazing in any pasture.
<b>Grazing Rotation System</b> Red Lodge Creek Allotment Butcher Creek Allotment East Rosebud Allotment West Rosebud Allotment Black Butte Wildlife Habitat Area	na na na na na	1 pasture mid - late 1 pasture deferred 1 pasture late 2 pasture deferred na	1 pasture deferred 1 pasture deferred 1 pasture late 5 pasture deferred 1 pasture rest rotation
<b>Miles of Fence to Remove</b> Red Lodge Creek Allotment Butcher Creek Allotment East Rosebud Allotment West Rosebud Allotment Black Butte Wildlife Habitat Area  <b>Analysis Area Total</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0 miles 0 miles 2.60 miles na  <b>2.60 miles</b>
<b>Miles of Fence to Construct</b> Red Lodge Creek Allotment Butcher Creek Allotment East Rosebud Allotment West Rosebud Allotment Black Butte Wildlife Habitat Area  <b>Analysis Area Total</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0.20 miles 0 miles 3.20 miles na  <b>3.40 miles</b>
<b>Miles of Stock Driveway to Construct</b> Red Lodge Creek Allotment Butcher Creek Allotment East Rosebud Allotment West Rosebud Allotment Black Butte Wildlife Habitat Area  <b>Analysis Area Total</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0 miles 0 miles 0 miles na  <b>0 miles</b>	0 miles 0.20 miles 0 miles 1.50 miles 0 miles  <b>1.50 miles</b>
<b>Cost of Range Improvement Work</b> Red Lodge Creek Allotment Butcher Creek Allotment East Rosebud Allotment West Rosebud Allotment Black Butte Wildlife Habitat Area  <b>Analysis Area Total</b>	\$800 \$0 \$1,760 \$7,680 na  <b>\$10,240</b>	\$0 \$0 \$0 \$0 na  <b>\$0</b>	\$0 \$1,720 \$0 \$29,490 na  <b>\$31,210</b>
<b>Monitoring</b>	no	yes	yes
<b>Adaptive Management</b>	no	no	yes
<b>Management Designed to Move Ecosystem Toward Desired Conditions</b>	no	no	yes

\* Not to exceed 30 days of grazing after Labor Day.  
 ^ 30% Reduction in AUMs on Red Lodge Creek and Butcher Creek Allotments.  
 ~Number of AUMs dependent on stocking intensity.  
 Note: No National Forest Boundary Fence would be removed under Alternative 1.  
 NTE = Not to Exceed.

**AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This section describes the affected environment. It also describes the environmental impacts of the proposal in relation to whether there may be significant environmental effects as described at 40 CFR 1508.27. Further analysis and conclusions about potential effects are available in the resource specialist reports in the appendices of this environmental assessment and in other supporting documentation located in the project record at the Beartooth District. The following discussion concerns resources that have relevance to a determination of significance.

**UPLAND RANGELAND ECOSYSTEM AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix I, Upland Rangeland Ecosystem Report.

**UPLAND RANGELAND VEGETATION AND HABITAT TYPES**

Habitat type classifications define land areas capable of supporting similar vegetation and respond to management or disturbance processes in a similar way. Grassland and shrubland habitat types (Mueggler and Stewart 1980) occurring within the analysis area are summarized in Table 24.

**TABLE 24 - PREDOMINANT GRASSLAND AND SHRUBLAND HABITAT TYPES OCCURRING ON SUITABLE RANGE WITHIN THE RED LODGE CREEK, BUTCHER CREEK, WEST ROSEBUD AND EAST ROSEBUD ANALYSIS AREA**

Habitat Type Common Name	Habitat Type Scientific Name	Habitat Type Code
Big Sagebrush/Idaho Fescue	<i>Artemisia tridentata/Festuca idahoensis</i>	ARTR/FEID
Shrubby Cinquefoil/Idaho Fescue	<i>Potentilla fruticosa/Festuca idahoensis</i>	POFR/FEID
Skunkbush/Idaho Fescue	<i>Rhus trilobata/Festuca idahoensis</i>	RHTR/FEID
Idaho Fescue/Bearded Wheatgrass	<i>Festuca idahoensis/Agropyron caninum</i>	FEID/AGCA
Idaho Fescue/Bluebunch Wheatgrass	<i>Festuca idahoensis/Agropyron spicatum</i>	FEID/AGSP
Idaho Fescue/Bluebunch Wheatgrass-western needlegrass	<i>Festuca idahoensis/Agropyron spicatum-Stipa occidentalis</i>	FEID/AGSP-STOC
Idaho Fescue/Richards needlegrass	<i>Festuca idahoensis/Stipa richardsonii</i>	FEID/STRI

Table 25 provides an acre summary for the range analysis Area. Acre calculations were generated from the existing vegetation map (See Maps 3-A, 3-B & 3-C, Existing Vegetation Polygons). Total acres by allotment, acres of grassland and shrubland vegetation within suitable range, and percent suitable range within the allotment are summarized. Analysis of the affected environment will be focused on grassland and shrubland communities occurring on suitable range. Suitable range is defined as areas within 5,000 feet of water and/or areas where slopes are less than 50% percent, and capable of producing 200 pounds per acre of forage.

**TABLE 25 - RED LODGE CREEK, BUTCHER CREEK, WEST ROSEBUD AND EAST ROSEBUD ANALYSIS AREA, SUITABLE RANGE ACRE SUMMARY AND PERCENT OF ALLOTMENT IN SUITABLE RANGE**

Grazing Allotments	Total Allotment Acres	Suitable Range Acres	Suitable Range as Percent of Area/ Allotment
Butcher Creek	430	100	23%

<b>Grazing Allotments</b>	<b>Total Allotment Acres</b>	<b>Suitable Range Acres</b>	<b>Suitable Range as Percent of Area/ Allotment</b>
Red Lodge Creek	560	270	47%
East Rosebud	1490	520	35%
Black Butte WMA	1180	600	51%
West Rosebud	3380	760	22%

Note: acre summary includes National forest system and private lands within allotment boundaries

Maps displaying upland grassland and shrubland dominance types occurring within suitable range were used to describe existing vegetation (See Maps 3-A, 3-B & 3-C, Existing Vegetation Polygons). Dominance types are the finest level of vegetation classification used to describe existing vegetation communities in this project area. Vegetation dominance type map labels were assigned to the map units based on a combination of field surveys, vegetation plot locations, and photo-interpretation. Table 26 shows the relationship between dominance types, functional plant groups, and similarity ratings. Dominance types are reoccurring plant communities defined by the dominance of one or more species in the uppermost or dominant layer (USDA-FS 2004). Functional groups are groups of plant species with similar shoot or root structure, photosynthetic pathways, nitrogen fixing ability, life cycle, or other similar characteristics (USDA-NRCS 1997). Functional plant group composition and species diversity are principal factors used to explain ecosystem processes (i.e. nutrient cycling, productivity) on an ecological site (i.e. habitat type) (USDA-NRCS 1997). Criteria used to group dominance types into functional groups were physiologic, physiognomic, and morphological characteristics of the dominant plant species. The specific criteria are dominant species lifeform (e.g. tree, shrub, grass, forb, clubmoss), plant life cycle (e.g. annual, perennial), plant structure (e.g. short grass, mid grass), biomass (productivity), and whether a plant species is native or non-native. Floristic similarity is a qualitative comparison of species abundance and composition for existing dominance types with that of the reference plant community for the habitat type (i.e. departure or similarity of current community composition to the reference plant community). The criteria used as a qualitative evaluation of floristic functional/structural group similarity are summarized in Table 27.

Plant communities with low, low to moderate, and moderate floristic similarity generally have less species diversity, less ground cover, more bare soil, less structure, and are less productive than communities that have a moderate to high/high similarity (DiBenedetto et. al. 2003, USDA-FS 1992). Managing for or maintaining high floristic similarities for a habitat type generally means species and structural diversity is improved, there is more ground cover protecting soil from erosion, and grass productivity and available forage is higher.

Plot data collected within the analysis area indicates similar relationships for sites with low, low to moderate, and moderate floristic similarity to those described by DiBenedetto and others (2003) and USDA-FS (1992) with the exception of decreased litter and increased bare soil (See Maps 6-A, 6-B & 6-C, Vegetation Similarity Index & Vegetation Study Plot Inventory). On mesic mountain grassland sites, there is a difference in the type of vegetative cover protecting the soil: forb species, short grass species, and timothy, replace native mid-grass species. Low to moderate and moderate floristic and structural similarity on mountain grassland sites within the analysis area indicate a decrease of native mid grass species (e.g. Idaho fescue, bluebunch wheatgrass, bearded wheatgrass, western needlegrass) and increases in the abundance of forb species and timothy.

Desirable key perennial native grass species in upland grassland and shrubland communities are Idaho fescue, bearded wheatgrass, bluebunch wheatgrass, western needlegrass, needle-and-thread grass, and tufted hairgrass. These are species that should be the dominant grass species within mountain grassland communities or within the understory of sagebrush dominated communities (Mueggler and Stewart 1980). Planned grazing systems are the principle tool for improving the abundance of perennial native grass species by maintaining their physiological health through controlling the timing and intensity of grazing and providing adequate rest and recovery of grazed plants.

**TABLE 26 - CROSS WALK OF FLORISTIC SIMILARITY, FUNCTIONAL PLANT GROUP/VEGETATION STATE, AND DOMINANCE TYPES FOR THE GRASSLAND AND SHRUBLAND COMMUNITIES, RED LODGE CREEK, BUTCHER CREEK, WEST ROSEBUD, AND EAST ROSEBUD ANALYSIS AREA**

Floristic Similarity	Functional Plant Group/Vegetation State	Dominance Types (Note: Most common dominance types)
<b>Moderate to High and High</b>	<p><b>Grass Dominated States</b> Idaho fescue/Tufted Hairgrass State Idaho fescue/Bearded wheatgrass State Idaho fescue/Threadleaf Sedge State Idaho fescue/Bluebunch Wheatgrass State Tufted Hairgrass/Sedge State</p> <p><b>Shrub Dominated States</b> Mountain big sagebrush/Idaho fescue State Shrubby Cinquefoil/Idaho Fescue State Common snowberry</p>	<p><b>Grassland communities</b> Idaho fescue/Bluebunch wheatgrass (<i>Festuca idahoensis/Agropyron spicatum</i>) Idaho fescue/Threadleaf sedge (<i>Festuca idahoensis/Carex filifolia</i>) Idaho fescue/Bearded wheatgrass (<i>Festuca idahoensis/Agropyron caninum</i>) Idaho fescue/Tufted hairgrass Tufted hairgrass/Sedge (<i>Deschampsia cespitosa/Carex</i>) Idaho fescue/cool season grass Mixed cool season grass (equal mix of Idaho fescue, bluebunch wheatgrass, threadleaf sedge, needlegrass (<i>Stipa</i>) species)</p> <p><b>Shrubland communities</b> Mountain big sagebrush/Bluebunch wheatgrass (<i>Artemisia tridentata vaseyana/Agropyron spicatum</i>) Mountain big sagebrush/Idaho fescue (<i>Artemisia tridentata vaseyana/Festuca idahoensis</i>) Mountain big sagebrush/Idaho fescue-cool season grass Shrubby cinquefoil/Idaho fescue (<i>Potentilla fruticosa/Festuca idahoensis</i>) Skunkbush sumac/bluebunch wheatgrass (<i>Rhus aromatica/Agropyron spicatum</i>) Common snowberry (<i>Symphoricarpos alba</i>)</p>
<b>Moderate</b>	<p><b>Herbaceous Dominated States</b> Cool Season Short Grass State</p> <p><b>Shrub Dominated States</b> Mountain Big Sagebrush/Cool Season Grass State  Common snowberry/Cool Season Grass State</p>	<p><b>Herbaceous Communities</b> Cool season grass (<i>Idaho fescue &lt; 10%, dominate cool season grass; bluegrass, sedge, junegrass, danthonia</i>)</p> <p><b>Shrubland Communities</b> Mountain Big Sagebrush/Cool season grass (equal mix of bluegrass species, junegrass, or sedge species in understory; Idaho fescue, bluebunch wheatgrass &lt;10%) Common snowberry/Cool season grass (equal mix of bluegrass species, junegrass, or sedge species in understory; Idaho fescue, bluebunch wheatgrass &lt;10%)</p>
<b>Low to Moderate</b>	<p><b>Herbaceous Dominated States</b> Cool Season Short Grass State Herbaceous Non-native State Forb State</p>	<p><b>Herbaceous Communities</b> Cool season grass/sedge (<i>Idaho fescue &lt; 10%, dominate cool season grass; bluegrass, sedge, junegrass, danthonia</i>) Sedge/Rush (<i>Carex/Juncus</i>) Kentucky bluegrass (<i>Poa pratensis</i>) Timothy (<i>Phleum pratense</i>) Smooth brome (<i>Bromus inermus</i>) Alpine mixed forb Clubmoss (<i>Selaginella densa</i>)</p> <p><b>Shrubland Communities</b> Mountain big sagebrush/clubmoss (<i>Artemisia tridentata</i>)</p>

Floristic Similarity	Functional Plant Group/Vegetation State	Dominance Types (Note: Most common dominance types)
	<b>Shrub Dominated States</b> Mountain Big Sagebrush/Forb State Mountain Big Sagebrush/Non-native State Shrubby Cinquefoil/Non-native State Shrubby Cinquefoil/Forb State Half Shrub State	<i>vaseyana/Selaginella densa</i> Big Sagebrush/Timothy Big Sagebrush/Kentucky bluegrass Fringed sage ( <i>Artemisia frigida</i> ) Broom snakeweed ( <i>Gutierrezia sarothrae</i> ) Shrubby cinquefoil/Forb Shrubby cinquefoil/Timothy Shrubby cinquefoil/Kentucky bluegrass
Low	<b>Herbaceous Dominated States</b> Forb State Herbaceous Non-native State  <b>Shrub Dominated States</b> Common Snowberry/Non-native State  <b>Agricultural land (Hayfields)</b>	<b>Herbaceous Communities</b> Mixed Forb Japanese brome ( <i>Bromus japonicus</i> ) Cheatgrass ( <i>Bromus tectorum</i> ) Cropland and Hayland  <b>Shrubland Communities</b> Common snowberry/Timothy

**TABLE 27 - QUALITATIVE DESCRIPTION OF DEGREE OF DEPARTURE FROM ECOLOGICAL REFERENCE AREA (I.E. HABITAT TYPES) FOR FLORISTIC SIMILARITY, FUNCTIONAL/STRUCTURAL GROUPS. TAKEN FROM NATIONAL RANGE AND PASTURE HANDBOOK (USDA-NRCS 1997, PP. 4-37) AND PELLANT ET. AL. (2000, PP. 87).**

Degree of departure from ecological reference area as defined by Habitat Type climax plant community (Mueggler and Stewart 1980)					
Indicator	Low	Low to Moderate	Moderate	Moderate to High	High
Floristic similarity-Functional/Structural (F/S) Groups	Number of F/S groups greatly reduced; <b>and/or</b> relative dominance of F/S groups has been dramatically altered; <b>and/or</b> number of species within F/S groups dramatically reduced.	Number of F/S groups reduced; <b>and/or</b> one dominant group <b>and/or</b> one or more subdominant groups replaced by F/S groups not expected for the site; <b>and/or</b> number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced; <b>and/or</b> one dominant group <b>and/or</b> one or more subdominant groups replaced by F/S groups not expected for the site; <b>and/or</b> number of species within F/S groups moderately reduced.	Number of F/S groups slightly reduced; <b>and/or</b> relative dominance of F/S groups has been modified from that expected for the site; <b>and/or</b> number of species within F/S groups slightly reduced.	F/S groups and number of species in each group closely match that expected for the site.

**DESIRED CONDITION**

The desired condition for mountain grassland and shrubland communities is to maintain the dominance of native perennial grass species (e.g. bluebunch wheatgrass, bearded wheatgrass, western needlegrass, needle-and-thread grass, Idaho fescue, tufted hairgrass) on sites where they currently are the most abundant overstory or understory species and/or improve their abundance on sites currently dominated by less desirable non-native

grass species. Examples of non-native species are timothy and smooth brome. In addition, maintain or improve the health of native upland shrub species including sagebrush, and chokecherry. Table 26 above provides a crosswalk of floristic similarity, functional group and dominance types typically observed on the ground. The management objective is to increase the abundance of native perennial grass and maintain or increase the health and abundance of native shrub species on communities currently exhibiting low, low to moderate and moderate floristic similarity to the reference community; and maintain shrub and perennial mid grass abundance on communities currently with moderate to high/high similarity. Additionally, the desired condition for the Black Butte Wildlife Management Area would be to manage for plant communities which would meet wildlife habitat management objectives.

## **UPLAND RANGELAND ECOSYSTEM ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix I, Upland Rangeland Ecosystem Report.

### ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT

**Direct Effects:** Direct effects occur at the same time and place as the proposed activity. Removal of allotment boundary and pasture fences would occur in all four allotments. These actions may impact soil and vegetation from vehicles and equipment used to remove the fences, but the impacts would be localized and temporary. The sites should recover rapidly.

**Indirect Effects:** Indirect effects occur at a later time or distance from the proposed activity. Free-ranging livestock are considered indirect effects to upland rangeland ecosystems as the activity is dispersed spatially and temporally. Indirect effects of Alternative 1 would be similar for all allotments. Implementation of Alternative 1 would eliminate effects of livestock grazing on upland grassland and shrubland communities. With time, native plant communities currently with low to moderate and moderate floristic similarity would change as native mid grass and other plant species become more abundant. Floristic similarity would change to moderate to high/high floristic similarity. Desirable plant species would generally be maintained in plant communities currently with moderate to high/high floristic similarity. Areas currently occupied by non-native grass species, timothy, smooth brome, and Kentucky bluegrass are the exceptions.

Elimination of grazing will probably have no effect on reducing the abundance of non-native grass species. Due to the competitive advantage timothy and other non-native grass species have over native grass species; they would probably persist as the dominant species. In fact, timothy may increase or invade sites where it is not currently the dominant species (Esser 1993). Use of planned grazing systems, designed to graze timothy when it is phenologically disadvantageous or prescribed fire, may be the only effective tools for restoring native grass species on sites currently dominated by timothy.

Grassland and shrubland communities evolved under some level of disturbance. Human influences can alter disturbance regimes by modifying the level, intensity, timing, and recovery periods. For example, season long livestock grazing systems with high livestock numbers, long grazing periods, and lack of adequate recovery periods are not the same type of grazing disturbance plant communities experienced historically. How, when, and how often (repeated grazing) plants are grazed; and length of rest or recovery time, dictates whether grazing has a beneficial or detrimental effect on grassland and shrubland communities. Continuous heavy livestock use can be detrimental to long term health of rangelands. Planned grazing systems which provide adequate periodic rest and recovery or light to moderate use can stimulate plant growth, provide for plant species diversity, and maintain health by meeting the physiological needs of desirable plant species.

Eliminating grazing over the long term would not necessarily mean grassland and shrubland plant communities would be as productive or as diverse as communities receiving periodic disturbance either from fire or light to moderate grazing (Holechek et. al. 2006, Holechek 1981, Holechek et. al. 2004). Without periodic disturbance grassland and shrubland plant communities can become stagnant, less productive, and less diverse. Plant litter accumulates over time, suppressing plant growth and species diversity. On mountain grassland sites with the potential to support tree and shrub species, woody vegetation may replace grass and forb species without periodic fire. Periodic disturbance whether by fire or herbivory by ungulates stimulates plant growth and helps

maintain plant species diversity and productivity.

This alternative would provide the fastest rate of recovery in the short term to meet desired conditions for upland grassland and shrubland communities, except on those sites presently dominated by timothy. The lack of some level of periodic disturbance under this alternative may not result in the most diverse or productive plant communities over the long term or recovery of native grass species on areas currently dominated by non-native species. Black Butte Wildlife Management Area provides an example where 20 years of no livestock grazing appears to have had little effect on replacing non-native timothy and smooth brome with native grass species.

**Cumulative Effects:** There are no past or present timber harvest activities occurring. Past and present, prescribed fire, wildfire, existing roads, and dispersed recreation will continue to influence upland vegetation.

**Forest Plan Consistency and Other Required Disclosures:** Compliance with *Forest Plan* standards and guidelines for range management would be met. It may not fully achieve the goal of maintaining healthy, vigorous vegetation cover that would provide forage and cover for wildlife, and livestock forage. It would provide soil stability but the absence of periodic disturbance may result in less productive plant communities and plant species diversity. Especially on sites currently occupied by non-native grass species (i.e. timothy, smooth brome, and Kentucky bluegrass).

**Conclusions for Environmental Consequences:** This alternative would provide the fastest rate of recovery for all grazing impacted upland areas currently with low to moderate and moderate similarity still dominated by native grass species. The exception would be low to moderate similarity areas currently dominated by non-native species. These sites would probably continue to be dominated by timothy, Kentucky bluegrass, and smooth brome.

#### ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT

**Direct Effects:** Direct effects occur at the same time and place as the proposed activity. There is no installation, reconstruction or removal of range improvements (i.e. water developments, fences) proposed, which may cause direct effects to vegetation and soils, under this alternative.

**Indirect Effects:** Indirect effects occur at a later time or distance from the proposed activity. Free-ranging livestock are considered indirect effects to upland rangeland ecosystems as the activity is dispersed spatially and temporally. Livestock grazing can affect plant species composition of vegetation communities over time. Grazing effects are dictated by the timing, intensity, duration of grazing within an area, and length of rest or recovery periods following grazing. These factors can be managed or mitigated by altering and/or manipulating any one of these factors through planned grazing systems and/or balancing the stocking levels with available forage production. These mitigation measures can maintain or change current plant species composition towards desired plant species composition.

Desired plant species as described under desired conditions and to meet desired range conditions described in the *Custer National Forest Land and Resource Management Plan* are bluebunch wheatgrass, bearded wheatgrass, western needlegrass, needle-and-thread grass, Idaho fescue, and tufted hairgrass. Increasing the abundance of these perennial native grass species is necessary to move sites currently with low to moderate and moderate floristic similarity to moderate to high/high floristic similarity. This would be accomplished by improving or maintaining the health and productivity of these species through continued use of planned grazing systems and associated allowable use guidelines contained in annual operating instructions (AOI) outlined under Alternative 2. The current management does provide periodic rest during critical phenological stages either on alternate years (two pastured deferred grazing systems) or two out of three years (three pasture deferred systems).

Livestock grazing impacts would be expected to continue at current levels. Production utilization studies (see discussion under the heading "Livestock Carrying Capacity" in Appendix I, Upland Rangeland Ecosystem Report) indicate current permitted stocking rates exceed available forage in Butcher Creek, Red Lodge Creek, and West Rosebud Allotments. If utilization exceeds allowable use guidelines, it is likely there would be little improvement towards desired vegetation composition. Desirable forage plants would continue to be overgrazed and would not receive adequate rest and recovery needed to maintain the physiological health of desired plant species, despite

continued use of planned grazing systems. The effects of management under Alternative 2 would probably result in no change in floristic similarity for sites currently dominated by non-native grass species (i.e. timothy, Kentucky bluegrass, smooth brome). There may not be movement towards desired vegetation composition for native plant communities currently with low, low to moderate, and moderate floristic similarity. Plant communities currently with moderate to high/high floristic similarity would probably continue to be dominated by mid grass species with short grass species being a minor component. The amount of change and/or effectiveness of management described under alternative two to change or maintain desired vegetation composition is difficult to assess without base line information describing vegetation composition when the current grazing systems were implemented.

### **Cumulative Effects**

Past and present prescribed fire, wildfire, existing roads, and dispersed recreation will continue to be a minor influence on upland rangeland ecosystems.

### **Forest Plan Consistency and Other Required Disclosures**

Compliance with Forest Plan standards and guidelines for range management would be met. It may not fully achieve the goal of maintaining healthy, vigorous vegetation cover that would provide productive forage, cover for wildlife, and soil stability. Sites currently occupied by non-native grass species such as timothy, smooth brome, and Kentucky bluegrass will probably continue to be dominated by these species.

### **Conclusions for Environmental Consequences**

This alternative may not provide for recovery towards desired conditions for grazing impacted upland areas currently with low to moderate and moderate similarity. These sites will probably continue to be dominated by non-native grass species of timothy, Kentucky bluegrass, and smooth brome. Where current stocking levels result in consistently exceeding allowable use, the health and vigor of individual desirable plant species may decline.

### **ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

The changes in grazing management proposed under Alternative Three are designed to reduce grazing duration, improve livestock distribution, and balance stocking rates with available forage to stay within allowable use guidelines. Better livestock distribution would increase use of under-utilized range and reduce over-utilization on key use areas. The objective for upland rangelands is to move current vegetation composition to desired vegetation conditions by increasing the abundance of desirable plant species (e.g. bluebunch wheatgrass, bearded wheatgrass, western needlegrass, needle-and-thread grass, Idaho fescue, tufted hairgrass).

**Direct Effects:** Direct effects occur at the same time and place as the proposed activity. Installation and reconstruction of water developments are the only activities considered to cause direct effects to upland vegetation plant communities under this alternative.

New or reconstructed fences are proposed in Butcher Creek and West Rosebud Allotments. Several existing fences would be removed in the West Rosebud Allotment. These actions may impact soil and vegetation, but the impacts would be localized and temporary. The sites should recover rapidly, but the rate of recovery would be relative to the grazing pressure on these sites.

**Indirect Effects:** Indirect effects occur at a later time or distance from the proposed activity. Free-ranging livestock are considered indirect effects to upland rangeland ecosystems as the activity is dispersed spatially and temporally. However, the exact timing and degree of effect on upland rangeland ecosystems is difficult to quantify.

The effects of the proposed changes in grazing management on upland rangeland ecosystems are based on a number of key factors and how they differ from current management. These factors include 1) proposed change in allotment management (number of livestock, grazing duration and AUMs), 2) construction of new allotment and pasture fencing, 3) implementation of active management tools, e.g., herding, culling and the use of mid-season triggers to move livestock within, or remove livestock from, the pasture, and 4) existing condition and resiliency of

upland rangeland areas.

It is important to understand that predicting the effects of livestock grazing management on future vegetation composition of grassland and shrubland communities is an uncertain task. This is due to the variability of natural processes and characteristics, the variability of implementation and administration of past and proposed management, and the variability of the effectiveness of proposed management assuming adequate implementation. Effects of livestock grazing can be estimated based on the body of research dealing with the grazing affects on vegetation and associated rangeland ecosystem components as a response to differences in timing, intensity, and duration of grazing; and amount of rest provided to grazed range plants reported over the past 100 years. Given the body of rangeland research dealing with the effects of grazing, there is a reasonable expectation that desired conditions would be meet, provided management as outlined in Alternative Three is fully implemented and monitoring is used in conjunction with adaptive management to validate management assumptions or adjust management practices.

### **Cumulative Effects**

Implementation of alternative 3 is not expected to contribute to significant cumulative effects. Livestock grazing is the principle activity affecting upland rangeland ecosystems and associated grass and shrub communities within the analysis area.

Past and present timber harvest activities, prescribed fire, wildfire, existing roads, and dispersed recreation will continue to be an insignificant influence on upland rangeland ecosystems as described under the affected environment.

### **Forest Plan Consistency and Other Required Disclosures**

Alternative Three would implement the 1986 Custer National Forest Land and Resource Management Plan (Forest Plan) standards and guidelines for range management related to Management Areas B, D, G, G, and M. Compliance with Forest Plan standards and guidelines for range management would be met. It would provide conditions conducive to maintaining healthy, vigorous vegetative cover, provide cover for wildlife habitat, provide livestock forage, and maintain soil stability. The alternative may not fully achieve the goal for desired vegetation. Sites currently occupied by non-native grass species such as timothy, smooth brome, and Kentucky bluegrass will probably continue to be dominated by these species. Sites currently dominated by desired native grass species will continue to be maintained as native mountain grassland communities.

### **Conclusions for Environmental Consequences**

This alternative should provide for recovery towards desired conditions for grazing impacted upland areas currently with low to moderate and moderate similarity and still dominated by native grass species. Sites dominated by non-native grass species will probably continue to be dominated by timothy, Kentucky bluegrass, and smooth brome. Stocking levels should be balanced with available forage under Alternative Three. Grazing should not result in consistently exceeding allowable use. The health and vigor of individual desirable plant species should be maintained or improve under the proposed stocking levels and grazing prescriptions.

### **INDIRECT EFFECTS - SUMMARY ACROSS ANALYSIS AREA**

Proposed management would reduce AUMs in the Red Lodge Creek and Butcher Creek Allotments. Proposed allotment and pasture fences are expected to assist livestock management to reduce livestock effects on desirable plant species and improve the health and vigor of these species. Healthy desirable plant species should increase in abundance and density, improving water infiltration and soil water storage which turn should improve forage productivity.

Implementation of proposed management practices, including planned grazing systems and allowable use guidelines should help reduce livestock grazing pressure on desirable species, and improve key areas. Since long term monitoring has never been implemented to track changes in range condition or trend in any of the above allotments, there is uncertainty about the effectiveness of these guidelines and the proposed management

prescriptions in moving existing conditions to desired conditions. This uncertainty is due to 1) the lack past monitoring information, comparing allowable use guidelines and deferred rotation grazing systems in achieving desired vegetation composition, 2) uncertainty about the level of implementation and administration that would occur. Monitoring would be crucial to determine the effectiveness of the proposed allowable use guidelines in conjunction with planned grazing systems to achieve desired conditions in upland rangeland ecosystems. This is particularly true in situations where adaptive management strategies are expected to be used.

Table 28 summarizes the effects by alternative relative to anticipated trend in upland rangeland ecosystems towards desired vegetation composition for grassland and shrubland communities.

**TABLE 28 - SUMMARY OF ANTICIPATED TREND IN UPLAND RANGELAND ECOSYSTEMS ACROSS THE PROJECT AREA**

	Alternative 1	Alternative 2	Alternative 3
<b>Direct</b>	short term decrease <sup>1</sup>	no activity	short term decrease <sup>1</sup>
<b>Indirect</b>	improve to DFC <sup>4</sup>	static <sup>2</sup>	Improve to DFC <sup>2</sup>
<b>Cumulative</b>	improve but relative <sup>3</sup>	static	improve but relative <sup>3</sup>

<sup>1</sup> Decrease due to installation or removal of water developments and fences. Rapid site recovery anticipated.

<sup>2</sup> Improvement to Desired Future Condition (DFC) may require adaptive management and may not occur on upland sites dominated by timothy.

<sup>3</sup> Natural and other human activities would influence the recovery and future condition of upland rangeland ecosystems.

<sup>4</sup> Abundance of desirable plant species should increase, however, long term diversity and productivity of the ecosystem may not be maintained without periodic disturbance (e.g. fire, grazing) and areas presently dominated by non-native grass species would probably continue to be dominated by non-native species.

**NOXIOUS WEED RISK ASSESSMENT**

In order to determine the risk of noxious weeds and other undesirable plants spreading in the analysis area due to the activity being analyzed in this environmental assessment the following risk assessment was conducted. The Forest Service Northern Region Risk Assessment Rating Procedure for Undesirable Plants was used for this determination. This method meets the direction contained in the *Forest Service Manual Zero Code 2080 - Noxious Weed Management*. For details on the methodology of this assessment rating procedure see Appendix I - Upland Rangeland Ecosystem Report pages 41-42.

Step 1. Identify level of likelihood and consequence of adverse effects and assign values according to the above direction.

Likelihood rating is between low and moderate (2.5). Noxious weeds are present in very limited quantity within the project area, but are not likely to spread appreciatively with the current level of monitoring and treatment. The consequence of noxious weed establishment is between low and moderate (2.5). Cumulative effects on the native plant community are likely, but are very limited with continued monitoring and treatment. Spread of leafy spurge, spotted knapweed, meadow hawkweed, sulfur cinquefoil and Canada thistle is not promoted by continued livestock grazing and could continue without livestock grazing. Under alternatives 2 and 3 livestock may promote the spread of hound's-tongue. Hound's-tongue would also be spread by birds and wildlife under alternative 1.

Step 2. Multiply level of likelihood times consequences.

Likelihood (2.5) X Consequences (2.5) = Value (6.25)

Step 3. Use the value resulting in step 2 to determine Risk Rating.

A value of 6.25 gives a risk rating of low. The project may proceed as planned. Initiate control treatments on undesirable plant populations that get established in the area.

For additional information on environmental effects as they pertain to upland rangelands see Appendix I - Upland Rangeland Ecosystem Report.

## **SOILS AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix II, Soils Report.

Soils in the project area range from fine to coarse textures and are shallow to deep. Many of the soils have abundant coarse fragments. The major soil series are Mollisols and Inceptisols.

There are 34 integrated sample points within the project area (Beartooth Area Terrestrial Ecological Unit Inventory (TEUI) In Progress). Data collected at these points included soil classification, disturbance, erosion class, rooting depth and abundance, vegetation existing cover class, potential natural vegetation, and ecological classification data. The project area was also traversed by range professionals and soils professionals to identify and document potential areas at risk. The traverses consisted of visual observation of plant health and vigor, bare ground, litter, soil surface condition, soil structure, and rooting depth.

Based on data from TEUI, utilization studies, riparian proper functioning condition (PFC) assessments, and pasture traverses the majority of allotments appear to have adequate amounts of ground cover, adequate soil structure and function, and minimal levels of accelerated erosion and thus meet soil quality standards. Because of the high variability of soils and impact of grazing on soils it is very difficult to determine aerial extent of allotments or pastures not meeting soil quality standards. As described above, literature suggests that parameters typically assessed can vary seasonally and are affected by climate. Only at a few localized areas were potential problems identified in upland areas.

## **SOILS ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix II, Soils Report.

### **ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT**

**Direct and Indirect Effects:** Livestock grazing impacts would not occur under this alternative. Livestock use has direct physical impacts on soils by trampling and trailing. New livestock grazing impacts would no longer occur. Soil condition would continue to be affected by recreational livestock grazing and wildlife use. Removal of fence and water developments may impact soil quality depending on time and duration of impact, but the impact would be temporary and localized. Soil conditions would slowly improve over time. Recovery would be dependent on soil and site characteristics and climate. The few areas that currently do not meet soil quality standards would move toward desired condition of improved soil quality. Soil compaction at water developments and springs would moderate leading to improved water infiltration and vegetative cover. This alternative may provide the fastest rate of recovery for all grazing impacted sites.

### **ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

**Direct and Indirect Effects:** Under this alternative, livestock use would be maintained at the currently permitted level. Grazing impacts on upland soils and vegetation would be higher than the other two alternatives. Soil disturbance by trampling and trailing would continue at current rates and locales. Climate variability would more directly affect changes in less resilient sites. In some areas of these pastures, heavy grazing or lack of deferment may cause a downward trend in vegetation which may, in turn, result in a downward trend in soils if protective vegetation is removed or reduced. As is currently the case, no livestock grazing would be authorized on the Black Butte Wildlife Management Area.

### **ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

**Direct and Indirect Effects:** The proposed action (Alternative 3) would allow vegetation and soil conditions to improve and move toward desired condition at a higher rate than Alternative 2. In some heavily impacted areas, the current condition would be maintained for a longer period of time. In these areas slow improvement may be possible.

Structural range improvements such as fences are proposed in this alternative to more adequately control livestock distribution and minimize detrimental effects on soils and other resources. Construction and implementation of these range improvements may have a negative impact to soil quality. Controlling time and duration of the impacts of construction would minimize the effects. In many cases livestock tend to congregate around water developments and along fence lines. Water developments heavily impact the soil and vegetation conditions in a small area proximal to the development. This may lead to an unwanted impact on soil quality in these areas.

Changing distribution patterns and reducing grazing pressure are anticipated to improve other areas of the pastures and allotments.

**Cumulative Effects Common to All Alternatives:** The risks of cumulative effects were assessed within each proposed activity area. Cumulative effects consist of the impacts from all past, present, future and proposed activities that overlap in time and space with the proposed project. Cumulative effects on soils are the combination of the existing detrimental disturbance from past activities combined with the estimated disturbance that would result from the proposed project. The units with the highest risk of exceeding the regional soil standards are those that had past activities and still have some detrimental soils disturbance. Few of the areas within the allotments had evidence of past harvest activities. Past harvest activities did occur in the Red Lodge Creek Allotment. At this time most of the area has adequate ground cover and erosion is not considered a problem. Firewood cutting along roads has had minimal effects on soil productivity because it is carried out by hand and the fine branches and needles are left in the woods. The current road and trail system contribute to soil disturbance and movement, but this is confined to the roads/trails. Therefore, overall effects to soil stability and productivity are limited and more appropriately evaluated on a watershed basis using other techniques.

For additional information on environmental effects as they pertain to soils see Appendix II - Soils Report.

### **RIPARIAN ECOSYSTEM AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix III, Riparian Ecosystem Report.

The desired future condition for all riparian systems within the analysis area is to attain a properly functioning condition which provides the physical, chemical and biological attributes to fully support all beneficial uses. Beneficial uses include, but are not limited to, fish and wildlife, recreation and agriculture. Properly functioning riparian systems are resilient and better able to buffer the effects of disturbance events and climate extremes.

Fifteen reaches, or 7.38 miles of perennial stream were surveyed using the Lotic (flowing water) PFC methodology. Five reaches (1.16 miles) were determined to be less than properly functioning, in part due to grazing. Six ponds were surveyed using the Lentic (standing water) PFC methodology and one was determined to be less than properly functioning, in part due to grazing. Four sites were surveyed using the low flow, spring fed wetland water course checklist. Three of these sites (0.48 miles) were determined to be less than properly functioning, in part due to grazing. Allotments that contain streams that are less than properly functioning include Butcher Creek, and East and West Rosebud. Changes in grazing management have the potential to improve the condition of these streams because grazing impacts are the most direct and significant of all the activities that influence them.

Numerous state and federal laws, along with state and federal agency policy require the Forest Service to manage riparian systems so they do in fact, function properly. An abundance of research recommendations provide the knowledge base to accomplish this requirement. In the end, on-ground implementation, monitoring and administration are the key components to improving or maintaining properly functioning riparian conditions.

### **RIPARIAN ECOSYSTEM ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix III, Riparian Ecosystem Report.

Table 29 displays the direct, indirect and cumulative effects of livestock grazing on riparian areas across the analysis area allotments for each alternative.

**TABLE 29 - ENVIRONMENTAL EFFECTS TO RIPARIAN AREAS BY ALTERNATIVE**

<b>CATEGORY OF EFFECT</b>	<b>ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT</b>	<b>ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT</b>	<b>ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT</b>
<b>DIRECT</b>	Installation, reconstruction or removal of water developments are the only activities considered to cause direct effects to riparian areas and water quality, and none of those activities would occur under this alternative.	Installation, reconstruction or removal of water developments are the only activities considered to cause direct effects to riparian areas and water quality, and none of those activities would occur under this alternative.	Installation, reconstruction or removal of water developments are the only activities considered to cause direct effects to riparian areas and water quality, and none of those activities would occur under this alternative.
<b>INDIRECT</b>	This alternative would provide the fastest rate of recovery for all grazing impacted riparian areas and ensures that these areas achieve a properly functioning condition that fully supports all beneficial uses. There is no risk of reaches currently functioning properly to reverse trends due to livestock grazing. Compliance with water quality regulations and Forest Plan standards would occur over a relatively short timeframe as riparian areas reach properly functioning condition.	The condition of five riparian sites, due to recent grazing impacts, would continue to function at-risk. Four additional sites at-risk due to historical grazing impacts, may or may not improve, depending on how current management reflects past management. Sensitive riparian sites currently functioning properly have the potential to reverse trends, again depending on how current management reflects past management. All reasonable grazing BMPs would not be applied under this alternative. Habitats for riparian dependant species would continue to be degraded and therefore beneficial uses would be less than fully supported. Compliance with state and federal water quality regulations and Forest Plan standards would not be possible.	The condition of all riparian areas would improve or be maintained, but would likely require long-term trend monitoring and adaptive management to implement all reasonable grazing BMPs and fully support all beneficial uses. Habitats for riparian dependant species would improve and compliance with Forest Plan standards and state and federal water quality regulations would occur over the long-term as adaptive management as implemented.
<b>CUMULATIVE</b>	Past and present timber harvest activities, prescribed fire and existing roads would continue to be an insignificant influence on riparian systems as described under the affected environment. However, natural flood and	Past and present timber harvest activities, prescribed fire and existing roads would continue to be an insignificant influence on riparian systems as described under the affected environment. However, natural flood and wildfire events may impact	Past and present timber harvest activities, prescribed fire, and existing roads would continue to be an insignificant influence on riparian systems as described under the affected environment. However, natural flood and wildfire events may impact

CATEGORY OF EFFECT	ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT	ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT	ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT
	wildfire events may impact these riparian systems and riparian dependant species in the future, and reduce the anticipated rate of recovery from past grazing influence.	these riparian systems and riparian dependant species in the future. The degree of impact may be compounded by continued livestock grazing, but mainly for those riparian areas currently functioning at-risk.	these riparian systems and riparian dependant species in the future. The degree of impact may be compounded by continued livestock grazing, but mainly for those riparian areas currently functioning at-risk.

For additional information on environmental effects as they pertain to riparian areas see Appendix III - Riparian Ecosystem Report.

### **FISHERIES/AQUATICS AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix IV, Fisheries/Aquatics Report and Biological Evaluation.

The *Custer National Forest Land and Resources Management Plan* provides specific direction for the desired future condition for wildlife and fish habitat; “[W]ildlife and fish habitat conditions for game and nongame wildlife species will improve by the end of the next decade. Appropriate range management practices within livestock grazing allotments will also improve wildlife habitat values. Protection of riparian zones will result in maintenance of high quality water. Key areas for wildlife such as woody draws, bottoms, and riparian areas will receive major considerations for wildlife and vegetative management and these areas should improve.” (page 10). The desired future condition for all riparian systems within the analysis area is to attain a properly functioning condition which provides the physical, chemical and biological attributes to **fully** support all beneficial uses including aquatic species.

Fish bearing streams occurring within the project area include: 1) West Rosebud Creek and Morris Creek in the West Rosebud Allotment, 2) East Rosebud Creek and Hellroaring Creek in the East Rosebud Allotment, and 3) West Red Lodge Creek in the Red Lodge Creek Allotment. The remaining perennial systems in the project area, including East Fork Butcher Creek, Cold Creek, Black Canyon Creek, and 9 unnamed headwater tributaries, are not known to support fish. Amphibian habitats are present in all allotments. These include abandoned and active beaver ponds, and low gradient reaches of low-flow perennial channels.

West Rosebud Creek and East Rosebud Creek are popular recreational fishing destinations on the Custer National Forest. Both drainages provide developed day use and camping areas and are frequented regularly throughout the summer months. Both East and West Rosebud creeks provide anglers with opportunity to harvest brook *Salvelinus fontinalis*, brown *Salmo trutta*, and rainbow trout *Oncorhynchus mykiss*, and mountain whitefish *Prosopium williamsoni*. Lower reaches of East and West Rosebud Creeks in the project area contain sensitive spawning and rearing habitats for both resident and migratory trout species.

### **FISHERIES/AQUATICS ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix IV, Fisheries/Aquatics Report and Biological Evaluation.

Domestic livestock grazing and associated livestock activities can alter stream channel form and function, especially in sensitive stream types, by direct modification of the streambed and banks (e.g. hoof shear) and

indirectly by modifying riparian vegetation and sediment delivery regimes (summarized by Platts 1991). Riparian vegetation modification may directly remove fish security cover and reduce stream shading, resulting in increased water temperatures in summer and colder temperatures in winter. Impacted stream channels may widen and aggrade, or become deeply incised, with associated reductions in important fish and amphibian habitats such as pools, undercut banks, overhead riparian vegetation, and spawning areas. Increased sediment delivery may result in increased entrainment of fine sediments (< 6.3 mm) in salmonid spawning gravels and may in-fill pools that function as rearing and overwintering habitats (Chapman 1988). Increased sediment delivery rates may also in-fill breeding, rearing, and over-wintering habitat for amphibian species (Maxell 2000).

Table 30 displays potential direct, indirect and cumulative effects to aquatic species (sensitive and Management Indicator Species) across the analysis area for each alternative.

**TABLE 30 - POTENTIAL EFFECTS TO AQUATIC SPECIES**

<b>CATEGORY OF EFFECT</b>	<b>ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT</b>	<b>ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT</b>	<b>ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT</b>
<b>DIRECT AND INDIRECT</b>	By removing livestock grazing from the allotments, all direct and indirect impacts to fish and amphibians relative to the purpose of this analysis would no longer occur. Streambanks that are currently trampled from past grazing would gradually stabilize and over-utilized riparian vegetation would increase in vigor and density. Removal of livestock would decrease the possible occurrence of redd trampling. Compliance with <i>Forest Plan</i> standards and state and federal water quality regulations would occur over a relatively short timeframe.	Livestock grazing impacts are expected to continue at current levels and direct and indirect impacts to fish and amphibians would remain unchanged. Less than properly functioning stream reaches, springs, and ponds would continue to effect fish and amphibian species. Some riparian and aquatic habitats are expected to continue to function less then properly or to become impaired beyond current levels. Therefore, compliance with <i>Forest Plan</i> standards and state and federal water quality regulations would not be possible under this alternative.	Management changes are expected to reduce existing direct and indirect effects of livestock grazing on aquatic organisms and their habitat, and maintain or improve community health and stream channel form and function. Overall, the increased riparian, wetland, and spring protections provided by this alternative are expected to improve the condition of fish and amphibian habitats. Compliance with <i>Forest Plan</i> standards and state and federal water quality regulations is possible under this alternative.
<b>CUMULATIVE</b>	The cumulative effects of Alternative 1 on aquatic resources - when combined with past, ongoing and reasonably foreseeable activities is considerably beneficial to populations of wild trout, amphibians, and other aquatic biota as levels of riparian livestock use (and associated direct and indirect effects to these species and their habitat) would be reduced at the most expedient rate relative	The cumulative effects of Alternative 2 on aquatic resources, when combined with past activities and natural processes, may have a negative impact on wild trout populations, native amphibian species, and other aquatic biota as levels of riparian utilization (and associated direct and indirect effects as described above) are expected to remain at current levels or increase. Adverse cumulative effects	The cumulative effects of Alternative 3 on aquatic resources, when combined with past activities and natural processes, should be beneficial to wild trout populations, native amphibian species, and other aquatic biota as levels of riparian utilization (and associated direct and indirect effects as described above) are expected to decrease. Adverse cumulative effects from this Alternative are not

CATEGORY OF EFFECT	ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT	ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT	ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT
	to the purpose and need of this environmental assessment.	from this Alternative are possible because livestock have the potential to cause adverse direct and indirect effects to fish and amphibian populations, thereby compounding the effects of past activities and natural processes on the aquatic ecosystem.	likely as the potential for adverse direct and indirect effects to fish and amphibian populations is low.

No Federally listed threatened or endangered fish or amphibian species, designated critical habitat, fish or amphibian species proposed for Federal listing, or proposed critical habitat occur in the project area. No Forest Service sensitive fish or amphibian species are suspected present within the project area. The project area is within the historic distribution of the Yellowstone cutthroat trout, Western (Boreal) toad and Northern Leopard frog. However, no FS sensitive aquatic species have been documented in the vicinity of the project area. Wild nonnative trout species (rainbow, brown, and brook trout) and a native amphibian species (Columbia spotted frog) occupy aquatic environments throughout the project area.

Table 31 summarizes the potential effects to aquatic species (sensitive and Management Indicator Species) across the project area by alternative.

**TABLE 31 - POTENTIAL EFFECTS OF THE ALTERNATIVES ON SENSITIVE AND MANAGEMENT INDICATOR (MIS) AQUATIC SPECIES IN THE PROJECT AREA**

SENSITIVE AND MIS SPECIES	ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT	ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT	ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT
Yellowstone cutthroat trout	NI	NI	NI
Northern leopard frog	NI	NI	NI
Western (Boreal) toad	NI	NI	NI
Wild Trout*	BI	MIIH	MIIH

NI = No impact

\*MIIH = May impact Individuals or habitat but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.

WIFV = Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability of the population or species.

BI = Beneficial impact

MIS = Management Indicator Species (Wild Trout)

For additional information on environmental effects as they pertain to fish and aquatic species see Appendix IV - Fisheries/Aquatic Report.

## **WILDLIFE AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix V, Wildlife Report.

The following vegetation communities that occur in the allotments were used as a means of assessing habitat suitability for the wildlife species that are addressed:

- Mountain Grasslands
- Sagebrush
- Mesic Shrublands
- Deciduous Woodlands
- Conifer Forest
- Riparian Areas/Streams/Seeps

These habitats and some of the wildlife species closely associated with them are discussed in detail in Appendix V - Wildlife Report.

## **WILDLIFE ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix IV, Fisheries/Aquatics Report and Biological Evaluation.

Abundant literature is available that discusses the effects of livestock grazing on wildlife. The common theme throughout much of the literature is that grazing may affect wildlife habitat namely through changes in structure, composition, and other aspects of vegetation. The vegetation approach is particularly pertinent when considering potential effects of grazing on ungulates and migratory landbirds. For other species, mainly large carnivores, potential effects are related mainly to control of predators that may prey upon domestic livestock.

Alternative 1 (No Livestock Grazing) would provide the fastest rate of recovery of wildlife habitats that have been impacted by grazing, especially riparian vegetation and aspen. This Alternative would also be the most advantageous for large carnivores as it would eliminate potential for control actions related to livestock. Alternative 2 (Maintain Existing Livestock Management), assuming that future management reflects past *actual* use (versus permitted use), would prevent some degraded riparian habitats from improving in condition, while others would improve over time. Overgrazed upland sites most likely would not improve. Alternative 3 (Proposed Action) may allow degraded riparian habitats to improve, but possibly not to an extent that would fully benefit riparian-dependent wildlife. Degraded upland sites should increase in vegetation abundance and density. Adverse effects that may potentially occur in the Black Butte Management Area would be short term. Under all alternatives, non-native timothy is likely to persist on sites that it currently dominates. The presence of livestock under Alternatives 2 and 3 would provide potential for control actions against large carnivores. However, no control actions have occurred to date on the grazing allotments.

Cumulative effects are not expected under Alternative 1 for most species analyzed. An exception is that future prescribed or wild fires may have short-term adverse effects on habitat for several bird species but positive effects for others. In addition, lack of fire may have a long-term adverse effect on big game habitat. Under Alternatives 2 and 3, potential for cumulative effects from activities on federal land is minimal. However, development on private land adjacent to the National Forest may continue to result in loss of wildlife habitat, particularly for large carnivores. Potential for control actions on large carnivores, including the gray wolf and grizzly bear, occupying private land may also contribute to adverse cumulative effects under Alternatives 2 and 3. Under all alternatives, cumulative effects of aspen regeneration treatments would be beneficial to aspen-dependent wildlife species.

Table 32 below summarizes the potential effects to Threatened, Endangered, Sensitive, and Management Indicator Species potentially present in the project area.

**TABLE 32 - POTENTIAL EFFECTS OF ALTERNATIVES ON THREATENED, ENDANGERED, SENSITIVE AND MANAGEMENT INDICATOR SPECIES**

<b>THREATENED, ENDANGERED, &amp; PROPOSED SPECIES</b>	<b>ALTERNATIVE 1</b>	<b>ALTERNATIVE 2</b>	<b>ALTERNATIVE 3</b>
Gray wolf	Non jeopardy	Non jeopardy	Non jeopardy
Lynx	No effect	NLAA	NLAA

NLAA = Not likely to adversely affect

Non-jeopardy = Not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat.

<b>SENSITIVE SPECIES**</b>	<b>ALTERNATIVE 1</b>	<b>ALTERNATIVE 2</b>	<b>ALTERNATIVE 3</b>
American peregrine falcon	No impact	No impact	Beneficial impact
Bald eagle	No impact	No impact	No impact
Grizzly bear	No impact	May impact individuals*	May impact individuals*
Loggerhead shrike	No impact	No impact	No impact
Wolverine	No impact	No impact	No impact
Long-eared Myotis	Beneficial impact	No impact	May impact individuals*^
Long-legged myotis	No impact	No impact	No impact
Townsend's big-eared bat	No impact	No impact	No impact

\* May impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

^ May impact individuals using the Black Butte Wildlife Habitat Area, but there would be no impact on the East & West Rosebud, Butcher Creek and Red Lodge Creek Allotments (see Appendix V - Wildlife Report and Biological Evaluation pages 29-31 for additional information).

<b>MANAGEMENT INDICATOR SPECIES - HABITAT INDICATOR SPECIES</b>	<b>ALTERNATIVE 1</b>	<b>ALTERNATIVE 2</b>	<b>ALTERNATIVE 3</b>
Brewer's sparrow	Neutral effect	Neutral effect	Neutral effect
Ovenbird	Positive effect	Neutral effect	Neutral effect
Ruffed grouse	Neutral effect	Neutral effect	Neutral effect
Spotted (rufous-sided) towhee	Neutral effect	Neutral effect	Neutral effect
Yellow warbler	Positive effect	Neutral effect	Neutral effect
White-tailed deer	Neutral effect	Neutral effect	Neutral effect
<b>MANAGEMENT INDICATOR SPECIES - KEY SPECIES</b>	<b>ALTERNATIVE 1</b>	<b>ALTERNATIVE 2</b>	<b>ALTERNATIVE 3</b>
Golden eagle	Neutral effect	Neutral effect	Neutral effect
Merlin	Neutral effect	Neutral effect	Neutral effect
Elk	Neutral effect	Neutral effect	Neutral effect
Mule deer	Neutral effect	Neutral effect	Neutral effect

### Threatened and Endangered Species

In 2005, the USDA Forest Service completed the Programmatic Biological Assessment For Activities That Are Not Likely To Adversely Affect Threatened and Endangered Terrestrial Species (USDA Forest Service 2005), here after called the Programmatic BA. The Biological Assessment applies to proposed projects on several National Forests, including the Custer National Forest. Included in the Biological Assessment are Screening Criteria to use in determining effects of various components of projects. Potential effects of the proposed project were analyzed by application of the screening criteria to the applicable components of Alternatives 1, 2 and 3 to determine the expected level of effects to species present or potentially present in the project analysis area (see Biological Assessment for T. E. & Proposed Species for West Rosebud, East Rosebud, Butcher Creek and Red Lodge Creek Allotments & Black Butte Wildlife Habitat Area Rangeland Project on file at the Beartooth District).

For additional information on environmental effects as they pertain to wildlife species see Appendix V - Wildlife Report and Biological Evaluation.

### **SENSITIVE PLANTS AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Appendix VI, Sensitive Plants Report and Biological Evaluation.

Detailed information regarding riparian and upland plant community composition and location is found elsewhere in the environmental analysis for this proposed action. Field surveys have been conducted within or adjacent to the project area by Forest Service Specialists and contract crews during the 2002-2004 field seasons. No new locations of sensitive plants were noted by these investigators.

There is one known location of Hiker's Gentian within a seven acre riparian area of the East Rosebud Allotment. There are habitat components for the remaining six species (four riparian and two upland) to be analyzed, but no known locations within the project area.

### **SENSITIVE PLANTS ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Appendix VI, Sensitive Plants Report and Biological Evaluation.

#### **ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT**

**Direct and Indirect Effects:** No grazing would occur under this alternative. Selection of the no grazing alternative would be expected to not impact any sensitive plant populations that may exist within the project area. The direct effect of this alternative would be by the elimination of cattle grazing or trampling of the plants themselves. Livestock grazing impacts to associated sensitive species riparian and upland habitats would no longer occur under this alternative. Streambanks that are currently trampled from past grazing would gradually stabilize and over-utilized riparian vegetation would increase in vigor and density. Infiltration and absorption capacity of overly compacted soils at spring sites and along low discharge, spring fed systems would increase, thereby improving habitat components and hydrologic processes.

**Forest Plan Consistency and Other Required Disclosures:** Compliance with *Forest Plan* standards and Forest Service policy would occur over a relatively short timeframe as at-risk riparian areas attain a properly functioning condition which may maintain sensitive species and their habitats.

**Conclusion:** Based upon existing information, known locations, probability of occurrence, and probability of impacts, there are No Impacts anticipated to Hiker's Gentian, mealy primrose, small yellow lady's-slipper, giant helliborine, threeranked humpmoss, Beartooth goldenweed, Hall's rush, musk root, Barratt's willow, Jove' buttercup, and Shoshonea. The No Grazing/No Action alternative would provide the fastest rate for improvement for sensitive plants habitats that may be vulnerable to grazing impacts. This alternative complies with all pertinent laws, regulations and policy.

#### **ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

**Direct and Indirect Effects:** This alternative proposes no change from current *permitted* management. However, it is important to understand that *actual use* in four of the five allotments over the last two decades has been substantially lower than *permitted use* (10 to 32% lower), and three of the five allotments have had significant *non-use* (22-44% non-use). No grazing is proposed for the Black Butte area under this alternative and therefore, there is no risk of affecting potential sensitive species habitat.

Assuming future management under this alternative reflects past *actual use*, five riparian systems currently functioning at-risk, in part due to recent grazing management, would continue to be at-risk. Four systems currently at-risk, due in part to historical grazing management, would continue on an upward trend. Sixteen riparian systems are expected to continue to function properly. Upland habitats would be maintained or improved.

Since actual use has been substantially lower than permitted use over the last two decades, it is unlikely that future management under this alternative would reflect *permitted use*. If permitted use were routinely authorized, however, grazing pressure on riparian and upland systems is expected to increase and at-risk riparian and upland systems with an upward trend, and some of the more accessible and sensitive systems currently functioning properly may revert to a declining trend.

**Riparian Species:** The riparian area supporting the known population of hiker's gentian in East Rosebud Allotment is properly functioning. Although individuals may be impacted by some livestock trampling, existing management activities would not likely contribute to a trend towards Federal listing or loss of viability to the population or species.

The project area contains suitable riparian habitat for four other sensitive plant species. Because of the uncertainty that these four sensitive species exist within the project area, even though habitat components exist, current management might impact individual sensitive plants, but would not likely contribute to a trend towards Federal listing or loss of viability to small yellow lady's slipper (*Cypripedium parviflorum*), giant helleborine (*Epipactis gigantea*), threeranked humpposs (*Meesia triquetra*), and mealy primrose (*Primula incana*).

**Upland Species:** The project area contains suitable upland habitat for two other sensitive plant species. Because of the uncertainty that these two sensitive species exist within the project area, even though habitat components may exist, current management might impact individual sensitive plants, but would not likely contribute to a trend towards Federal listing or loss of viability to Beartooth goldenweed (*Haplopappus cartamoides* var. *subsquarrosus*), and Hall's rush (*Juncus hallii*). In addition, the following aspects of livestock use relative to these two species adds to the rationale for the impact determination.

Lesica (1995) indicates that it seems likely that *H. cartamoides* var. *subsquarrosus* populations are stable or increase with moderate livestock grazing. The tough, spiny tissue and perhaps resinous chemicals may make this plant unpalatable to cattle. However, trampling could occur. *Juncus hallii* belongs to the Rush family which generally loses palatability as the growing season progresses. However, rushes may be utilized more when found in a mix with other more palatable species than when found in more of a monoculture. However, trampling could occur.

**Forest Plan Consistency and Other Required Disclosures:** Compliance with the *Forest Plan* and Forest Service policy regarding sensitive plant conservation would be possible under this alternative, but improvement in habitat conditions may not occur or may occur.

**Conclusion:** Based upon existing information, known locations, probability of occurrence, and probability of impacts, there may be impacts to individuals within hiker's gentian's known population and impacts to individuals of mealy primrose, small yellow lady's-slipper, giant helleborine, threeranked humpposs, Beartooth goldenweed, and Hall's rush within project area habitats, but the impacts would not likely contribute to a trend towards Federal listing or loss of viability of these species. There would be No Impact to musk root, Barratt's willow, Jove' buttercup, and Shoshonea. The Current Management Alternative would provide the slowest to no rate for improvement for sensitive plants habitats that may be vulnerable to grazing impacts. This alternative complies with all pertinent laws, regulations and policy.

### ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT

**Direct and Indirect Effects:** Under this alternative, the proposed action incorporates several livestock management considerations into each specific allotment as outlined in the environmental assessment. Grazing utilization standards are established. Practices such as improved salting, lowered stocking rates, tailored seasonal timing and rotations, reduced durations, and rangeland developments are incorporated. The earliest livestock entry date would generally be July 1, but never before June 15 in all allotments except East Rosebud which would begin only after September 1. Management intensity intended to improve livestock distribution would be increased through improved mineral distribution (salting away from hiker's gentian population and other water sources, fencelines, and other key livestock use areas). Anticipated range developments would be constructed or improved to allow for more deferment. Duration in most units is not to exceed 30 days in order to improve

vegetation and soil conditions.

The changes in grazing management proposed under this alternative are designed to reduce grazing duration and improve livestock distribution. Better livestock distribution would increase use of under-utilized secondary range and reduce over-utilization on primary range and grazing pressure on riparian areas. The riparian objective is to change the existing at-risk conditions associated with grazing to an upward or improving trend, and ultimately achieve properly functioning condition for these areas.

The effects are the same as those described under Alternative 2 with the exception that conditions are likely to be maintained or improved and less likely to decline. Sensitive plant species vulnerable to grazing impacts may have individual plant impacts, but would not likely contribute to a trend towards Federal listing or loss of viability.

**Forest Plan Consistency and Other Required Disclosures:** Compliance with the *Forest Plan* and Forest Service policy regarding sensitive plant conservation would be possible under this alternative, but improvement in habitat conditions may not occur or may occur, but not as fast as under Alternatives 1.

**Conclusion:** Based upon existing information, known locations, probability of occurrence, and probability of impacts, there may be impacts to individuals within hiker's gentian's known population and impacts to individuals of mealy primrose, small yellow lady's-slipper, giant helliborine, threeranked humpmoss, Beartooth goldenweed, and Hall's rush within project area habitats, but the impacts would not likely contribute to a trend towards Federal listing or loss of viability of these species. There would be No Impact to musk root, Barratt's willow, Jove's buttercup, and Shoshonea. The Proposed Management Alternative would provide a faster rate for improvement for sensitive plants habitats that may be vulnerable to grazing impacts in comparison with the Current Management Alternative. This alternative complies with all pertinent laws, regulations and policy.

Table 33 summarizes findings by alternative relative to species effects determination:

**TABLE 33 - SENSITIVE SPECIES BIOLOGICAL EVALUATION - SUMMARY OF CONCLUSION OF EFFECTS**

SENSITIVE PLANT SPECIES	ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT	ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT	ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT
<i>Adoxa moschatellina</i> (Musk-Root)	NI	NI	NI
<i>Cypripedium parviflorum</i> (Small Yellow Lady's Slipper)	NI	MIH	MIH
<i>Epipactis gigantea</i> (Giant Helliborine)	NI	MIH	MIH
<i>Gentianopsis simplex</i> (Hiker's Gentian) - Only Known Population in Project Area	NI	MIH	MIH
<i>Haplopappus carthamoides</i> var. <i>subsquarrosus</i> (Beartooth Goldenweed)	NI	MIH	MIH
<i>Juncus hallii</i> (Hall's Rush)	NI	MIH	MIH
<i>Meesia triquetra</i> (Threeranked humpmoss)	NI	MIH	MIH
<i>Primula incana</i> (Mealy Primrose)	NI	MIH	MIH
<i>Ranunculus jovis</i> (Jove's Buttercup)	NI	NI	NI
<i>Salix barrattiana</i> (Barratt's Willow)	NI	NI	NI
<i>Shoshonea pulvinata</i> (Shoshonea)	NI	NI	NI

NI = No Impact

MIH = May Impact Individuals or Habitat, but will not Likely Contribute to a trend towards Federal Listing or Loss of Viability to the Population or Species

**Cumulative Effects Common to All Alternatives:** Past and present timber harvest activities, prescribed fire, and dispersed recreation would continue to be an insignificant influence on riparian and upland systems as described under the affected environment. However, natural flood, landslides, and wildfire events may impact these systems and dependant species in the future. The degree of impact may be compounded by continued livestock grazing under the current management, but mainly for those areas currently functioning at-risk.

*Gentianopsis simplex* (Hiker's Gentian), *Cypripedium parviflorum* (Small Yellow Lady's Slipper), *Epipactis gigantea* (Giant Helliborine), *Meesia triquetra* (threeranked humpmoss), and *Primula incana* (Mealy Primrose) inhabits sites that present few options for future activity other than livestock grazing. Riparian areas, where these species are most often associated, has experienced grazing activity in the past, but little or no other activity from logging, mining, recreation, or other activities.

*Haplopappus carthamoides var. subsquarrosus* (Beartooth Goldenweed), *Juncus hallii* (Hall's Rush) and *Ranunculus jovis* (Jove's Buttercup) can inhabit upland sites in areas where some livestock grazing and some isolated dispersed recreational use may occur.

Past, present, and reasonably foreseeable impacts should not be significant due to the types of sensitive plants' habitat that are not affected to a great degree by the project activities. Ongoing riparian use by livestock has the most likelihood of cumulative impacts on riparian related sensitive plants, because grazing use may be concentrated in this type of habitat.

There are no known sensitive plant locations within the project area. Any suitable habitats occupy sites that presents few options for future activity and has experienced little activity in the past, whether the activity be logging, mining, grazing, recreation, prescribed burning, or other activities.

For additional information on environmental effects as they pertain to sensitive plant species see Appendix VI - Sensitive Plants Report.

## **CULTURAL RESOURCES AFFECTED ENVIRONMENT**

The following is a summary of the affected environment from Cultural Resources Report (see project record for complete report).

The decision for re-issuance of grazing permits is an undertaking as defined in the National Historic Preservation Act (NHPA) and requires Federal Agencies to take into account the effects of livestock grazing and related actions on archaeological and historical properties. In order to identify the type and extent of livestock grazing effects on heritage resources the Custer National Forest (CNF) operates under a range recission site identification strategy (SIS) specifically designed to address the range recission undertakings and includes the range recission decisions and allotment plan implementations. The range recission SIS is composed of three components: Range Improvement Inventory, Heritage Site Monitoring and Site Condition Assessment.

There are twenty-four existing range improvements within the Project Area consisting of fences. Thirteen proposed range improvements consisting of existing fence removal, new fence construction and stock driveway corridor clearing were inventoried under the range recission SIS. These investigations resulted in the inventory of approximately 114 acres and the recording of six new sites

Currently, there are twelve recorded cultural resource sites consisting of cairns, a depression, a lithic artifact scatter, a Civilian Conservation Corps spike camp, a historic hydroelectric transmission line, historic irrigation ditches and roads within the Project Area. East Rosebud Road #2177 is considered a priority asset (meets the national criteria for a deferred maintenance protocol designed to identify heritage sites that are actively managed and maintained) and three cairns are considered culturally sensitive (associated with traditional Indian ceremonies, cultural practices and important events in tribal history). Currently, there are no effects due to livestock grazing to these twelve sites.

## **CULTURAL RESOURCES ENVIRONMENTAL CONSEQUENCES**

The following is a summary of the environmental consequences from Cultural Resources Report (see project record for complete report).

### **ALTERNATIVE 1 - NO ACTION/NO LIVESTOCK GRAZING/DO NOT ISSUE GRAZING PERMIT**

By not issuing a Term Grazing Permit, not allowing livestock grazing and removing all existing range improvements (fences and gates) would result in no direct effect to any of the known cultural sites. But, the removal of grazing activity under this alternative would result in a change in the historic landscape. An early Forest Service manuscript describes grazing on the Beartooth Forest during the early 1900s as the most important industry to the surrounding community. About 50,000 head of sheep and 5,000 head of cattle were grazed under permit each season according to this manuscript (USDA 1911: 7-8). In addition, the Black Butte Allotment was grazed as early as 1908 and records indicate the West Rosebud Allotment was grazed by cattle, horses and sheep before that.

Monitoring of the priority asset site would continue under the CNF SIS protocol. In the event that cultural resources are determined to be affected, plans would be designed to reduce, remove or mitigate the effects in consultation with the Montana State Historic Preservation Officer (MT SHPO).

### **ALTERNATIVE 2 - MAINTAIN EXISTING LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

Maintaining the existing livestock management practices, through the issuance of a new ten-year Term Grazing Permit, would result in no direct, indirect or cumulative effects to any of the known cultural sites. Existing range improvements would be maintained and no new range improvements would be constructed. Authorized livestock grazing rates would remain unchanged.

Monitoring of these twelve sites would continue under the CNF SIS protocol. In the event that cultural resources are determined to be affected, plans would be designed to reduce, remove or mitigate the effects in consultation with the MT SHPO.

### **ALTERNATIVE 3 - PROPOSED ACTION/CHANGE LIVESTOCK MANAGEMENT/ISSUE GRAZING PERMIT**

Issuing new Term Grazing Permits would result in no direct, indirect or cumulative effects to any of the known cultural sites. Livestock grazing would be reduced in two allotments and would remain the same in one allotment. Approximately 2.6 miles of existing fence would be removed and approximately 3.4 miles of new fence would be constructed. All proposed fence removals and constructions have been inventoried in accordance to the range recission SIS and no cultural resources were found. These proposals are recommended to proceed as planned.

The proposed action would not affect the twelve recorded cultural resource sites. Monitoring of five existing sites for this project proposal found no effects due to livestock grazing or existing range improvements. Thirteen additional cultural resource investigations were recently conducted within the Project Area specifically in support of this range planning effort. Seven investigations propose new fence construction. Two investigations propose removal of existing fencelines and two investigations propose repair of existing fencelines. One new driveway corridor is proposed for clearing and one proposed spring development was dropped following the inventory. These investigations resulted in the inventory of approximately 114 acres and the recording of seven new sites.

Monitoring of these twelve sites would continue under the CNF SIS protocol. In the event that cultural resources are determined to be affected, plans would be designed to reduce, remove or mitigate the effects in consultation with the MT SHPO.

**Mitigation:** Construction of the East End Drift Fence North Extension and the West Rosebud Stock Driveway would occur under the direction of the Forest Archaeologist.

## **CONSULTATION AND COORDINATION**

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment.

### **INTERDISCIPLINARY TEAM MEMBERS**

Forest Service Interdisciplinary (ID) Team Members are listed in Table 34.

**TABLE 34 - INTERDISCIPLINARY TEAM**

<b>POSITION TITLE</b>	<b>PERSON</b>	<b>PROJECT RESPONSIBILITIES</b>
District Ranger/Line Officer	Traute Parrie	Responsible Official, & project file review
IDT Leader & Rangeland Management Specialist	Terry Jones	Team Leader, public involvement, stocking rate analysis, compile project record, writing/editing & gis maps
IDT Meeting Recorder	Sally Carter	Meeting Notes
Ecologist	Jeff Dibenedetto	Upland Rangelands Report (including analysis of existing vegetation, habitat types & desired conditions)
Hydrologist	Mark Nienow	Riparian Report (including hydrology, proper functioning condition and water quality)
Wildlife Biologist	Barb Pitman	Biologist Report/Biological Evaluation & Biological Assessment- T, E & S Wildlife Species
Wildlife Biologist	Tom Whitford	Wildlife Report, Biological Evaluation & Biological Assessment Approval
Fisheries Biologist	Darin Watschke	Fisheries and Amphibian Report/Biological Evaluation
Soil Scientist	John Lane	Soils Report
Forest Range Staff/Rare Plant Coordinator	Kim Reid	Sensitive Plant Report/Biological Evaluation
Archeologist	Mike Bergstrom	Heritage Report
Archeologist	Halcyon LaPoint	Heritage review & SHPO coordination
GIS Coordinator	Deedee Arzy	Review/finalize existing vegetation layer, update range improvement layer, create proposed range improvement layer, stocking rate model & assist specialists as requested
GIS Support	Mary Gonzales	Assist specialists as requested with gis
NEPA Coordinator	Dan Seifert	Review NEPA project record & all NEPA documents
Appeals Coordinator	Mark Slacks	Coordinate appeals & FOIA as needed

### **FEDERAL, STATE, AND LOCAL AGENCIES**

#### **FEDERAL**

Lou Hanebury, USDI Fish and Wildlife Service  
 Jim Hoover, USDA Wildlife Services  
 Max Baucus, US Senator

John Tester, US Senator  
Dennis Rehberg, US Congressman

#### STATE

Shawn Stewart, State of Montana Fish Wildlife and Parks  
Mark Baumler, Montana State Historic Preservation Officer

#### LOCAL

Carbon County Commissioners  
Stillwater County Commissioners

#### TRIBES

George Reed, Crow Cultural Director

#### **LITERATURE CITED**

See the specialist reports attached in the appendices of this environmental assessment (Appendix I - VI).