



**Dillon Field Office**

**Red Rock/Lima Watershed Environmental Assessment  
MT-050-07-069**



**Clark Canyon Reservoir, July 2007**

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## **1.0 Purpose of and Need for the Proposed Action**

### **1.1 Introduction and Background**

The Red Rock and Lima Watersheds, as defined in the Dillon Resource Management Plan (RMP), are two geographically separate but adjacent watersheds that are being combined into one Watershed Assessment document due to their relatively small amount of BLM administered land. Along with Red Rock and Lima Watersheds, two allotments which are located in the Medicine Lodge Watershed are included in this watershed assessment. These allotments, Ellis Peak and Hildreth Livestock, were not assessed in any prior watershed assessment due to logistical constraints. The Red Rock Watershed, Lima Watershed, Ellis Peak Allotment and Hildreth Livestock Allotment will collectively be referred to as RRLW in this document and are shown on Appendix A, Map 1. All the allotments assessed in the RRLW are located in Beaverhead County, Montana and drain portions of the Lima Peaks, Tendoy and Blacktail Mountains and the Rocky Hills area. The allotments in the RRLW all lie within Townships 8-15 South and Ranges 6 -12 West, Montana Principal Meridian. All legal descriptions are based off of the Montana Principle Meridian (MPM).

The RRLW covers public lands administered by the BLM as far north as the Clark Canyon Reservoir region which includes Clark Canyon to the east and a portion of the Rocky Hills to the west. The watershed assessment then follows south to the Idaho State line and includes the Snowline area. The allotments in the RRLW, except for Ellis Peak and Hildreth Livestock, are found within a seven mile corridor of Interstate 15 and most are within four miles. Watersheds are defined and designated on maps by natural topographical boundaries (i.e. ridgelines/ drainages). Grazing allotment boundaries are determined by land ownership and these artificial boundaries may not follow topographical features. Therefore, some of the grazing allotments in the RRLW fall within one or more watersheds or hydrologic units.

Within the RRLW there are approximately 317,033 total acres of land, of which 55,872 are public lands administered by the BLM. Of the public land total, 55,718 acres are allotted for livestock grazing and 154 acres are unleased. This environmental assessment (EA) addresses only land health conditions on BLM-administered lands.

In 2007, a BLM interdisciplinary team (IDT) assessed the public land health in the RRLW. The IDT assessed five Rangeland (Land) Health Standards: Upland Health, Riparian Health, Water Quality, Air Quality, and providing for Biodiversity. The Watershed Assessment reported the condition/function of resources within the RRLW to the Authorized Officer. The Authorized Officer considered the Assessment Report to determine whether Land Health Standards (Standards) were met, and then signed an Executive Summary and Determination of Standards documenting where Standards were or were not met. The Assessment Report and associated Determination of Standards were completed and released to the public in December, 2007, and are available at the Dillon Field Office or on the internet at [http://www.blm.gov/mt/st/en/fo/dillon\\_field\\_office.html](http://www.blm.gov/mt/st/en/fo/dillon_field_office.html).

The assessed condition/function and recommendations in the Assessment Report and Determination of Standards, along with comments received through public scoping, have been used to develop alternatives to initiate progress towards Proper Functioning Condition (PFC) and address site specific resource concerns where needed. This EA was completed in accordance with established procedures to analyze and implement area, allotment or site specific changes.

By working on a watershed basis, a broader landscape is considered and more consistent management can be applied. It is the BLM's intent to implement watershed management cooperatively. Any proposed changes in management, structural projects or vegetative treatments would be implemented through the BLM's Decision processes.

## **1.2 Proposed Action**

The BLM Dillon Field Office proposes to improve land health and enhance biodiversity within the RRLW. BLM also proposes to renew Term Grazing Permits on 25 grazing allotments within the Watershed. Land health would be improved on public lands within the Watershed by:

- Restoring/maintaining upland health and sagebrush habitats (species composition and structure) through revised livestock grazing management, structural projects, and vegetative treatments.
- Restoring/maintaining riparian, wetland and aquatic habitats (vegetation composition, structure, streambank stability, channel morphology) through revised livestock grazing management, structural projects, vegetative treatments and working cooperatively with Montana Fish, Wildlife and Parks (FWP) on wildlife management.
- Restoring/maintaining historic density, structure, and species composition of forest, woodland and aspen habitats through mechanical treatments and prescribed fire.

This EA analyzes livestock grazing management revisions in addition to analyzing proposals to address forest and woodland health issues, travel management, recreation and wilderness opportunities, and wildlife resources. Management revisions and/or vegetative or structural projects will be considered on the following allotments:

1. Bell Canyon
2. Little Sheep
3. Cedar Creek
4. Roe Isolated
5. Clark Canyon
6. Snowline AMP Custodial
7. Ellis Peak
8. Phalarope West
9. Lima Peaks
10. Roe West
11. Hildreth Livestock
12. Shoshone Cove
13. Snowline AMP
14. Williams
15. Clark Canyon Isolated

## **1.3 Need for the Action**

The Fundamentals of Rangeland Health and subsequent Land Health Standards require the BLM to initiate management actions that ensure, "Watersheds are in, or are making

significant progress toward properly functioning condition, including their upland, riparian-wetland, and aquatic components...” (43 CFR 4180.1 (a)), if an assessment determines one or more of the Land Health Standards are not being met. In the RRLW Assessment Report, the IDT described several causal factors combining to negatively impact the biological, physical, and ecological processes in the Watershed. As a result, the Authorized Officer determined that one or more of the Standards are not met in 9 of the 24 allotments assessed. Table 1 lists the determination of each standard by allotment.

Table 1: Determination of Standards by Allotment

ALLOTMENT, NUMBER, CATEGORY* & BLM ACRES	ARE LAND HEALTH STANDARDS MET?				
	UPLANDS	RIPARIAN	WATER QUALITY	AIR QUALITY	BIODIVERSITY
Bell Canyon 20193 (I) Acres: 7095	YES	NO	1	YES	NO
Cedar Creek 10124 (I) Acres: 4708	YES	NO	1	YES	YES
Clark Canyon 30002 (I) Acres: 8526	YES	NO	NO	YES	NO <sup>2</sup>
North McKnight 20746 (I) Acres: 682	YES	NA	NA	YES	YES
Snowline AMP 30029 (I) Acres: 9427	YES	YES	1	YES	YES
Williams 20195 (M) Acres: 1626	YES	NA	NA	YES	YES
Lima Peaks 30270 (M) Acres: 1543	YES	YES	1	YES	YES
Norris Canyon 20109 (M) Acres: 317	YES	NA	YES	YES	YES
Radio TV 00150 (M) Acres: 1822	YES	NA	NA	YES	YES
Roe 20727 (M) Acres: 2557	YES	YES	1	YES	YES
Roe West 20728 (M) Acres: 5972	YES	NA	NA	YES	YES
Shoshone Cove 20192 (M) Acres: 1655	YES	NA	NA	YES	YES
Allotment E 10149 (C) Acres: 1537	YES	NA	NA	YES	YES

ALLOTMENT, NUMBER, CATEGORY* & BLM ACRES	ARE LAND HEALTH STANDARDS MET?				
	UPLANDS	RIPARIAN	WATER QUALITY	AIR QUALITY	BIODIVERSITY
Clark Canyon Isolated 20206(C) Acres: 140	YES	NO	1	YES	NO <sup>2</sup>
Ellis Peak 10126 (I) Acres: 3252	YES	NO	1	YES	NO
Hildreth Livestock 10127 (C) Acres: 290	YES	NO	1	YES	NO
Little Sheep 10622(C) Acres: 121	YES	NO	1	YES	NO
Phalarope West 30204(C) Acres: 1029	YES	NO	NA	YES	YES
Roe Isolated 20729 (C) Acres: 80	YES	NO	1	YES	NO
Seybold Ind. 20686 (C) Acres: 162	YES	NA	NA	YES	YES
Seybold Non- AMP 20187 (C) Acres: 80	YES	NA	NA	YES	YES
Snowline AMP Custodial 20607 (C) Acres: 1440	YES	NO	1	YES	YES
Snowline Isolated Tracts 20719 (C) Acres: 350	YES	NA	NA	YES	YES
Straight Creek 10697 (C) Acres: 1084	YES	NA	NA	YES	YES
Truax Creek 20642 (C) Acres: 377	YES	NA	NA	YES	YES
Unleased Acres: 154	YES	NA	NA	YES	YES
<p>* Categories are assigned to allotments based on resource management goals: I=improve, M=maintain, C=custodial</p> <p><sup>1</sup> The State of Montana, Department of Environmental Quality (DEQ) has been given the responsibility for making water quality determinations and has completed its evaluation of 303(d)-listed Streams. Tributary Streams in the RRLW are not on the 303(d) list, are not priority Streams and are not scheduled to be evaluated by DEQ.</p> <p><sup>2</sup> The scope and scale of forest health, conifer expansion and heavy fuel loading affected the biodiversity of the landscape.</p>					

Since Land Health Standards were not met in some areas due to unhealthy forest and hazardous fuels conditions, “other program guidance for the appropriate steps to be

taken” to make progress toward meeting Standards (as referenced in H-4180-1) includes the Healthy Forests Restoration Act, the Healthy Forests Initiative, the National Fire Plan and the Dillon Fire Management Plan to implement appropriate treatments. Prescribed fire and mechanical treatments are being proposed, where appropriate, to restore some measure of resiliency in these stands. One of the emphasis items of the National Fire Plan, the Healthy Forests Initiative, and the 10-year cohesive strategy is to reduce hazardous fuel accumulations and restore the health and natural processes within forests and rangelands. The objectives are to reduce the risks of catastrophic wildland fire to people, communities, and natural resources while restoring forest and rangeland ecosystems to closely match their historical structure, function, diversity and dynamics.

Livestock management within seven allotments included in this EA, has been determined by the Authorized Officer to be a significant causal factor in failing to meet one or more of the Land Health Standards. The allotments requiring livestock management changes are: Bell Canyon, Little Sheep, Cedar Creek, Roe Isolated, Clark Canyon, Snowline AMP Custodial and Ellis Peak. Pursuant to 43 CFR 4180.2(c), livestock-caused failure to meet any of the Standards mandates BLM to change the terms and conditions of the grazing permit for the applicable grazing allotment prior to the next grazing season and implement actions that will result in significant progress toward fulfillment of the Standards. Further, BLM guidance stipulates that if other actions are necessary and cannot be implemented before the next grazing season interim adjustments will be made prior to the next grazing season and a schedule for final changes must be developed and documented (H-4180-1). Practices and activities subject to standards and guidelines include the development or revision of Allotment Management Plans (AMPs), establishment of terms and conditions of permits, leases and other grazing authorizations, and range improvement projects such as vegetation treatments, fence construction and development of water sources.

## **1.4 Scope of this Environmental Analysis – Scope, Plan Conformance, Critical Elements, Issues**

### **1.4.1 Scope**

The scope of the proposed action includes implementing specific use of herbaceous vegetation through authorizing livestock management and implementing vegetation treatments to restore specific habitats on public lands. The proposed action also includes installation, construction, removal or modification of specific structural projects such as fences and water developments. The proposed action is not an all-inclusive management plan for the area or a programmatic EA, but it addresses several program areas that affect land health.

### **1.4.2 Conformance with BLM Land Use Plans, Programs, and Policies**

The public lands included in the RRLW are managed according to decisions in the Dillon RMP approved in 2006. The proposed action is in conformance with the RMP and applicable guidance is in the Record of Decision and Approved Dillon RMP on pages 24 through 74. The Dillon RMP can be accessed using the internet at

[www.mt.blm.gov/dfo/rmp/index.html](http://www.mt.blm.gov/dfo/rmp/index.html). This document is tiered to the Proposed Dillon RMP and Final Environmental Impact Statement (EIS).

The proposed action is also in conformance with the Federal Land Policy and Management Act, the Taylor Grazing Act, the Standards for Rangeland Health and Guidelines for Grazing Management (43 CFR 4180), the Interim Management Policy for Lands Under Wilderness Review and with BLM policies and Federal regulations. The proposed action was developed while considering the goals, objectives and management recommendations in the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana, the BLM’s National Sage-grouse Strategy, and the Management Plan and Conservation Strategies for Sage Grouse in Montana.

### 1.4.3 Critical Elements of the Human Environment

Critical Elements of the Human Environment, as defined by BLM Manual 1790-1, must be considered in all BLM EAs and EISs. The scoping process indicated which Critical Elements may be affected by the alternatives defined in Chapter 2.

Table 2: Critical Elements of the Human Environment

Critical Element	Not present	Present, but not affected	May be affected*	Comments
Air Quality			X	See sections 4.2.1 and 4.2.3
Areas of Critical Environmental Concern	X			
Cultural Resources			X	Cultural resources are discussed under Critical Element: Cultural Resources in Chapters 1, 3 & 4
Environmental Justice		X		
Farmland -prime/unique	X			
Floodplains <sup>1</sup>			X	Discussed under Issue #2 – Riparian, Wetland and Aquatic Habitat and Associated Species
Hazardous and Solid Wastes			X	An old unauthorized landfill is located 1 mile south of Lima, MT on BLM administered land. Specific types hazardous materials are unknown
Invasive Non-native Species			X	Discussed under Issue #1 – Upland Health, Sagebrush Steppe Habitat, and Associated Species and Issue # 2 – Riparian, Wetland & Aquatic Habitat & Associated Sp.
Native American Religious Concerns	X			
Threatened & Endangered (T&E) species			X	See Biological Evaluation (includes BLM sensitive species) and also discussed under Resource Concern # 2 – Special Status Species
Water Quality (drinking or ground)			X	Discussed under Issue # 2 – Riparian, Wetland and Aquatic Habitat and Associated Species
Wetlands/Riparian Zones			X	Discussed under Issue # 2 – Riparian, Wetland and Aquatic Habitat and Associated Species
Wild and Scenic Rivers	X			
Wilderness Characteristics			X	The Bell-Limekiln Canyon Wilderness Study Area is discussed under Critical Element: Wilderness Characteristics in Chapters 1, 3 & 4
*An “X” in this box means that the resource is further evaluated in the affected environment and environmental impacts sections.				
<sup>1</sup> Floodplains are part of stream systems. Actions which improve streams and riparian habitats will comply with Executive Order 11988 in that they are designed to restore and preserve the natural and beneficial values served by floodplains.				

#### **1.4.4 Description of Issues, Resource Concerns and Objectives**

Issues, as described below, have a direct bearing upon the proposed action and the process of how the purpose and need will be achieved. The identified issues are used to drive development of alternatives, and effects or impacts to these issues are analyzed in detail. Resource concerns do not drive the development of alternatives, but are used to analyze and disclose the effects of various actions. Issues and resource concerns were identified through the Watershed Assessment and scoping process. Not all issues identified below are applicable to all allotments and the unleased tracts in this EA.

##### **Issue # 1: Upland Health, Sagebrush Steppe Habitat and Associated Species**

“Uplands are in Proper Functioning Condition” is identified as one of the Western Montana Standards for Rangeland Health. The determination of upland health was based on the evaluation of three criteria: degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms. The indicators used to determine upland health are discussed in the RRLW Assessment Report.

The Upland Health Standard was met on all allotments in the RRLW, however site-specific concerns for upland health and sagebrush steppe habitat were identified in the Watershed Assessment Report.

##### **Objectives**

- Increase cover and frequency of native perennial herbaceous species where concerns were documented.
- Maintain residual herbaceous cover for ground nesting birds, specifically sage grouse.
- Manage big sagebrush communities in the Watershed so that at least 70% provide the vegetation composition and structure to sustain sage grouse populations and other sagebrush obligate species such as antelope and pygmy rabbits.
- Maintain 15-25% of taller sagebrush canopy cover (primarily big sagebrush subspecies), as applicable within site potential.
- Prevent spread of noxious and invasive species (e.g. cheatgrass) into and within the watershed and reduce or eradicate existing infestations.
- Reduce wildlife entanglement hazards within the RRLW.

##### **Issue # 2: Riparian, Wetland, Aquatic Habitat and Associated Species**

“Riparian and Wetland Areas are in Proper Functioning Condition” is identified as one of the Western Montana Standards for Rangeland Health. PFC is defined as the ability of a stream or wetland to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge and hydrologic energy dissipation. Streams or wetlands that are categorized as PFC or Functioning-at-Risk (FAR) with an upward trend meet the Riparian Health Standard. The indicators used to determine riparian health are discussed in the RRLW Assessment Report.

The riparian health standard was **not** met in nine allotments. The RRLW Assessment Report documents several contributing causal factors including fire exclusion, livestock grazing, roads, wildlife browsing and on specific reaches reduction in beaver populations

and an historic dump (landfill). Independently or in combination, these causal factors have resulted in expansion of conifers into riparian habitat, decreasing deep rooted riparian vegetation, lack of recruitment of woody riparian species such as aspen and willows, stream channel alteration, streambank impacts, sedimentation, and/or presence of noxious and invasive species within specified stream reaches.

### **Objectives**

- Restore, maintain or enhance native vegetation and hydrology to springs, seeps and wet meadows with emphasis on ecological function, biodiversity, and rare plant species and their habitats.
- Protect springs and spring brooks from excessive ungulate impact.
- Restore deciduous woody habitat types (aspen, willow) in riparian areas that have been invaded by conifer trees.
- Increase deep rooted riparian vegetation (sedges, willows) where decreased composition was documented.
- Restore stream dimension, pattern and profile to the natural range of variation where concerns were documented.
- Reduce sediment loads where uses on public lands are causing increased sediment (eg. cattle loitering, road maintenance, etc).
- Maintain or enhance habitat for cold water fisheries in occupied streams within the watershed.
- Prevent spread of noxious and invasive species into and within the watershed and reduce or eradicate existing infestations.

### **Issue # 3: Forest and Woodland Health**

Evidence of historically recurring fire is found throughout the analysis area in forests and woodlands. Fire exclusion, caused primarily by fire suppression and livestock management on rangelands over the last century, has changed the structure, density, and species composition within forest and grassland communities (fire dependent ecosystems). Conifers are expanding into riparian and grassland/sagebrush communities, conifer densities have increased within stands, and fuels have increased within areas historically maintained by moderate to high fire frequencies. High intensity fires are now more likely to occur in areas that historically experienced low intensity, frequent to moderately frequent fires. Forested stands have also become more susceptible to epidemic insect/disease activity.

Fuels conditions, forest health and conifer encroachment have been determined to be contributing causal factors in **not** meeting Standards on two allotments (Clark Canyon and Clark Canyon Isolated), and were also concerns on three additional allotments (Bell Canyon, Roe West, Lima Peaks) in the RRLW.

### **Objectives**

- Reduce Douglas-fir encroachment into former sagebrush/grassland dominated communities to restore sagebrush steppe habitat (particularly common in mountain big sagebrush/Idaho fescue shrublands).
- Maintain/enhance existing aspen stands and promote successful regeneration of

- aspen.
- Promote plant and wildlife biodiversity by shifting portions of existing plant communities from late seral to early seral creating a mosaic of successional and structural stages.
  - Where possible, salvage dead/dying forests stands from epidemic insect activity and treat remaining stands to increase their resilience to insect activity. Utilize resulting forest products where feasible.

### **Resource Concern #1: Special Status Species**

“Special Status Species” refers to both plants and animals and includes species listed as threatened or endangered (T&E) under the Endangered Species Act (ESA), species proposed for listing under the ESA, candidates for listing under the ESA, state listed species, and BLM Sensitive Species (USDI 2001).

With the delisting of the gray wolf and bald eagle, there are currently no known T&E species in the RRLW. There is the potential for transient grizzly bear use to occur within the RRLW, primarily in the Lima Peaks and Tendoy Range. Currently, there are no known grizzly bears in the RRLW.

Sage grouse and pygmy rabbits are sagebrush obligate species and are currently being petitioned for federal listing under the ESA. They are both currently BLM Sensitive species. Objectives for sagebrush habitat are listed above under Issue #1 – Upland Health, Sagebrush Steppe Habitat and Associated Species.

### **Objectives**

- Maintain or enhance habitat for special status plant species while providing ample opportunity for reproduction and seedling establishment.
- Maintain or enhance habitat for special status wildlife and fish species while providing ample opportunity for reproduction and recruitment.

### **Resource Concern #2: Socioeconomics**

Many ranches that hold grazing permits on public lands administered by the BLM have developed operations that tightly weave public land grazing preferences together with private land management. For these ranches; calving, breeding, haying, feeding, shipping, summer pasturing, and marketing schedules have evolved in tandem with the stocking rates and season of use on the public land allotments.

Businesses in Lima, Dell and Dillon are likely to profit from recreational uses that occur in the RRLW. Big game hunting activities provide important economic benefits to the Dillon, Lima, and Dell economies, due to the close proximity of these communities to these popular hunting areas. The BLM currently authorizes three commercial operators who provide outdoor recreation opportunities, mostly outfitted big game hunting, to the public in the RRLW.

Utilization of timber resources from public lands has historically resulted in an economic benefit to Beaverhead County. The potential for utilization of commercial forest products still exists.

Table 56 on page 286 of the Proposed Dillon RMP and Final EIS shows employment and labor income response related to livestock grazing management, timber management and recreation use for the area influenced by the Dillon Field Office.

### **Objective**

- Continue to contribute to the local economy by providing an opportunity for sustainable uses on public land through livestock grazing, utilization of forest products, and recreational opportunities.

### **Resource Concern #3: Recreational Activities and Public Access**

There are approximately 124 miles of designated motorized vehicle routes within the RRLW. Public recreational use of these routes occurs primarily during the big game hunting season providing access to large areas of the Tendoy, Rocky Hills, and Blacktail Mountains.

### **Objectives**

- Implement the Dillon RMP Travel Management Plan.
- Maintain motorized wheeled vehicle access to those areas where it already exists, and improve access to public lands where opportunities are currently limited.
- Maintain or improve opportunities for big game hunting, fishing, wildlife viewing, horseback riding, and other backcountry recreation.
- Reduce unauthorized (non-designated route travel) motor vehicle use, especially during the hunting season.

## **1.5 Decisions to be Made**

The BLM is preparing this EA to allow the Authorized Officer to make a reasoned and informed decision regarding improving riparian and upland health, enhancing biodiversity and revision or renewal of Term Grazing Permits. Revised Term Grazing Permits will contain appropriate Terms and Conditions to initiate significant and measurable progress towards achieving the Land Health Standards and established goals and objectives within the RRLW, while achieving BLM's multiple use mission.

The Dillon Field Manager will choose the alternative that best addresses the issues and resource concerns identified through public scoping and in the RRLW Assessment Report.

The Dillon Field Manager must also determine if the selected alternative is a major Federal Action that significantly affects the quality of the human environment. If he determines that it is, then an EIS must be prepared before the RRLW Management Plan can proceed.

Implementation of the Decisions resulting from this EA will begin in 2008. However, revised grazing rotations and/or range improvement projects associated with these plans may take up to five years and are subject to budget constraints. Due to the logistical constraints involved with vegetative treatments and complexity of the forestry products market and timber value, vegetative treatments may take up to ten years to complete. The new plans will be developed and implemented in consultation and coordination with the affected permittees, the agencies having lands or managing resources within the area and other interested parties. As with all similar BLM decisions, affected parties will have an opportunity to protest and/or appeal these decisions.

## **1.6 Applicable Legal and Regulatory Requirements**

- Title 43, Code of Federal Regulation, Part 4100
- Taylor Grazing Act of June 30, 1934, as amended
- Sikes Act of 1960, as amended (Habitat improvement on Public Land)
- National Historic Preservation Act of 1966, as amended
- Carlson-Foley Act of 1968 (Weed Control on Public Lands)
- National Environmental Policy Act of 1969 (NEPA)
- Endangered Species Act of 1973
- Federal Noxious Weed Act of 1974, as amended in 1988, 1994
- Federal Land Policy and Management Act of 1976 (FLPMA)
- Fishery Conservation and Management Act of 1976
- Clean Water Act of 1977
- Public Rangelands Improvement Act of October 25, 1978
- Fish and Wildlife Improvement Act of 1978
- State of Montana Streamside Management Zone Law of July 1991
- National Fire Plan of 2000
- Healthy Forests Initiative of 2002
- Healthy Forests Restoration Act of 2003
- Dillon Resource Management Plan of 2006

## **1.7 Coordination Requirements**

According to 43 CFR subparts 4110, 4120, 4130 and 4160, coordination requirements include affected permittees or lessees, the interested public, the State having lands or responsible for managing resources within the area, other Federal or State resource management agencies, and the Resource Advisory Council.

“Interested public” means an individual, group or organization that has submitted a written request to the Authorized Officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the Authorized Officer regarding the management of livestock grazing on a specific allotment.

Following the RRLW Watershed Assessment Report and Determination of Standards, BLM met with other federal agencies, state agencies, permittees and the interested public while developing alternative for this EA. A full list of persons and agencies consulted is shown in Chapter 5.

## **2.0 Description of Alternatives**

This chapter describes the alternative development process, alternatives considered but eliminated from further analysis, and alternatives that will be carried forward and fully analyzed. At least three management alternatives will be fully analyzed: the No Action Alternative (continuation of current management) and two action alternatives. In some allotments more than three alternatives may be considered. Various combinations of tools, allowable use levels, grazing strategies and projects were discussed at length and carefully considered during scoping and during the formulation of the alternatives by the IDT.

### **2.1 Process Used to Formulate Alternatives**

The development of management alternatives for the RRLW was guided by provisions of FLPMA, NEPA, and the planning criteria listed in Chapter 1. Other laws and BLM planning regulations and policy also directed alternative considerations and focused the alternatives on appropriate watershed-level decisions. Chapter 1 discusses the driving issues and resource concerns considered during alternative development. The Affected Environment (Chapter 3) discusses resource concerns and other factors considered during alternative development.

Priority areas for forest health treatments (commercial harvest) within the RRLW are identified in Alternative B. If this alternative is selected, implementation of treatments will require coordination with private landowners to provide access and additional field work to determine unit boundaries and road locations. Supplemental NEPA documentation will be required to analyze site specific details of forest health treatments prior to implementation.

### **2.2 Alternatives Considered but Eliminated from Further Analysis**

Analysis of alternatives that would not make considerable progress towards meeting the objectives of the proposed action or alternatives not consistent with the intent of current BLM legal and regulatory requirements or policy are not carried through. Alternatives proposing exclusive production or protection of one resource at the expense of other resources were not considered. FLPMA mandates the BLM to manage public lands for multiple use and sustained yield. This eliminates alternatives such as closing all public land to livestock grazing or oil and gas leasing, or managing only for wildlife values at the exclusion of other considerations. In addition, resource conditions do not warrant watershed area-wide prohibitions of any particular use. Each alternative considered in this EA allows for some level of support, protection, and/or use of all resources present in the planning area.

#### **2.2.1 Elimination of Livestock Grazing**

Eliminating livestock grazing from all BLM-administered lands in the watershed was considered but eliminated from detailed study because it does not meet the purpose and need of this EA and it was previously analyzed in the Mountain Foothills EIS (March 1980). The recently updated and approved Dillon RMP identifies 55,872 acres of public land in the RRLW as open for grazing, so a watershed wide “No Grazing” alternative

would not be consistent with the Dillon RMP, would not meet the objectives for this planning effort, and is not consistent with the intent of other applicable acts, laws, and policies.

### **2.2.2 Creating a Reference Area for the Unleased BLM acres.**

Both creating a Reference Area and eliminating livestock grazing from the entire 154 acres of unleased BLM administered lands were considered, but eliminated from detailed study. A fenced railroad right of way currently encloses 107 of the 154 BLM administered acres. In order to achieve either of these alternatives about one mile of additional fence would be necessary to control livestock from adjacent private land pastures from entering the 47 BLM acres of unleased land. Furthermore, cattle that graze on private land adjacent to these unleased acres depend on the water source found on BLM. Because reaches 942 and 943 that flow through this unleased land tract were rated as PFC by the IDT, it seems unnecessary to restrict livestock from grazing from all the acres found within this small BLM tract.

### **2.2.3 Extend the Season of Use on the Ellis Peak and Morrison Creek Allotments**

Expanding the season of use from June 1 to September 15 on the Ellis Peak and Morrison Creek allotments was considered but eliminated from detailed study. Up to 206 cow/calf pairs would have been grazed with for up to 60 days annually. Total time spent and AUMs harvested in each pasture/allotment would not exceed the time/AUMs described in Alternatives B, C & D. While this alternative has merit and would increase management flexibility, it does not fit the current permittee's operation at this time. This alternative may be revisited and analyzed at a future date.

## **2.3 Description of Alternatives**

### **2.3.1 Features Common to all Alternatives, Including the No Action Livestock Management**

- Term Grazing Permits will be renewed for 12 allotments determined to be meeting Land Health Standards, had no identified site specific concerns related to current management and needed no changes to facilitate improved management.

These allotments include:

- |                       |                             |
|-----------------------|-----------------------------|
| 1. Allotment E        | 7. Seybold Non-AMP          |
| 2. Norris Canyon      | 8. Truax Creek              |
| 3. North McKnight     | 9. Snowline Isolated Tracts |
| 4. Radio TV           | 10. Straight Creek          |
| 5. Roe                | 11. Clark Canyon Isolated   |
| 6. Seybold Individual | 12. Roe West                |

Term permits for other allotments may be modified as analyzed in this document.

- Temporary electric fence, livestock supplement placement (salt, protein block), riding, and herding are encouraged and if warranted, may be required as a means of improving livestock distribution in all alternatives. When used, livestock

supplement should be placed on ridges or terraces and at least ¼ mile from the nearest livestock water source.

- Construct new boundary fence in the Clark Canyon Allotment in the Dry Gulch and State-Buck Pastures.

### **Recreation Management**

- Special Recreation Permits will continue to be considered on a case-by-case basis with the exception of big game hunting. Outfitted big game hunting will continue to be limited to existing permits and use levels will be based on historical use levels. Opportunities for big game hunting, wildlife viewing, horseback riding, and other backcountry recreation will be maintained. Dispersed recreational activities will continue to be managed consistent with other resource management objectives.
- Travel management will be in accordance with the Dillon RMP Travel Management Plan. Roads designated open to public motorized vehicle travel in the RMP will be signed as open, using a white arrow symbol on a flexible sign post (see Travel Management Map 2, Appendix A). Roads not identified as open to public use will be:
  - Left unsigned unless there is evidence of regular use.
  - Signed closed if there is evidence of regular use.
  - Obliterated to the extent possible (made unnoticeable), at least at the intersection with an open route, if signing is ineffective to discourage regular use.
  - Physically closed to prevent vehicle traffic only when continued use is causing significant unacceptable resource impacts or user conflicts.

### **Special Status Species**

In habitats likely to support rare plants, field inspections will be conducted to search for special status plant species prior to authorizing surface disturbing activities. If rare plants are found in the course of the botanical survey, adverse impacts will be mitigated through project abandonment or redesign. Activities that disturb mineral soil (such as blading, trenching, ripping, etc.) won't be allowed within the boundaries of populations of special status plants.

### **Noxious Weeds**

- Management of noxious weeds will continue in cooperation with Beaverhead County, federal and state agencies, private landowners and other partners.
- All invasive species on the Montana state noxious weed list will be treated as resources allow.
- Areas where adjacent landowner support and cooperation is the highest will be given the highest priority for treatment.

### **Wilderness**

Manage the Bell-Limekiln Canyon WSA in accordance with the Interim Management Policy for Lands Under Wilderness Review (BLM Handbook 8550-1).

**Cultural Resources**

- As required by Section 106 of the National Historic Preservation Act, a Class III cultural resource inventory is required prior to the implementation of any proposed range or habitat improvement projects. Should significant cultural resources be identified, adverse impacts will be mitigated through project abandonment or redesign. Care will be taken to avoid and protect significant cultural resources and any standing structures during the course of any proposed prescribed fire treatments. In addition, personnel from the BLM should be notified of the presence and location of any cultural resources if encountered by contractors or permittees during the course of operations on public lands.
- Conduct a more detailed assessment of the historic dump located in the vicinity of Junction Creek, Reach 933 (NW and NE ¼, NW ¼, Section 15, T14S, R8W). The assessment would survey the content and dimensions of the dump to determine its nature and extent. Some or the entire dump would be removed based upon presence of hazardous materials and contamination risk to groundwater and surface water quality.

**Monitoring**

- Under all alternatives, resource monitoring will be conducted to measure progress toward meeting site-specific objectives. Monitoring will be done according to the monitoring plan shown as Appendix B.

**2.3.2 Description of Alternative A - No Action (Continuation of Current Management)**

**No Action** is defined as the *continuation of current management*. This alternative will be analyzed to serve as baseline information for the Authorized Officer to make a reasoned and informed decision. Selection of the No Action Alternative may not be in conformance with the Dillon RMP.

**Livestock Grazing Management**

Under the No Action Alternative, livestock management would continue as per the current Terms and Conditions in all 25 grazing allotments. No new range improvement projects would be constructed.

Table 3: Livestock grazing allocation and management within the RRLW

ALLOTMENT NAME, NUMBER AND CATEGORY	SEASON OF USE	GRAZING SYSTEM	BLM AUMS	BLM ACRES	OTHER OWNERSHIP	TOTAL ACRES
*Allotment E 10149 (C)	4/01-1/24	Season Long	59	1537	0	1537
Bell Canyon 20193 (I)	5/15 – 9/30	Season Long	640	7095	3241	10336
Cedar Creek 10124 (I)	5/15 – 6/30	Spring Rotation	309	4708	457	5165

ALLOTMENT NAME, NUMBER AND CATEGORY	SEASON OF USE	GRAZING SYSTEM	BLM AUMS	BLM ACRES	OTHER OWNERSHIP	TOTAL ACRES
Clark Canyon 30002 (I)	5/15 - 10/15	Deferred Rotation	1519	8526	8006	16532
Clark Canyon Iso. 20206 (C)	5/15 - 12/31	Season Long	15	140	530	670
Ellis Peak 10126 (I)	6/01 - 9/15	Deferred Rotation	567	3252	2542	5794
*Hildreth Livestock 10127(C)	5/15-11/30	Season Long	104	290	0	290
Lima Peaks 30270 (M)	7/11 - 10/15	Rest Rotation	236	1543	9302	10845
*Little Sheep 10622 (C)	5/15 - 12/31	Season Long	8	121	0	121
North McKnight 20746 (I)	5/10 - 11/16	Season Long	61	682	0	682
Norris Canyon 20109 (M)	6/01 - 6/11	Deferred Rotation	108	317	319	636
	11/06 - 11/11					
Phalarope West 30204 (C)	3/01 - 5/01	Rest Rotation	75	1029	1274	2303
	12/26 - 2/28					
Radio T.V. 00150 (M)	10/01 - 11/30	Deferred Rotation	413	1822	2036	3858
Roe 20727 (M)	7/01 - 10/15	Rest Rotation	351	2557	2667	5224
*Roe Isolated 20729 (C)	6/01 - 2/28	Season Long	12	80	0	80
Roe West Pasture 20728 (M)	4/10 - 5/10	Early Season Rest Rotation	1186	5972	696	6668
*Seybold Ind. 20686 (C)	5/01 - 11/30	Season Long	7	162	0	162
*Seybold Non-AMP 20187 (C)	5/01 - 11/30	Season Long	6	80	80	160
Shoshone Cove 20192 (M)	5/15 - 6/30	Spring Rotation	170	1655	1110	2765
Snowline AMP 30029 (I)	6/06 - 10/21	Rest Rotation	1989	9427	10909	20336
*Snowline AMP Cust. 20607 (C)	6/1 - 10/31	Season Long	632	1440	0	1440
*Snowline Iso. Tracts 20719 (C)	6/1 - 10/31	Season Long	164	350	0	350
*Straight Creek Non-AMP 10697 (C)	5/15 - 12/31	Season Long	98	1084	0	1084

ALLOTMENT NAME, NUMBER AND CATEGORY	SEASON OF USE	GRAZING SYSTEM	BLM AUMS	BLM ACRES	OTHER OWNERSHIP	TOTAL ACRES
*Truax Creek 20642 (C)	7/1 – 11/1	Season Long	77	377	0	378
Williams 20195 (I)	5/9 – 9/23	Spring Rotation	230	1626	1706	3332
<b>Totals</b>			<b>9,036</b>	<b>55,872</b>	<b>44,875</b>	<b>100,747</b>

\*The “C” category allotments are made up of mostly privately owned land with small and/or scattered amounts of BLM administered land. This table does not always reflect the correct number of private land acres owned within these “C” allotments.

Under the No Action Alternative, all other currently authorized activities (recreation permits, mineral development, etc.) would continue as permitted. No vegetation treatments would be completed under the No Action Alternative.

**2.3.3 Features Common to Action Alternatives (B; C and D where applicable)**  
**Livestock Management**

- AUMs reduced from current active use would be held in suspended non-use on the revised Term Grazing Permits.
- Annual utilization guidelines on cool season bunch grasses would be 50% (to maintain plant health/vigor) OR when livestock use on sedges averages 4 inches along the greenline (to prevent excessive trailing along streams) streams. These annual use guidelines would be applicable to all allotments included in the RRLW as a tool to help determine moves between pastures and in conjunction with long term trend data to determine management effectiveness.
- Maintain 107 of the 154 acres of unleased BLM land located near Snowline allotment as unleased, where only periodic livestock trailing would be allowed in upland habitat (See Appendix A, Map 2 for unleased tract location). No cattle grazing or trailing would be allowed in riparian areas of the unleased BLM land. The 107 acres are currently fenced in the railroad right of way and unavailable to livestock grazing.

**Prescribed Fire**

- A burn plan would be prepared and approved prior to implementation of prescribed burning. Actual prescribed burn unit boundaries within the unit boundaries shown on individual allotment maps in Appendix A would be determined during preparation of the prescribed burn plan. If a need arises to adjust unit boundaries beyond those identified, supplemental NEPA documentation would be completed.
- One season of rest from livestock grazing may be needed prior to prescribed burning to allow sufficient fine fuels (grasses) to ensure a successful burn. Generally, two growing seasons of rest will be required following burns to allow re-growth and re-establishment of vegetation in the treated areas.

- Units would be burned as fuel and weather conditions allow. Fire managers would coordinate the timing of prescribed fire treatments (seasonally) and the area treated per year to minimize public resource use conflicts.
- The implementation of prescribed fire treatments would occur over the next ten years.

### **Riparian Vegetation Treatments:**

- Seeding with native upland or riparian species may be completed following juniper removal along riparian areas that do not have adequate understory of desirable native deciduous woody or herbaceous species.
- Treatments would extend a maximum of 100 feet from the stream centerline on each side of the stream and would include mechanical and/or chemical treatment.
- Mechanical or manual treatments would include chainsaws or other hand tools.
- Chemical treatment may include Spike 20P or Spike 80DF under the drip line, Tordon 22K around the base of individual trees, or Velpar L applied to the foliage of smaller trees. Spike 20P and Spike 80 DF would not be used where the ground water is less than five feet below the surface and Tordon 22K would not be used below the high water mark or where there is standing water. Velpar L can be used up to the water's edge.
- Post treatment management should include a minimum of two growing seasons of rest from livestock use to allow vegetative response from existing or seeded understory vegetation. Other tools, such as orienting and leaving the felled juniper, temporary fencing or hot tape may be used to allow the appropriate rest.
- Effectiveness monitoring would be established in each treatment unit (Appendix B). Monitoring would be used to determine if additional rest is necessary to meet objectives on specific units.

### **Noxious Weeds**

- Any new noxious weed infestations would be targeted for prompt eradication before they have a chance to get well established.
- Seed head weevils, root boring weevils, and root boring moths, would be released as biological controls on larger infestations of spotted knapweed to reduce the competitiveness and help control spread of knapweed.
- Helicopter spraying would be used in conjunction with ground treatments in the area around Bell Canyon as shown in the allotment project map in Appendix A. Aerial spraying would only be used in areas that have been inventoried for special status species and all concerns have been mitigated.
- Pre and post-treatment weed inventory/control would be completed for all conifer treatments units (mechanical and/or prescribed fire).

### **Water Developments**

#### *Existing Projects*

Evaluate the existing spring developments that have not already been evaluated to determine ecological function, flow, and condition of infrastructure prior to moving forward with new proposals for water developments. The BLM would document all findings and take the following actions:

- Record flows, ecological function and infrastructure condition for spring developments which are meeting all objectives as described above.
- Expand exclosures where they are found to be insufficient to protect spring sources and spring brooks.
- Build new exclosures where flows are sufficient and infrastructure is in good condition, but where exclosures do not exist and ecological function has been negatively impacted by authorized uses.
- Remove developments where they have deteriorated and have little or no potential for redevelopment. Fence exclosures needed to protect the spring source may be retained and/or maintained.

### *Proposed Projects*

- All applicable State and Federal Permits would be obtained and all permit conditions would be followed.
- Springs and natural wet meadows would be protected when developing or redeveloping water for livestock. Spring sources, and in most situations associated riparian wetland habitat, would be fenced to exclude livestock use on all developed springs. Adequate water would be left at the spring source to maintain wetland hydrology, hydric soils, and hydric vegetation. Flow measurements would be gathered at springs proposed for new development. Springs that have inadequate flows to provide a reliable water source for authorized livestock while maintaining existing wetland/riparian habitat would not be developed.
- Wildlife escape ramps would be installed in all existing and new water troughs.
- No new roads would be authorized as a result of water developments. Permit holders may be authorized to travel along pipeline routes to perform maintenance as defined in the term grazing permit.
- All old materials (pipeline, troughs, head boxes, etc) would be cleaned up and removed when springs are re-developed or maintained.
- Soil disturbance resulting from pipeline installation would be seeded with a native seed mix during the fall following construction.

### **Fences**

- Any new or replacement boundary fences would typically be a 4-wire fence and any new interior (pasture) fences would normally consist of 3 wires. Fence construction would be in conformance with BLM Fencing Handbook H-1741-1.
- Existing BLM fences that impede wildlife movement would be modified or rebuilt to BLM specifications on a prioritized schedule.

### **2.3.4 Description of Alternative B**

This alternative would include adjustments to grazing management, addition of structural range improvement projects, and/or vegetative treatments on allotments within the RRLW. The 15 allotments and one unleased tract included in Alternative B are:

- |                 |                  |
|-----------------|------------------|
| 1. Bell Canyon  | 9. Shoshone Cove |
| 2. Clark Canyon | 10. Snowline AMP |

- 3. Cedar Creek
- 4. Ellis Peak
- 5. Hildreth Livestock
- 6. Little Sheep
- 7. Phalarope West
- 8. Roe Isolated
- 11. Snowline AMP Custodial
- 12. Williams
- 13. Clark Canyon Isolated
- 14. Lima Peaks
- 15. Roe West
- 16. 154 Acres of Unleased BLM land

The following 12 allotments had no concerns related to livestock grazing: Allotment E, Norris Canyon, North McKnight, Radio TV, Roe, Seybold Individual, Seybold Non-AMP, Truax Creek, Snowline Isolated Tracts, Straight Creek, Clark Canyon Isolated and Roe West. These allotments would continue to be managed as described under Alternative A (Section 2.3.2), with the addition of the allowable use guidelines defined above under Features Common to All Action Alternatives (Section 2.3.3). The proposed projects are shown on individual Allotment Maps in Appendix A.

**Livestock Management**

This section includes livestock management revisions and structural projects. The percent public land is not included for custodial or “C” allotments. Typically, C allotments are > 90% privately owned land where one or more small discontinuous tracts of BLM land are found.

**Clark Canyon #30002**

**Management**

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
400 Cattle	May 15 – Oct 15	35	1063
400 Cattle	May 15 – Oct 15	15	456

- A ten-year, 11 pasture rest-rotation system would be used. These pastures are divided into spring/summer units and summer/fall grazing units.
- Cattle would be kept in the spring/summer unit for an additional five days and five days shorter in the fall pastures.
- The Spring/Summer grazing rotation would be as follows:

Year	Pasture					
	West McMenomy	Middle McMenomy	Dry Gulch	East McMenomy	Horse Creek	State Buck
1	May 15 - July 7			REST	REST	REST
2	REST	REST	REST	May 15 - July 7		REST
3	REST	May 15 - July 7		REST	REST	May 15 - July 7
4	May 15 - July 7	REST	REST	REST	May 15 - July 7	REST
5	REST	May 15 - July 7	REST	May 15 - July 7	REST	May 15 - July 7
6	May 15 - July 7	REST	May 15 - July 7	REST	REST	May 15 - July 7
7	REST	REST	REST	May 15 - July 7	May 15 - July 7	REST
8	REST	May 15 - July 7		REST	REST	May 15 - July 7
9	May 15 - July 7	REST	REST	REST	May 15 - July 7	REST
10	REST	REST	REST	REST	May 15 - July 7	REST

The Summer/Fall grazing rotation would be as follows:

Year	Pasture				
	Horse Mountain	Clark Canyon #2	Clark Canyon #3	Clark Canyon #4	Clark Canyon #1
1	July 8 – July 30	July 31 – Aug 29	Aug 30 – Sept 14	Sept 15 – Oct 1	Oct 2 – Oct 15
2	Oct 2 – Oct 15	Sept 15 – Oct 1	Aug 30 – Sept 14	July 31 – Aug 29	July 8 – July 30

Projects (See Map 3, Appendix A)

- Develop a new livestock pipeline system on BLM and private land (T9S, R10W Section 29) to better distribute livestock in the West McMenemy Pasture.
- Develop a new spring with trough on State land (Section 36, T9S, R10W) in the Horse Mountain Pasture.
- Develop a spring in the S½NW¼ Section 31, T9S, R9W to augment Horse Mountain Spring #1 (#470713), in the Horse Mountain Pasture of the Clark Canyon allotment, and to provide livestock water in the Clark Canyon pasture of Gallagher Mountain AMP #30013 allotment. The project would include burying up to ¼ mile of pipe and installing a new water trough. Water would be controlled with a float system. A livestock enclosure would be constructed around the spring source. (Gallagher Mountain AMP is within the Beaverhead West Watershed).
- Replace dilapidated pipeline (T10S, R10W, Section 9 and 10) to provide water in underutilized portion of Horse Creek and State Buck pasture.
- Replace dilapidated pipeline on private land (Section 12, T10S, R10W) to provide water in underutilized portion of Clark Canyon #1 pasture.
- If feasible, develop off site water from reach 930 in (section 7, T10S, R9W) and pipe to a nearby trough in Clark Canyon #1 pasture.
- Replace the 1/4 mile of wildlife barrier woven wire fence found in section 8, T10S, R9W and 2 miles found in sections 9 and 4.

**Clark Canyon Isolated # 20206**

Management

Number & Kind of Livestock	Season of Use	AUMs
2 Cattle	May 15 – Dec 31	15

**Phalarope West # 30204**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
40 Cattle	Oct 1 – Apr 30	45	75

Projects (See Map 4, Appendix A)

- Install a wildlife guzzler in T14S, R8W, Section 12 or 14 and build a fence to exclude livestock.

**Roe West # 20728**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
1164 Cattle	Apr 10 – May 10	100	1186

Projects (See Map 5, Appendix A)

- Aerially treat up to 200 acres of spotted knapweed within the Roe West and Bell Canyon Allotments.

**Roe Isolated # 20729**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
2 Bison	May 15 – Feb 28	95	12

Projects (See Map 6, Appendix A)

- Construct a 2-wire high tensile electric fence to exclude livestock from reach 987. Fence would be let down during the year except when bison are in the pasture.

**Snowline AMP Allotment # 30029**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
1044 Cattle	June 6 – Oct 21	42	1989

- Dutch Hollow Pastures
  - Mitigate unauthorized livestock use from adjacent United States Forest Service Permit by increasing compliance checks and by inspecting and maintaining boundary fences.
  - Increase riding in riparian areas during grazing period.
  - Salting locations must be at least ¼ mile from any riparian area.

Projects (See Map 4, Appendix A)

- Move trough fed by Dutch Hollow Spring in SE ¼ of Section 35 to the NE ¼ of Section 35 in Dutch Hollow Pasture.
- Repair lower portion of pipeline that is non-functional in Dutch Hollow Pasture.
- Construct a 3-mile pipeline with multiple troughs on State, private and BLM administered land in Sections 4, 5, 8 and 17, T13S, R7W in Pasture #6. Pipeline would be funded by NRCS, BLM, and private landowner.
- Modify/replace fences in T14S, R8W sections 23, 24, and 35, to BLM specifications.
- Treat up to 200 acres of cheatgrass in the Dutch Hollow Pasture in T14S, R8W Section 35.

**Snowline AMP Custodial # 20607**

Management

Number & Kind of Livestock	Year	Season of Use	AUMs
126 Cattle	1	Sept 15 – Oct 31	632
	2	June 1 – Oct 31	

- Livestock grazing would be authorized for up to 15 days annually in the Big Beaver Creek pasture.
- Permittee would eliminate trailing livestock in the Big Beaver Creek pasture

along riparian reach 946.

**Ellis Peak #10126**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
206 Cattle	June 1 – July 31	75*	310

\* The airport pasture would be billed @ 75% public land and the east side pasture would be billed @ 50% public land

- The Ellis Peak allotment would be grazed with up to 206 cow/calf pairs under a two treatment deferred-rotation grazing system for up to two months annually. The Law Creek riparian pasture would be closed to all livestock grazing.

Year	Pasture		
	Airport	East Side FS/BLM/PVT	Law Creek Riparian
1	June 1 – June 21	June 22 – July 31	CLOSED
2	July 10 – July 31	June 1 – July 10	CLOSED
3	June 1 – June 21	June 22 – July 31	CLOSED

Projects (See Map 7, Appendix A)

- Remove dams, dikes and old spring boxes and pipe on stream reach 721 and wet meadow 735.
- Replace the Homestead Fence #470261 (1¼ miles 26” woven wire topped with 3-stands of barbed wire) with 1¼ miles of 4-strand barbed wire built to BLM wildlife specifications.
- Construct the Law Creek riparian enclosure with four miles of new fence (Two miles of 4-strand barbed wire & two miles of 3-strand barbed wire).
- Repair the 2-track road (the designated route) through the airport pasture with rock &/or gravel where washing has occurred in the vicinity of stream reaches 719, 720, and 795.

**Hildreth Livestock #10127**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
19 Cattle	June 15 – Nov 30	100	104

- Livestock would be permitted to graze within the listed seasons provided that at least 4” of sedge stubble height remains along Medicine Lodge Creek. Utilization of key forage grasses on upland sites (bluebunch wheatgrass and Idaho fescue) would be limited to 50% or less of the current year’s growth.

**Williams #20195, Shoshone Cove #20192, and Cedar Creek #20621**

Management

Allotment	Number & Kind of Livestock	Season of Use	% Public Land	AUMs
Williams	52 Cattle	June 15 – Oct 31	97	230
Shoshone Cove	72 Cattle	June 15 – Oct 31	50	164
Cedar Creek	67 Cattle	June 15 – Oct 31	100	306

- The Williams, Shoshone Cove and Cedar Creek allotments would be grazed with

up to 250 cow/calf pairs under a spring, fall, rest, grazing schedule for up to 45 days annually as follows:

Year	Allotment		
	Williams	Shoshone Cove	Cedar Creek
1	June 15 – June 30	Oct 1 – Oct 31	REST
2	Oct 1 – Oct 29	REST	June 15 – June 30
3	REST	June 15 – June 30	Oct 1 – Oct 31

Projects (See Map 8, Appendix A)

- Cedar Creek Allotment:
  - Construct the Spring Gulch riparian enclosure with  $\frac{3}{4}$  mile of 4-strand barbed wire fence.

Features &/or Projects Common to Alternatives B, C & D (in addition to those listed above):

- Williams Allotment
  - Pipe water from a private well to the existing tank in section 32 and to a new 10' round fiberglass tank in the saddle in section 31, T10S, R10W.
- Cedar Creek Allotment:
  - Abandon the Cedar Hill Spring (project number 476732). Remove old spring box and tanks associated with the spring development. Protect the reclaimed spring source with jack & rail fence if natural free-flowing water and associated riparian and wet meadow habitat can be restored during salvage operations.
  - Construct the Cedar Creek riparian enclosure with  $\frac{1}{2}$  mile of 4-strand barbed wire fence.

### Bell Canyon #20193

#### Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
250 Cattle	May 15 – Sept 30	56	640

- The allotment would be grazed with up to 250 cow/calf pairs under a four treatment deferred-rotation grazing system for a maximum of 640 AUMs. The rotation shown for years 1, 2, 3 and 4 would be repeated beginning in year 5.

Year	Pasture			
	North Flats	South Flats	Hills Pasture	Mountain Pasture
1	May 15 – June 14	June 15 – July 14	July 15 – Aug 28	Aug 29 – Sept 30
2	June 15 – July 14	May 15 – June 14	Aug 17 – Sept 30	July 15 – Aug 16
3	May 15 – June 14	June 15 – July 14	July 15 – Aug 28	Aug 29 – Sept 30
4	June 15 – July 14	May 15 – June 14	Aug 17 – Sept 30	July 15 – Aug 16

Projects (See Map 5, Appendix A)

- Enclose the spring sources and at least 300 feet of associated spring brook on riparian reaches 900, 902, 931 and 985 with 4-strand barbed wire fence. This would create four new riparian enclosures and would require  $\frac{3}{4}$  - 1 mile of fence.

Features &/or Projects Common to Alternatives B &C (in addition to those listed above):

- Rebuild approximately 1¼ mile of 4-strand barbed wire fence between the north and south flats pastures (+ ¾ mile would be on BLM in section 21; T11S, R10W).
- Pipe water to a 10' round fiberglass trough in section 20 from existing private wells in either section 15 or 22 (T11S, R10W). Well selection and final pipeline location and design would be determined by BLM engineering staff.
- Build approximately 1¼ mile of 3-strand barbed wire fence in section 24 (T11S, R11W) to create the Mountain Pasture (upper Bell Canyon). The middle 20 rods would be designed as “let down” fence to allow for winter elk passage.
- Close and rehabilitate the jeep trail in the NW¼ of section 20 and SW¼ of section 17 (T11S, R10W). Reroute traffic along the 2-track approximately ½ mile east which is designated as an open road.
- Aerially treat up to 100 acres of cheatgrass.
- Aerially treat up to 200 acres of spotted knapweed within Bell Canyon and Roe West Allotments.

**Lima Peaks #30270**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
264 Cattle	July 11 – Oct 15	28	236

- All use would be in accordance with the Beaverhead-Deerlodge National Forest Lima Peaks allotment management plan.

**Little Sheep #10622**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
2 Cattle	June 15 – Oct 20	100	8

Projects (See Map 9, Appendix A)

- Construct the Little Sheep Creek riparian enclosure with about ½ mile of 4-strand barbed wire fence.

**154 Acres of Unleased BLM land**

Management

- Incorporate 47 acres of unleased BLM land located near the Snowline Allotment into the newly created Pinetop Hill Allotment #03192.
- Authorized grazing use for the Pinetop Hill Allotment would be as follows:

Number & Kind of Livestock	Season of Use	AUMs
2 Cattle	June 2 – Sept 29	7

**Conifer Treatments**

Alternative B would implement mechanical treatments (commercial and/or non-commercial), prescribed fire treatments, and/or chemical treatments in 12 units within the RRLW to improve forest health and reduce conifer encroachment into sagebrush/grasslands, forest meadows/openings, aspen and riparian areas.

In areas of upland conifer encroachment, a combination of prescribed fire and/or non-commercial mechanical methods would be used with the goal of killing/removing 60% or more of conifers less than 30 feet tall that are encroaching into sagebrush/grasslands, forest openings and/or aspen clones. Where conifers are encroaching into sagebrush/grasslands, an emphasis would be placed on maintaining 50% of the mature sagebrush cover on a drainage basis. Where conifers are encroaching into aspen, some conifers (generally taller than 30 feet) may be cut and left on site to protect aspen sprouts from browsing.

Up to 1,685 acres in the Clark Canyon Allotment would be proposed for commercial harvest treatment under Alternative B (See Map 3). Specific unit boundaries, road locations, and silvicultural prescriptions within the boundaries of Units Clark Canyon 1 and 2 would be determined and analyzed in subsequent NEPA document(s). The areas identified for commercial harvest treatment are composed of primarily Douglas-fir with intermixed subalpine fir, Engelmann spruce, and aspen. Silvicultural prescriptions would be further refined in subsequent analysis, but would target harvest and removal of dead/dying trees, and harvest of conifers in and around aspen stands. Harvest treatments would aim to restore the structural diversity that occurred within the historical fire regimes. Treatments would include selective thinning and/or small patch cuts (up to five acres). At the minimum, an average of two to five existing snags or green recruitment snags would be left per acre in all commercial harvest units. Retention patches of uncut timber would be scattered throughout harvest units to provide wildlife screening cover and reduce sighting distances.

Cable and/or helicopter yarding would be considered in regions with slopes greater than 45%, areas with soil instability concerns, and/or places with road construction limitations. Tractor yarding would also be considered where feasible. If market conditions permit, biomass material may be removed from within commercial harvest units. Sufficient residual biomass material would be left on site to maintain nutrient recycling and desirable micro-site conditions. Residual slash may be burned within three years following the completion of harvest operations.

In Clark Canyon Isolated and Clark Canyon allotments, BLM would treat 1.3 miles (32 acres) of riparian habitat to reduce/remove Rocky Mountain juniper and to restore deciduous woody and herbaceous species on the lower reaches (926, 928 and 930) of Clark Canyon Creek. The goal would be to treat (kill or remove) all juniper trees within the riparian zone. Depending on the treatment type used, a range of 80 – 95% control would be considered successful.

Table 4 outlines the proposed units, objectives, treatment types and the affected allotments under Alternative B. Unit locations and boundaries are shown on individual allotment maps number 3, 5, and 11 in Appendix A.

Table 4: Conifer Treatments, Alternative B

Unit	Allotment	Acres	Objective(s)*	Treatment Type(s)
Bell 1**	Roe West Pasture & Bell Canyon	534	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 2**	Bell Canyon	423	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 3**	Bell Canyon	242	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 4**	Bell Canyon	563	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Clark Canyon 1	Clark Canyon	620	↑ forest health, ↑ aspen regeneration	Commercial harvest Prescribed fire
Clark Canyon 2	Clark Canyon	1065	↑ forest health, ↑ aspen regeneration	Commercial harvest Prescribed fire
East Fork	Lima Peaks	366	↓ conifer encroachment into aspen; ↑ aspen regeneration	Non-commercial mechanical Prescribed fire
Limekiln 1**	Roe West Pasture & Bell Canyon	248	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Limekiln 2	Bell Canyon	105	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
R926	Clark Canyon Isolated (Reach 926)	6	↓ conifer encroachment into riparian area	Non-commercial mechanical Herbicide
R928	Clark Canyon (Reach 928)	10	↓ conifer encroachment into riparian area	Non-commercial mechanical Herbicide
R930	Clark Canyon (Reach 930)	15	↓ conifer encroachment into riparian area	Non-commercial mechanical Herbicide

\* Abbreviations: ↑=increase ↓=decrease

\*\* Includes BLM-administered and private lands

### 2.3.5 Description of Alternative C Livestock Management

#### **Clark Canyon #30002**

##### Management

- Cattle would be kept in the spring/summer unit for an additional 5 days, shortening the time the cattle are in the summer/fall pastures by five days.

- Authorized season of use would be the same as Alternative B.
- The spring/summer grazing rotation would be the same as Alternative B.
- The summer/fall grazing period would be a rest-rotation grazing system. The summer/fall period would begin on July 8th and end October 15. The summer/fall grazing rotation would be as follows:

Year	Pasture				
	Horse Mountain	Clark Canyon #2	Clark Canyon #3	Clark Canyon #4	Clark Canyon #1
1	July 8 – Aug 2	Aug 3 – Sept 2	REST	Sept 2 – Sept 28	Sept 28 – Oct 15
2	Sept 18 – Oct 15	Aug 20 – Sept 17	Aug 3 – Aug 19	July 8 – Aug 2	REST

Projects (in addition to projects in Alternative B)

- Construct enclosure fence around reach 930.

**Snowline AMP Allotment #30029**

Management:

- Same as Alternative B.

Projects (in addition to projects in Alternative B)

- Construct enclosure fence around reaches 906 and 937.

**Snowline AMP Custodial #20607**

Management:

- Authorized grazing management would be the same as Alternative B.

Projects (Map 10, Appendix A)

- Construct enclosure fence around reach 946.

**Roe West Allotment # 20728**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
700 Cattle	Apr 1 – Dec 31	100	700

- Grazing management for Roe West would be as follows:

Year	Pasture	
	Low Pasture	High Pasture
1	Graze for up to 21 days	REST
2	REST	Graze for up to 21 days

**Ellis Peak #10126**

Management

Allotment	Number & Kind of Livestock	Season of Use	% Public Land	AUMs
Ellis Peak	206 Cattle	June 1 – July 31	75	310
Morrison Creek	90 Cattle	June 1 – July 31	100	180

**Note:** This alternative would require the permittee of the Ellis Peak allotment to acquire the grazing privileges for the Morrison Creek allotment, either permanently or through a base property lease.

- The Ellis Peak and Morrison Creek allotments would be grazed with up to 206 cow/calf pairs for up to two months annually. Livestock would be permitted to graze within the following listed seasons provided that at least 4” of sedge stubble height remains along Morrison Creek, Erickson Creek, Law Creek and their tributaries. Utilization of key forage grasses on upland sites (bluebunch wheatgrass and Idaho fescue) would be limited to 50% or less of the current year’s growth.
- The Law Creek pasture of the Ellis Peak allotment would be rested for three consecutive years. Beginning in year four each pasture would receive year-long rest once every three years.

Allotment	Ellis Peak		Morrison Creek	
	Airport	Law Creek	Morrison	Erickson
Year 1	June 1 – June 20	REST	June 21 – July 4	July 5 – July 31
Year 2	June 22 – July 15	REST	July 15 – July 31	June 1 – June 21
Year 3	July 10 – July 31	REST	June 1 - 17	June 1 8– July 9
Year 4	June 1 – June 21	June 22 – July 6	REST	REST
Year 5	July 9 – July 31	REST	June 22 – July 8	June 1 – June 21
Year 6	REST	June 16 – June 30	July 17 – July 31	July 1 – July 16

Projects:

- Remove dams, dikes and old spring boxes and pipe on stream reach 721 and wet meadow 735. Enclose the sources and associated riparian-wetland habitat 300’ down slope from each source with 4-strand barbed wire fence. This would create two new riparian-wetland exclosures and would require approximately ½ mile of fence.
- Replace the Homestead Fence # 470261 (1¾ miles 26” woven wire topped with 3-strands of barbed wire) with 1¾ miles of 4-strand barbed wire built to BLM wildlife specifications.

**Williams #20195, Shoshone Cove #20192, and Cedar Creek #20621**

Management

Allotment	Number & Kind of Livestock	Season of Use	% Public Land	AUMs
Williams	136 Cattle	May 9 – June 30	97	230
Shoshone Creek	195 Cattle	May 9 – June 30	50	170
Cedar Creek	176 Cattle	May 9 – June 30	100	307

- The Williams, Shoshone Cove and Cedar Creek allotments would be grazed with up to 250 cow/calf pairs under a three treatment (early spring, late spring, rest) grazing schedule for up to 53 days annually. The rotation shown for years 1, 2 and 3 would be repeated beginning in year 4.

Year	Allotment		
	Williams	Shoshone Cove	Cedar Creek
1	May 9 – June 5	June 6 – June 30	REST
2	June 6 – June 30	REST	May 9 – June 5
3	REST	May 9 – June 5	June 6 – June 30

**Bell Canyon #20193**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
250 Cattle	May 15 – Aug 19	56	446

- The allotment would be grazed with up to 250 cow/calf pairs under a four treatment rotational rest grazing system for a maximum of 446 AUMs. If the allotment is stocked with full numbers the grazing season would be shortened to stay within available AUMs while still resting one pasture annually.

Rotation with 174 cow/calf pairs:

Year	Pasture			
	North Flats	South Flats	Hills Pasture	Mountain Pasture
1	May 15 – June 14	June 15 – July 31	Aug 1 – Sept 30	REST
2	June 15 – July 31	May 15 – June 14	REST	Aug 1 – Sept 30
3	May 15 – June 30	REST	Aug 15 – Sept 30	July 1 – Aug 14
4	REST	May 15 – June 30	July 1 – Aug 14	Aug 15 – Sept 30

Rotation with 250 cow/calf pairs:

Year	Pasture			
	North Flats	South Flats	Hills Pasture	Mountain Pasture
1	May 15 – June 4	June 5 – July 4	July 5 – Aug 19	REST
2	June 11 – July 9	May 15 – June 10	REST	July 10 – Aug 19
3	May 15 – June 4	REST	July 11 - Aug 19	June 5 – July 10
4	REST	May 15 – June 4	June 5 – July 15	July 16 – Aug 19

**Lima Peaks #30270**

Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
None	--	28	236

- If the current grazing lessee loses control of the grazing privileges on the Forest Service Lima Peaks allotment, the BLM grazing privileges associated with the Lima Peaks allotment would be cancelled. Any future livestock use would be coordinated with the Beaverhead-Deerlodge National Forest and authorized through the Lima Peaks allotment management plan.

**154 Acres of Unleased BLM land**

Management

- No livestock grazing

Projects (See Map 2, Appendix A)

- Construct ½ mile of fence to exclude 47 acres of unleased BLM land from livestock grazing.

**Conifer Treatments**

Under Alternative C all of the conifer treatments proposed in Alternative B, excluding the commercial harvest in Clark Canyon 1 and 2 would be carried forward. Additional upland conifer treatments are also proposed under Alternative C. Treatment descriptions and objectives would be the same as described under Alternative B. Table 5 outlines the proposed units, objectives, treatment types and the affected allotments under Alternative C. Unit locations and boundaries are shown on individual allotment maps in Appendix A.

Table 5: Conifer Treatments, Alternative C

<b>Unit</b>	<b>Allotment</b>	<b>Acres</b>	<b>Objective(s)*</b>	<b>Treatment Type(s)</b>
Bell 1**	Roe West Pasture & Bell Canyon	534	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 2**	Bell Canyon	423	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 3**	Bell Canyon	242	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Bell 4**	Bell Canyon	563	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Clark Canyon 3	Clark Canyon	1351	↓ conifer encroachment into aspen; ↑ aspen regeneration	Non-commercial mechanical Prescribed fire
Dutch Hollow	Snowline AMP & Lima Peaks	128	↓ conifer encroachment into aspen; ↑ aspen regeneration	Non-commercial mechanical Prescribed fire
East Fork	Lima Peaks	366	↓ conifer encroachment into aspen; ↑ aspen regeneration	Non-commercial mechanical Prescribed fire
Limekiln 1**	Roe West Pasture & Bell Canyon	248	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire
Limekiln 2	Bell Canyon	105	↓ conifer encroachment into sagebrush/grasslands	Non-commercial mechanical Prescribed fire

Unit	Allotment	Acres	Objective(s)*	Treatment Type(s)
R928	Clark Canyon (Reach 928)	10	↓ conifer encroachment into riparian area	Non-commercial mechanical Herbicide
R930	Clark Canyon (Reach 930)	15	↓ conifer encroachment into riparian area	Non-commercial mechanical Herbicide

\* Abbreviations: ↑=increase ↓=decrease

\*\* Includes BLM-administered and private lands

### 2.3.6 Description of Alternative D

Alternative D includes only the following five allotments and potential projects found within the allotments.

#### Williams #20195, Shoshone Cove #20192, and Cedar Creek #20621

##### Management

Allotment	Number & Kind of Livestock	Season of Use	% Public Land	AUMs
Williams	160 Cattle	June 1 - July 15	97	230
Shoshone Creek	222 Cattle	June 1 - July 15	50	164
Cedar Creek	207 Cattle	June 1 - July 15	100	306

The Williams, Shoshone Cove and Cedar Creek allotments would be grazed with up to 250 cow/calf pairs under a three treatment rest-rotation grazing system for up to 45 days annually. The rotation shown for years 1, 2 and 3 would be repeated beginning in year 4.

Year	Allotment		
	Williams	Shoshone Cove	Cedar Creek
1	June 1 – June 20	June 21 – July 15	REST
2	June 21 – July 15	REST	June 1 – June 20
3	REST	June 1 – June 20	June 21 – July 15

#### Bell Canyon #20193

##### Management

Number & Kind of Livestock	Season of Use	% Public Land	AUMs
250 Cattle	May 15 – Sept 15	56	571

- The allotment would be grazed with up to 250 cow/calf pairs under a four treatment deferred-rotation grazing system for a maximum of 571 AUMs. The Mountain Pasture (upper Bell Canyon) would be closed to all livestock grazing. The rotation shown for years 1, 2, 3 and 4 would be repeated beginning in year 5.

Year	Pasture				
	North Flats	South Flats	Hills Pasture	Mac's Cabin	Mountain Pasture
1	May 15 – June 14	June 15 – July 14	July 15 – Aug 31	Sept 1 – Sept 15	CLOSED
2	June 15 – July 14	May 15 – June 14	Aug 1 – Sept 15	July 15 – July 31	CLOSED

3	May 15 – June 14	June 15 – July 14	July 15 – Aug 31	Sept 1 – Sept 15	CLOSED
4	June 15 – July 14	May 15 – June 14	Aug 1 – Sept 15	July 15 – July 31	CLOSED

Projects (in addition to those listed under “Common to Alternatives B & C”):

- Build approximately three miles of 3-strand barbed wire fence in sections 11, 13 & 14 (T11S, R11W) to create the Mac’s Cabin Pasture.
- Build approximately 1 mile of 3-strand barbed wire fence between sections 24 (T11S, R11W) and 19 (T11S, R10W) in lieu of building the fence in section 24 (T11S, R11W) to create the Mountain Pasture.
- Build an optional  $\pm$  1 mile of 3-strand barbed wire fence between sections 15 and 16 (T11S, R11W) to isolate the State Pasture from the Mountain Pasture.

**Ellis Peak #10126**

Management

Allotment	Number & Kind of Livestock	Season of Use	% Public Land	AUMs
Ellis Peak	206 Cattle	June 1 - July 31	75	310
Morrison Creek	90 Cattle	June 1 - July 31	100	180

**Note:** This alternative like Alternative C would require the permittee of the Ellis Peak allotment to acquire the grazing privileges for the Morrison Creek allotment, either permanently or through a base property lease.

- The Ellis Peak and Morrison Creek allotments would be grazed with up to 206 cow/calf pairs for up to two months annually. The Morrison pasture of the Morrison Creek allotment and the Airport pasture of the Ellis Peak allotment would be combined into one management unit. Livestock would be permitted to graze within the following listed seasons provided that at least 4” of sedge stubble height remains along Morrison Creek, Erickson Creek, Law Creek and their tributaries. Utilization of key forage grasses on upland sites (bluebunch wheatgrass and Idaho fescue) would be limited to 50% or less of the current year’s growth.
- The Law Creek pasture of the Ellis Peak allotment would be rested for three consecutive years. Beginning in year four each pasture would receive year-long rest once every three years. The rotation shown for years 4, 5 and 6 would be repeated beginning in year 7.

Allotment	Ellis Peak		Morrison Creek	
	Law Creek	Airport	Morrison	Erickson
Year 1	REST	June 1 – July 10	July 11 – July 31	
Year 2	REST	June 22 – July 31	June 1 – June 21	
Year 3	REST	June 1 – July 10	July 11 – July 31	
Year 4	June 28 – July 12	REST		June 1 – June 27
Year 5	REST	June 1 – July 4	July 5 – July 31	
Year 6	June 16 – June 30	July 1 – July 31	REST	

Projects:

- Remove dams, dikes and old spring boxes and pipe on stream reach 721 and wet meadow 735. Enclose the sources and associated riparian-wetland habitat 300’ down slope from each source with 4-strand barbed wire fence. This would create

two new riparian-wetland enclosures and would require approximately ½ mile of fence.

- Capture water at the lower end of the spring brooks associated with reaches 721 and 735 inside the enclosure fence and pipe to 10’ round fiberglass tanks outside the fence. Design the developments as open systems and direct all overflows back into the natural drainage downstream from the stock tanks. Remove the northwest ¾ mile of Homestead Fence # 470261 between the Morrison pasture of the Morrison Creek allotment and the Airport pasture of the Ellis Peak allotment. Replace the remaining 1 mile of Homestead Fence with 1 mile of 4-strand barbed wire built to BLM wildlife specifications.
- Optional / Conditional – if the Ellis Peak allotment permittee loses control of the grazing privileges for the Morrison Creek Allotment or if resource conditions start to decline, reconstruct the northwest ¾ mile of Homestead Fence to BLM wildlife specifications.

## 2.4 Summary Comparison of Alternative Actions

Table 6: Comparison of Conifer Treatments

Conifer Treatment Method	Alternative A	Alternative B	Alternative C
Non-commercial mechanical and/or prescribed fire	0	2481	3960
Commercial harvest and prescribed fire	0	1685*	0
Non-commercial mechanical and/or chemical treatment (Riparian)	0	31	25
<b>TOTAL</b>	<b>0</b>	<b>4197</b>	<b>3985</b>

\*Would require additional site-specific NEPA documentation

Table 7: Comparison of Livestock Management, Projects & Vegetation Treatments Summarized by Grazing Allotments

Clark Canyon # 20489	Alternative A	Alternative B	Alternative C	Alternative D
Permitted Season of Use	5/15 to 10/15			No Alternative D
Livestock Numbers	650 cattle	400 cattle		
Active BLM AUMs	1519	935 (584 suspended)		

<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>Rest rotation in 6 Spring pastures</li> <li>Deferred rotation in 5 Fall pastures</li> </ul>	<ul style="list-style-type: none"> <li>Rest rotation in Spring pastures</li> <li>Deferred rotation in Fall pastures, cattle kept in summer pastures extra 5 days.</li> </ul>	<ul style="list-style-type: none"> <li>Rest rotation in 6 Spring pastures</li> <li>Rest rotation in 2 Fall pastures with stream reaches that failed standards</li> <li>Deferred rotation in 3 fall pastures</li> </ul>	
<b>Projects</b>	No new projects	<ul style="list-style-type: none"> <li>2- mile pipeline</li> <li>Relocate 1 mile of pasture fence</li> <li>Develop off-site water near reach 930</li> <li>Re-develop an additional spring near Horse Mtn Spring to augment existing development</li> </ul>	Same as B but in addition: <ul style="list-style-type: none"> <li>Fence reach 930</li> </ul>	
<b>Vegetative Treatments</b>	No new projects	<ul style="list-style-type: none"> <li>Commercial timber harvest/ prescribed fire on up to 1,685 acres</li> <li>Non-commercial mechanical/ chemical treatment on 25 acres of riparian conifers (reaches 928&amp; 930)</li> </ul>	<ul style="list-style-type: none"> <li>Non-commercial mechanical/ prescribed fire on up to 1,351 acres</li> <li>Non-commercial mechanical/ chemical treatment on 25 acres of riparian conifers (reaches 928&amp;930)</li> </ul>	
<b>Clark Canyon Isolated # 20206</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	5/15 to 12/31		No Alternative C	No Alternative D
<b>Livestock Numbers</b>	2			
<b>Active BLM AUMs</b>	15			
<b>Grazing Management</b>	Season long			
<b>Projects</b>	No new projects			
<b>Vegetative Treatments</b>	No new projects	<ul style="list-style-type: none"> <li>Non-commercial mechanical/ chemical treatment on 6 acres of riparian conifers (reach 926)</li> </ul>		
<b>Phalarope West # 30204</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	3/01 to 5/01 12/26 to 2/28	10/01 to 4/30	No Alternative C	No Alternative D

<b>Livestock Numbers</b>	40			
<b>Active BLM AUMs</b>	75			
<b>Grazing Management</b>	Deferred			
<b>Projects</b>	No new projects	<ul style="list-style-type: none"> <li>• Install wildlife guzzler</li> <li>• Conduct detailed assessment of dump site</li> <li>• Treat noxious weeds</li> </ul>		
<b>Roe Isolated #20729</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	6/01 to 2/28	5/15 to 2/28	No Alternative C	No Alternative D
<b>Livestock Numbers</b>	2			
<b>Active BLM AUMs</b>	12			
<b>Grazing Management</b>	Season long			
<b>Projects</b>	No new projects	<ul style="list-style-type: none"> <li>• Fence reach 987</li> </ul>		
<b>Snowline AMP # 30029</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	6/06 to 10/21			No Alternative D
<b>Livestock Numbers</b>	1044			
<b>Active BLM AUMs</b>	1989			
<b>Grazing Management</b>	Rest Rotation			
<b>Projects</b>	No new projects	<ul style="list-style-type: none"> <li>• Move trough ¼ mile</li> <li>• Construct 2.5 mile pipeline with 4 troughs</li> <li>• Modify/replace wildlife barrier fences</li> </ul>	Same as B but in addition: <ul style="list-style-type: none"> <li>• Fence out reach 906</li> </ul>	
<b>Vegetative Treatments</b>	No new projects	<ul style="list-style-type: none"> <li>• Treat up to 200 acres of cheatgrass</li> </ul>		
<b>Snowline AMP Custodial #20607</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	6/01 to 10/31			No Alternative D

<b>Livestock Numbers</b>	126			
<b>Active BLM AUMs</b>	632			
<b>Grazing Management</b>	Season long	<ul style="list-style-type: none"> <li>• Deferred rotation (early, late)</li> <li>• Up to 15 days in northwest pasture</li> <li>• No trailing in northwest pasture</li> </ul>		
<b>Projects</b>	No new projects		<ul style="list-style-type: none"> <li>• Construct enclosure around reach 946</li> </ul>	
<b>Roe West #20728</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	4/10 to 5/10	4/01 to 12/31	No Alternative C	No Alternative D
<b>Livestock Numbers</b>	1164	700		
<b>Active BLM AUMs</b>	1186			
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>• Early season, two pasture rotation April 10 - May 10 (up to 30 days of total grazing, 15 days total grazing each pasture)</li> </ul>	<ul style="list-style-type: none"> <li>• Two pasture rest-rotation (up to 21 days of grazing in one pasture and other pasture rested annually)</li> </ul>		
<b>Projects</b>	No new projects			
<b>Vegetative Treatments</b>	No new projects	<ul style="list-style-type: none"> <li>• Non-commercial mechanical/prescribed fire on up to 435 acres</li> <li>• Aerially treat up to 200 acres of spotted knapweed within Roe West and Bell Canyon Allotments</li> </ul>		
<b>Ellis Peak #10126</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	June 1 – Sept. 15	June 1 – July 31		
<b>Livestock Numbers</b>	215	Up to 206		
<b>Active BLM AUMs</b>	564	310	Up to 310	Same as Alternative C

<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>1 spring pasture; 1 summer pasture</li> <li>Allotment grazed up to 107 days</li> </ul>	<ul style="list-style-type: none"> <li>Law Creek riparian pasture closed to grazing</li> <li>2 pasture deferred rotation</li> <li>Pastures grazed 21 - 40 days</li> </ul>	<ul style="list-style-type: none"> <li>Managed with Morrison Creek allotment</li> <li>Law Creek rested for 3 years, then 3-treatment rest-rotation (June; July; Rest)</li> <li>Pastures grazed 15- 23 days</li> </ul>	Same as Alt. C except: <ul style="list-style-type: none"> <li>Pastures grazed 15- 34 days.</li> </ul>
<b>Projects</b>	None	<ul style="list-style-type: none"> <li>Restore reach 721 &amp; meadow 735</li> <li>Rebuild 1¼ miles fence</li> <li>Build 4 miles of new fence</li> <li>Repair 2-track road in airport pasture</li> </ul>	<ul style="list-style-type: none"> <li>Restore reach 721 &amp; meadow 735</li> <li>Build 2 wetland exclosures</li> <li>Rebuild 1¼ miles fence</li> </ul>	<ul style="list-style-type: none"> <li>Restore reach 721 &amp; meadow 735</li> <li>Build 2 wetland exclosures</li> <li>Rebuild 1 mile fence</li> <li>Remove ¾ miles fence</li> <li>Develop springs associated with reaches 721&amp;735</li> </ul>
<b>Vegetative Treatments</b>	None			
<b>Hildreth Livestock #10127</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	May 15 – Nov. 30	June 15 – Nov. 30	No Alternative C	No Alternative D
<b>Livestock Numbers</b>	Variable			
<b>Active BLM AUMs</b>	104			
<b>Grazing Management</b>	Season long – Custodial			
<b>Projects</b>	None			
<b>Vegetative Treatments</b>	None			
<b>Bell Canyon #10126</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	May 15 – Sept. 30			
<b>Livestock Numbers</b>	250	Up to 250		
<b>Active BLM AUMs</b>	640		445	571
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>Season long</li> <li>Allotment grazed up to 139 days</li> </ul>	<ul style="list-style-type: none"> <li>4 pasture deferred rotation</li> <li>Pastures grazed 30 - 44 days</li> </ul>	<ul style="list-style-type: none"> <li>4 pasture rest-rotation</li> <li>Pastures grazed 21 - 60 days</li> </ul>	<ul style="list-style-type: none"> <li>Mountain pasture closed to grazing</li> <li>4 pasture deferred rotation.</li> <li>Pastures grazed 15 - 48 days</li> </ul>

<b>Projects</b>	None	<ul style="list-style-type: none"> <li>• Build 4 riparian exclosures</li> <li>• Rebuild 1¼ mile of fence</li> <li>• Build 1¼ miles of fence</li> <li>• Install 1¼-1¾ miles of pipeline &amp; one 10' round tank.</li> <li>• Reroute ½ mile of jeep trail.</li> </ul>	Same as B except: <ul style="list-style-type: none"> <li>• No riparian exclosures</li> </ul>	Same as C but in addition: <ul style="list-style-type: none"> <li>• Build up to 3 ¾ miles of additional new fence</li> </ul>
<b>Vegetative Treatments</b>	None	<ul style="list-style-type: none"> <li>• Non-commercial mechanical/ prescribed fire on up to 1,685 acres</li> <li>• Treat up to 100 acres of cheatgrass and 200 acres of spotted knapweed aerially.</li> </ul>		None
<b>Lima Peaks #30270</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	July 11 – Oct 15		To be determined	No Alternative D
<b>Livestock Numbers</b>	Up to 500		To be determined	
<b>Active BLM AUMs</b>	236		To be determined	
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>• Managed with USFS Lima Peaks allotment</li> <li>• Pastures grazed 42 – 65 days</li> <li>• BLM rested 1 year in 4</li> </ul>		<ul style="list-style-type: none"> <li>• Future management coordinated with “new” USFS Lima Peaks allotment plan.</li> </ul>	
<b>Projects</b>	None			
<b>Vegetative Treatments</b>	None	<ul style="list-style-type: none"> <li>• Non-commercial mechanical/ prescribed fire on up to 365 acres</li> </ul>		
<b>Shoshone Cove #20192</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	May 15 – Oct 30	June 15 - Oct. 31	May 9 – June 30	June 1 - July 15
<b>Livestock Numbers</b>	200	Up to 250		
<b>Active BLM AUMs</b>	170	127	120	103
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>• Spring rotation</li> <li>• Allotment grazed up to 30 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; Oct; Rest)</li> <li>• Allotment grazed 16 – 31 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (May; June; Rest)</li> <li>• Allotment grazed 25 - 28 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; July; Rest)</li> <li>• Allotment grazed 20 - 25 days</li> </ul>
<b>Projects</b>	None			
<b>Vegetative Treatments</b>	None			
<b>Cedar Creek #20621</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>

<b>Permitted Season of Use</b>	May 15 – June 30	June 15 - Oct. 31	May 9 – June 30	June 1 - July 15
<b>Livestock Numbers</b>	200	Up to 250		
<b>Active BLM AUMs</b>	307	255	230	205
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>• Spring rotation</li> <li>• Allotment grazed up to 30 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; Oct; Rest)</li> <li>• Allotment grazed 16 – 31 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (May; June; Rest)</li> <li>• Allotment grazed 25 - 28 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; July; Rest)</li> <li>• Allotment grazed 20 - 25 days</li> </ul>
<b>Projects</b>	None	<ul style="list-style-type: none"> <li>• Build 2 riparian exclosures</li> <li>• Abandon 1 spring development.</li> </ul>	<ul style="list-style-type: none"> <li>• Build 1 riparian exclosure.</li> <li>• Abandon 1 spring development.</li> </ul>	
<b>Vegetative Treatments</b>	None			
<b>Williams #10126</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	May 9 – Sept. 23	June 15 - Oct. 31	May 9 – June 30	June 1 - July 15
<b>Livestock Numbers</b>	200	Up to 250		
<b>Active BLM AUMs</b>	230			199
<b>Grazing Management</b>	<ul style="list-style-type: none"> <li>• Spring rotation</li> <li>• Allotment grazed up to 30 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; Oct; Rest)</li> <li>• Allotment grazed 16 - 29 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (May; June; Rest)</li> <li>• Allotment grazed 25 - 27 days</li> </ul>	<ul style="list-style-type: none"> <li>• 3-treatment rotation (June; July; Rest)</li> <li>• Allotment grazed 20 - 25 days</li> </ul>
<b>Projects</b>	None	• Install 1 mile of pipeline & one 10' round tank		
<b>Vegetative Treatments</b>	None			
<b>Little Sheep #10622</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>
<b>Permitted Season of Use</b>	May 15 – Dec. 31	June 15 – Dec. 31	No Alternative C	No Alternative D
<b>Livestock Numbers</b>	Variable			
<b>Active BLM AUMs</b>	8			
<b>Grazing Management</b>	Season long – Custodial			
<b>Projects</b>	None	<ul style="list-style-type: none"> <li>• Build 1 riparian exclosure</li> </ul>		
<b>Vegetative Treatments</b>	None			
<b>154 Acres of Unleased BLM Admin. Land</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>	<b>Alternative D</b>

<b>Permitted Season of Use</b>	Year long	6/02 to 9/29	No livestock grazing allowed	No Alternative D
<b>Livestock Numbers</b>	Unknown	2	0	
<b>Active BLM AUMs</b>	Unalloted	7		
<b>Grazing Management</b>	Year long	Season long	None	
<b>Projects</b>	None		<ul style="list-style-type: none"> <li>• Build enclosure around unfenced BLM</li> </ul>	

## **3.0 Affected Environment**

This chapter describes the existing condition of specific environmental components that may be affected by the proposed action. The description of the affected environment is related to the specific issues and resource concerns identified in Chapter 1, but also encompasses the wider landscape of the RRLW. A more detailed and comprehensive description of current conditions in the watershed is provided in the Red Rock/Lima Watershed Assessment Report, and is available at the Dillon Field Office or on line at [http://www.blm.gov/mt/st/en/fo/dillon\\_field\\_office.html](http://www.blm.gov/mt/st/en/fo/dillon_field_office.html).

### **3.1 General Setting**

Elevations on BLM administered lands within the RRLW range from approximately 5,400 to above 10,000 feet. Topography varies from nearly level grassland flats to very steep mountain ravines.

Soils in this watershed are affected primarily by climate (temperature and precipitation), topography (slope and aspect), and parent material (geology and geomorphology). The soils in this watershed are in the Frigid (generally below 6,400 feet elevation) and Cryic (generally above 6,400 feet elevation) soil temperature regimes. The RRLW receives from 10 to 24 inches of average annual precipitation and falls into the Aridic and Ustic soil moisture regimes.

Vegetation reflects the diversity of ecological conditions across the landscape. The dominant plant communities and habitat types change according to soils, precipitation, elevation, slope and aspect. A wide variety of vegetation is found, from wetland and riparian species dependent on water and moist soils, to sagebrush and grass dominated plant communities that thrive on dryer upland sites. Forested habitats are found in the higher elevations. The watershed's diverse landscape and vegetation provides habitat and structural niches for a wide variety and abundance of wildlife.

Evidence of past wildfires is apparent throughout the watershed. Fire scars on living trees, charred wood, and historic photographs indicate that fire has played an active role in shaping the existing vegetation. Other past activities that affect existing vegetation include sagebrush spray treatments to reduce sagebrush cover and promote grass production, and forest product removal. More information on fire history can be found in the RRLW Assessment Report.

### **3.2 Description of Affected Resources/Issues**

#### **3.2.1 Issue #1: Upland Health, Upland Habitat and Associated Species**

Sagebrush and grassland areas are considered uplands for purposes of this report. According to satellite imagery, 61 percent of the watershed is classified as sagebrush-steppe or grassland uplands (28 percent grasslands, 33 percent sagebrush). Table 3 in the RRLW Assessment Report summarizes the general cover types in the RRLW. A full report on the existing upland conditions and habitat associations is found in pages 10-21 of the RRLW Assessment Report.

The upland health standard was met on all allotments. The IDT found that existing management is generally maintaining or improving upland health conditions on all allotments and quantitative monitoring data on file supports the findings of the IDT. However, occurrences of noxious and invasive species, including spotted knapweed and cheatgrass, are a concern on a localized scale. Tall cool-season bunchgrasses, specifically bluebunch wheatgrass, are slightly reduced from potential in localized areas. The south pasture of Allotment E showed a loss in vigor of tall cool-season grasses but was not severe enough to warrant a FAR rating for the entire allotment. Another documented concern affecting upland health is conifer expansion into sagebrush habitats on a localized scale.

The upland plant composition along the forest/sagebrush ecotone and within mid-elevation aspen stands within the RRLW is changing toward more conifer dominated. This is discussed in more detail in Issue #3 – Forest and Woodland Health.

### **3.2.2 Issue #2: Riparian, Wetland and Aquatic Habitat and Associated Species**

The RRLW assessment area is primarily located within the Red Rock Watershed. Most of the area evaluated in the RRLW drain to Horse Prairie Creek, Beaverhead River, Red Rock River and Clark Canyon Dam. The Beaverhead River, Clark Canyon Reservoir, Horse Prairie Creek and Red Rock River are water quality limited streams or water bodies according to Montana Department of Environmental Quality (DEQ).

There are approximately 26 miles of stream within the RRLW. Tables 8 through 10 in the RRLW Assessment Report show the lotic, lentic, and wet meadow habitats and their conditions. The associated riparian habitats are used by approximately 75% of all wildlife species in this area for at least some portion of their annual life cycle.

The riparian condition on 11 stream miles was PFC, two miles were FAR with an upward trend, nine miles were FAR with a static or “not apparent” trend, less than one mile rated FAR with a downward trend, and three miles rated as non-functional.

Physical resource concerns associated with streams include alteration of stream morphology (channel shape and gradient), sedimentation and deposition. Vegetation related concerns include lack of regeneration of woody species (willow, aspen, and cottonwood), composition, cover, structure, and lack of vigor on streamside vegetation. Conifers encroachment and lack of woody regeneration were primary resource concerns in two stream reaches (926 and 928) along Clark Canyon Creek.

Comprehensive digital National Wetland Inventory (NWI) mapping is not available throughout the State of Montana, thereby limiting the ability to summarize the extent of wetland resources. However, the BLM does have NWI draft maps from the 1990s that provide valuable baseline data within the assessment area. No comprehensive soils data is available to determine the extent of hydric soils. Given these limitations, certain conclusions can still be drawn. The majority of wetlands within the watershed fall into two broad categories, palustrine and riverine. The water regime for the majority of these wetlands is intermittent, (i.e. they are only seasonally wet), making them difficult to

identify in the field. Generally they are found in depressions and drainageways. The major ecological functions of these seasonally flooded wetlands, (e.g. groundwater recharge, flood mitigation, sediment filtering) have not been diminished by authorized uses. The long term drought is having an effect on vegetation wherein upland vegetation outcompeting wetland vegetation. It is common, however, for wetlands to expand and contract in response to hydrologic cycles (Tiner, 1999). Research and funding is increasing in an effort to develop comprehensive NWI mapping and soils survey information.

According to the Range Improvement Project database there are 25 developed springs in the RRLW. Eleven of these are in the Clark Canyon Allotment; six are in Snowline AMP, three in Roe West, two in Bell Canyon, one in Cedar Creek and one in Lima Peaks Allotment.

The IDT did not do a comprehensive inventory of developed springs, which date back to the 1940s. However, the IDT did look at a number of developed springs. Some developed springs were functioning as originally planned while others exhibited reduced wetland function due to soil compaction and/or loss of vegetation. Current regulations (4180) establish standards and guidelines for the management of springs and seeps. These standards and guides require the BLM to protect the ecological functions and processes of these resources. Springs found to be in poor condition are evaluated based upon productivity and other ecological factors.

Beaver are present in low numbers in suitable habitat in the headwater area of Clark Canyon Creek, West Fork of Sheep Creek, Red Rock River, and several drainages in the Snowline area. Old activity was noted in Dutch Hollow, evident by relic dams and old cuttings within the drainages. With the exception of the locations noted above, habitat suitable to support beaver is lacking, primarily due to insufficient amounts of willow.

The Clark Canyon Creek drainage provides some of the most diverse amphibian and aquatic habitat in the DFO. The interspersed beaver ponds, natural ponds, springs and streams in a conifer/willow/aspen habitat, provides for a variety of aquatic species including spotted frog and salamanders (Maxwell 2004). Maintaining or improving the integrity of this unique wetland/riparian habitat is crucial to the continued survival of these species within this drainage.

There are five streams within the assessment area that support cold water fisheries. The fish habitat conditions in the upper reach of BT 84 (Maurer Creek) were found to be in excellent condition. Livestock impacts in the form of trailing and bank shearing were noted on Little Sheep, Maurer and portions of Clark Canyon Creeks. Conifer expansion into riparian habitat supporting fisheries was noted along Clark Canyon Creek.

### **3.2.3 Issue #3: Forest and Woodland Health**

Forested and woodland habitats comprise approximately 11% of all ownerships, and approximately 10% of BLM-administered lands within the RRLW. The majority of the forested land administered by the BLM in the RRLW is in the Clark Canyon area and the

northern Tendoy Mountains. As a result of fire exclusion, conifer densities have increased within forested stands, and conifers have expanded into forest openings and sagebrush/grassland at low to mid-elevations. Aerial photographs show the spread of coniferous forest species downslope onto benches previously dominated by sagebrush and cool season grasses. In some cases, this is outside the historic range of variability in these systems. The spread of primarily Douglas-fir and Rocky Mountain juniper can be attributed to the reduction of fire over the past 120 years in these fire-dependent ecosystems.

Forest and woodland health concerns documented in the Assessment Report include:

- Douglas-fir encroachments into sagebrush steppe habitats on the east face of the Tendoy Mountains, particularly in the Bell Canyon and Roe West allotments.
- Conifer encroachment and stand type conversion to Douglas-fir/spruce in existing aspen clones. Particular areas of concern are in the Clark Canyon, Lima Peaks, and Snowline AMP allotments.
- Areas of extensive limber pine mortality, which may result in forest type conversion to stands dominated by Douglas-fir, particularly in the Little Sheep allotment.
- Increasing spruce budworm activity and occurrence of Douglas-fir bark beetle.

#### **3.2.4 Resource Concern #1: Special Status Species**

There are 22 special status wildlife species currently known to inhabit public lands within the RRLW. With the recent de-listing of the gray wolf and bald eagle, there are currently no known habitats supporting T&E species within the RRLW.

Grizzly bear use outside the Yellowstone recovery area is expanding and sightings have been reported in the Centennial and Lima Peaks Mountain ranges. As populations within the greater Yellowstone continue to increase, transient grizzly bears may further inhabit the Lima Peaks and Tendoy Mountain region more in the future.

Sage grouse and pygmy rabbits are both currently being petitioned for ESA listing. A full list of special status species occurring in the watershed can be found in Table 7 of the RRLW Assessment Report.

Occurrences of gray wolves within the RRLW have increased in recent years. As wolf/livestock conflicts increase, they will generally result in removal or relocation of offending wolves. Montana FWP has developed a State Management Plan to direct wolf management.

Sage grouse populations and sagebrush habitats within the watershed are generally at stable levels. The *Management Plan and Conservation Strategies for Sage Grouse in Montana* completed by the Montana Sage Grouse Working Group will be used as a guideline for future management of sagebrush habitat.

Pygmy rabbit habitat is present from the Snowline allotment northward through the Cedar Creek allotment, although occupied habitat is discontinuous and fragmented. Habitat

along the east face of the Tendoy Mountains is in short stringers of sagebrush in lower elevation drainages separated by extensive open grassland areas. Rabbits using these habitats are more vulnerable when losses of sagebrush cover occur. More extensive sagebrush habitat in Snowline and Cedar Creek supports more pygmy rabbit use.

The area from MacKenzie Canyon to Clark Canyon Reservoir lies within the Lima/Sweetwater Breaks and is a key raptor management area (USDI, 2004). This area was designated through Fish and Wildlife 2000 and the Dillon RMP because of the concentrated nesting density of ferruginous hawks, prairie falcon, golden eagles and other raptors. During 1985 through 1995, this area supported one of the three densest breeding populations of ferruginous hawks known in the world. Key area habitat management objectives for this region include maintaining the existing interspersed sagebrush and grassland habitat types and physical features that support and enhance ferruginous hawk nesting.

For additional information on special status wildlife species, please see the RRLW Assessment Report and the RRLW Biological Evaluation Appendix C.

### Special Status Plants

Twenty-six sensitive plant species are known to inhabit public lands within the RRLW. A complete list of these sensitive plants and a brief description of their habitat are presented in the watershed assessment report. Eleven of these plants, presented in Table 8, are either palatable or occupy habitats that may be directly or indirectly affected by the proposed action.

**Table 8. Sensitive Plants That May Be Affected By the Proposed Action**

Sensitive Plant Species	Habitat	Potential Impacts
Alkali Primrose	Moist to wet alkaline meadows near headwaters streams	May be vulnerable to impacts associated with cattle grazing and hydrologic alterations
Alpine Meadowrue	Moist alkaline meadows and sometimes along stream channels	May be vulnerable to hydrologic alterations
Bitterroot Milkvetch	Sagebrush steppe	May be vulnerable to impacts associated with cattle grazing
Green Molly	Saline or alkaline soil in valleys and foothills	May be vulnerable to impacts associated with cattle grazing
Idaho Sedge	Subirrigated soils and streamside meadows associated with low-gradient streams, springs & seeps	May be vulnerable to impacts associated with cattle grazing and competition with Kentucky bluegrass
Lemhi Beardtongue	Sagebrush steppe and open coniferous forests	May be vulnerable to impacts associated with cattle grazing, road maintenance and fire suppression
Lesser Rushy Milkvetch	Sagebrush steppe and grasslands	May be vulnerable to impacts associated with cattle grazing
Meadow Lousewort	Wetlands and riparian meadows	May be vulnerable to hydrologic alterations
Mealy Primrose	Saturated, often calcareous wetlands and wet meadows	May be vulnerable to impacts associated with cattle grazing and

Sensitive Plant Species	Habitat	Potential Impacts
		hydrologic alterations
Railhead Milkvetch	Sagebrush steppe	May be vulnerable to impacts associated with cattle grazing
Rocky Mountain Dandelion	Open riparian and wetland areas	May be vulnerable to competition from the introduced dandelion

### 3.2.5 Resource Concern #2: Socioeconomics

There are fifteen individual ranches (permittees) that are currently permitted to graze livestock for a total of 9,036 AUMs on the allotments included in this EA. Meetings with these permittees indicate that these ranch operations have tightly woven public land grazing preferences tied together with private land management. In most cases, private land owned by the permittees is adjacent to and/or intermingled with these public land allotments. Changes in numbers of livestock, seasons of use, and/or increased labor inputs may have considerable economic impacts on individual operations.

Three commercial recreation providers are permitted by the BLM to primarily provide outfitted big game hunting opportunities within the watershed. These three commercial recreation businesses provide for over 500 client days of outfitted hunting in most years, although not entirely within the boundary of this watershed.

For a full analysis of social and economic conditions for Beaverhead County refer to the Proposed Dillon RMP and EIS Vol. 1 beginning on page 250.

### 3.2.6 Resource Concern #3: Recreational Opportunities and Public Access

There are approximately 124 miles of designated motorized vehicle routes within the RRLW. Public recreational use of these routes occurs primarily during the big game hunting season, providing access to large areas of the Tendoy, Rocky Hills, and Blacktail Mountains. Unauthorized off-highway vehicle (OHV) use continues to be a concern for resource managers and many recreationists, especially hunters. Unauthorized OHV use was noted in the Lima Peaks Allotment, specifically in the northern portion near the East Fork of Little Sheep Creek. The IDT team noted an “open” jeep trail (approximately ½ mile) in the Bell Canyon Allotment that poses public safety concerns and is causing resource concerns (rills, erosion, weed spread) because of its very steep grade.

### 3.2.7 Critical Element: Cultural Resources

In conjunction with the Mountain Foothills Grazing EIS in the late 1970s, a Class II cultural resource inventory was completed for a 10% sample of lands within the DFO. The inventory located a mixture of prehistoric and historic sites throughout the RRLW. Overall, the watershed exhibited a lower than normal likelihood for cultural sites. Prehistorically, the RRLW has exhibited continuous occupation from approximately 10,000 years ago. Prehistoric sites within the watershed consist primarily of small habitation or procurement sites.

Historically, portions of the RRLW were explored by Lewis and Clark in the summer of 1805, eventually leading to further explorations during the fur trade in the 1830s. Early

settlements were established based on stopping points on transportation routes along the Red Rock River. The town of Red Rock, originally established as a stage station along The Great Beaverhead Road, eventually became the terminus for the Utah and Northern Railroad, first in Dell and then in its present location. Armstead, now under Clark Canyon Reservoir, was the starting point for the Gilmore and Pittsburg Railroad. Mining may have occurred in the watershed but to a lesser extent.

### **3.2.8 Critical Element: Wilderness Characteristics**

The RRLW contains most of the 9,650 acres of Bell-Limekiln Canyon WSA. Any changes in management, including but not limited to potential range developments, changes in livestock management, prescribed fires, forest health treatments, and travel management should be evaluated to ensure that they do not impair the wilderness character of the WSA. The IMP allows for prescribed burning where necessary to maintain fire-dependent natural ecosystems. Wherever possible, and consistent with other management objectives, management actions should enhance the wilderness character of the WSA.

## **4.0 Environmental Consequences**

### **4.1 Introduction**

This chapter discloses the scientific and analytic basis for comparison of the alternatives and describes the probable consequences (impacts, effects) of each alternative on the driving issues and resource concerns. The environmental consequences are analyzed and disclosed by alternative. This chapter also discloses the cumulative, or combined, impacts of alternative actions with past, present and reasonably foreseeable actions within the watershed.

### **4.2 Predicted Effects of Alternatives**

#### **4.2.1 Predicted Effects Common to All Alternatives Including the No Action**

Term Grazing Permits will be renewed with the current terms and conditions on the 12 allotments that were determined to be meeting Land Health Standards. These allotments are: Allotment E, Clark Canyon Isolated, Norris Canyon, North McKnight, Radio TV, Roe, Seybold Individual, Seybold Non-AMP, Truax Creek, Snowline Isolated Tracts, Roe West and Straight Creek. Current management is facilitating/allowing healthy conditions on BLM administered public lands within these allotments and is expected to continue.

Human activities, such as road maintenance activities, recreation, gravel mining, and other disturbances or activities, as well as livestock, wildlife, wind, water and fire have the potential to spread weeds into and within the watershed.

Carefully planned monitoring under all alternatives will provide data for adaptive management within the RRLW. The monitoring plan for the RRLW is attached as Appendix B.

Gray wolf predation on livestock is possible on all BLM administered grazing allotments in the RRLW. Since the de-listing of the gray wolf, Montana Fish Wildlife and Parks is proposing a hunting season which also has the potential to reduce livestock depredation in the future. Actions proposed under all alternatives would not result in the destruction or adverse modification of existing gray wolf habitat.

#### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species**

Continued livestock grazing will affect composition of vegetation due to dietary preference and selectivity of forage. Depending on objectives, this affect may be considered positive or negative.

#### **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species**

The use of temporary electric fencing and salt and mineral supplements will continue to be used as management tools. Proper salting improves cattle distribution and utilization but is more effective in changing livestock behavior when done in conjunction with other management practices and/or projects. Although strategic salt placement is an

inexpensive and effective distribution tool, research has shown that it is not as persuasive in modifying livestock distribution patterns as water developments (Ganskopp 2001) or the strategic placement of energy or protein supplements such as low-moisture blocks (Bailey and Welling 1999).

Riding and herding are encouraged under all alternatives including the no action. Riding has been recommended and used for years as a tool to move livestock away from riparian areas. It can be a valuable tool to improve condition of stream reaches. Riding may not be successful if riding is not continuous and thorough. Low stress livestock management may increase the success of riding and in turn improve vegetative recovery. TR 1737-20 Grazing Management Processes and Strategies for Riparian-Wetland Areas (2006) states “successful application of low-stress stockmanship enables the rider or range manager to control the duration that plants and soils are exposed to grazing animals. This controls overgrazing and over resting, both of which lead to deterioration of range health. Proper handling can thus improve livestock distribution and rangeland condition and trend, and it can lead to improved riparian conditions that benefit fisheries and wildlife while improving water quality. Livestock can be moved away from critical habitat at critical times to minimize social displacement of wildlife (e.g. elk and deer winter range, fawning sites)” (Mosley 1999).

### **Issue #3: Forest and Woodland Health**

Limber pine and whitebark pine will continue to decline due to mountain pine beetle and/or white pine blister rust, and may become nonexistent in some areas. Management strategies to reduce white pine blister rust are cost and labor intensive (Hagle et al, 1989). Information on treatment methods shown to effectively promote limber pine and reduce mortality from white pine blister rust are very limited (Schoettle, 2004).

Potential wildfires would produce smoke emissions that may adversely impact the public and affect air quality.

### **Resource Concern #1: Special Status Species**

There are no known habitats supporting T&E species within the RRLW, therefore there would be no impacts to T&E species under any of the alternatives. Generally, impacts to other special status species may result from grazing or vegetative treatments that alter habitats and/or compete for forage, cover or space. Seasonal disturbance and displacement of wildlife during breeding seasons could also occur for some species. A summary table and a detailed discussion of predicted effects and potential impacts to special status plant species and their habitat is provided in the Biological Evaluation (BE) for Special Status Plants on BLM Lands in the Red Rock/Lima Watershed (Appendix D). A Short Form BE for Special Status Fish and Wildlife Species provides a summary of whether or not special status fish and wildlife species are affected by the proposed alternatives (Appendix E). Potential site-specific impacts to special status species are included in the allotment discussions below where appropriate.

### **Resource Concern #2: Socioeconomics**

The BLM does not have access to financial or business records for permittees that graze livestock on allotments included in this EA, therefore it is impossible to provide a detailed or quantifiable discussion of individual ranch operations or economic conditions. The 2008 BLM AUM cost is \$1.35, while private land lease rates in Montana for 2008 average \$17.80/AUM.

Economic impacts to area businesses and commercial operations associated with hunting opportunities in the area are not expected to be affected by any of the alternatives. Refer to Chapter 4 on page 302 and Table 56 on page 286 in the Dillon Proposed RMP and Final EIS for further information.

### **Resource Concern #3: Recreational Activities and Public Access**

Outdoor recreation demand continues to increase each year on public lands in southwest Montana. This trend is expected to continue especially for big game hunting opportunities in fall and water recreation activities in spring/summer/fall (e.g. angling, boating, and rafting). Some changes to recreational opportunities will occur as a result of the implementation of the motorized route designations that were made in the 2006 Dillon RMP. Those general changes are discussed in the Dillon RMP/EIS.

### **Critical Element: Cultural Resources**

Impacts are described under each alternative below.

### **Critical Element: Wilderness Characteristics**

Impacts are described under each alternative below.

## **4.2.2 Predicted Effects of Alternative A - No Action (Continuation of Current Management)**

Under this alternative, site-specific objectives would not be met and some allotments would continue being out of conformance with the Standards for Rangeland Health (43 CFR 4180).

### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species (Alternative A)**

All allotments in the RRLW met standards for upland health. Existing conditions and trends in sagebrush steppe and upland habitats would continue without a natural disturbance.

Current grazing treatments (season long or long duration) that limit the availability of succulent forage, cover, and residual herbaceous vegetation may affect nesting sage grouse and other ground nesting birds, and small mammals in localized areas, specifically in areas close to water sources.

The lack of new structural projects such as fences and water developments would maintain a relatively open, un-fragmented aspect to the RRLW as a whole. Without modification, approximately ten miles of fences identified as wildlife barriers would continue to impede seasonal movements by elk, mule deer, moose and antelope

throughout the watershed, particularly for the young. These fences would continue to pose a potential risk of entanglement, stress, and/or mortality.

Some areas in the watershed (i.e. Phalarope West Allotment) would provide only limited use for wildlife species, specifically antelope and sage grouse, due to lack of water.

Noxious weed infestations would remain the same or possibly increase. Areas with larger infestations such as Bell Canyon would see a probable decrease in density, but not the overall size of the infestation due to the inability of crews to treat some of the area by ground travel methods.

### **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (Alternative A)**

The No Action Alternative would not accomplish riparian, wetland or aquatic objectives along stream reaches or at springs where resource concerns have been identified. Alteration of stream morphology (channel shape and gradient), composition, cover, structure, conifer encroachment, vigor of streamside vegetation (specifically aspen, willows and sedges) and excess sediment input would continue. Negative impacts to wet meadows would continue. Impacts to spring sources and spring brooks would remain unchanged. Ecological functions would continue to be degraded in these areas.

Some riparian and wetland habitats would continue to be subjected to heavy or improper grazing under Alternative A. Continuing the current authorized grazing on FAR and NF riparian habitats would perpetuate heavy utilization of woody and/or herbaceous vegetation and/or streambank impacts from trailing. Limited cover, plant species diversity dominated by less desirable woody and herbaceous species, and low structural diversity that limit wildlife uses would be sustained on some streams. Small areas of riparian habitat associated with specific isolated springs, both developed and undeveloped, would continue to be impacted by authorized livestock use.

Where conifer encroachment into riparian areas was determined to be a primary cause of FAR conditions, reduction in deciduous woody riparian species and channel entrenchment would continue under this alternative.

The presence or absence of, as well as the nature and extent of, hazardous materials within the historic landfill in the floodplain southeast of Lima (Phalarope West Allotment) would remain undetermined. Hazardous materials, if present, would continue to present a risk to surface and groundwater quality.

Condition and trends to fish habitat under Alternative A would remain the same. Habitat in an upward trend, downward trend or static would likely continue along that path. In situations where aquatic habitat conditions are limiting populations, such as found on the lower portion of Maurer Creek, habitat requirements for fisheries would not be met.

Noxious weed infestations in riparian areas would show the same trend as upland infestations due to inability of ground crews to effectively reach and treat all infestations.

### **Issue #3: Forest and Woodland Health (Alternative A)**

Conifers would continue to expand into forest openings and sagebrush/grasslands. As stated by Hyerdahl et al (2006), “in the continued absence of fire, mountain big sagebrush and grasslands in southwestern Montana are likely to become more homogeneous as Douglas-fir trees continue to encroach.”

The density, structure and species composition of forest stands would continue to be departed from historic conditions. Continuation of the spruce budworm outbreak would result in additional defoliation, reduced growth, and predisposition to attack by other insects and diseases. Repeated defoliation by spruce budworm may result in top-killing and tree mortality (Fellin and Dewey, 1992). Douglas-fir bark beetle would continue to cause mortality of mature Douglas-fir, and in some areas this component of live mature Douglas-fir may be lost. Defoliation and mortality from insects and/or disease would result in decreased canopy cover, increased fuel loading, reduced forest health, and the potential for more severe impacts from wildland fire. Without proactive treatment of the declining timber habitat in Clark Canyon, there is the potential for a substantial loss of valuable big game security cover over the long term. Aspen would continue to decline, and without disturbances that would favor new regeneration, it would likely become nonexistent in some areas.

### **Resource Concern #1: Special Status Species (Alternative A)**

Identified resource concerns associated with livestock and/or conifer encroachment within riparian areas would not be addressed, and would continue to affect habitat for some special status species. Though upland standards were met, current management in specific or localized areas may not be the most desired to enhance habitat for sagebrush dependent species. One of the goals of the *Management Plan and Conservation Strategies for Sage Grouse in Montana* (draft July 2002) is to “manage grazing to maintain the soil conditions and ecological processes necessary for a proper functioning sagebrush community that addresses the long term needs of sage grouse and other sagebrush associated species.” Impacts to sage grouse habitat from livestock grazing would not be addressed. Sage grouse brood rearing habitat needs in riparian habitats and/or adequate residual cover for nesting would not be met in upland areas in localized areas of some allotments.

Habitat supporting populations of Bitterroot milkvetch and/or railhead milkvetch would be grazed prior to July 15 annually on the Cedar Creek, Shoshone Cove, Allotment E and Roe West allotments. Repeated spring grazing could reduce adult plant vigor and lead to population declines. Some streamside and wet meadow habitats would continue to be subjected to heavy grazing under Alternative A, potentially resulting in trampling and the browsing of these species. Continued heavy grazing of floodplains and wet meadow habitats, especially those supporting herbaceous plant communities, can cause abnormal hydrologic heaving. Aggravated hydrologic heaving alters the hydrology, energy flow and soil moisture regimes of these habitats and may limit their ability to support rare native plants.

### **Resource Concern #2: Socioeconomics (Alternative A)**

Under Alternative A, forage availability and number of authorized AUMs is expected to continue at current levels and economic contributions attributed to livestock use of BLM lands would continue at current levels. Cattle grazing on 55,872 acres of public lands would provide 9,036 AUM's of forage in Beaverhead County. The dependency of livestock operators on BLM forage would remain unchanged. BLM forage often provides a critical element of the livestock producer's matched complement of grazing, forage, and hay production. Since there would be no change in the authorized level of grazing use, this would not contribute to changing the real estate value of base properties.

Without treatment, the economic value of the timber resource would be lost. Socioeconomics was analyzed in further detail for the Field Office under Alternative A in Chapter 4 (p 316) of the Proposed Dillon RMP and Final EIS.

### **Resource Concern #3: Recreational Activities and Public Access (Alternative A)**

A ½ mile jeep trail in Bell-Canyon would continue to pose a public safety hazard and cause resource concerns (e.g. soil erosion, rills) due to the steepness of the grade along this section of road.

### **Critical Element: Cultural Resources (Alternative A)**

Current impacts to cultural and paleontological resources would be expected to continue.

### **Critical Element: Wilderness Characteristics (Alternative A)**

Wilderness characteristics within the Bell-Limekiln Canyon Wilderness Study Area would continue to be maintained under this alternative. The imprint of human activity would be maintained under current trends. Four springs within the WSA would continue to be impacted by authorized livestock. Conifers would further expand into sagebrush steppe habitat in the absence of fire resulting in a reduction of sagebrush steppe habitat outside the historic range of variability. Cheatgrass and noxious weeds would continue to expand, displacing native vegetation in areas within the WSA.

## **4.2.3 Predicted Effects Common to Action Alternatives (B; C and D where applicable)**

### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species (Action Alternatives)**

On the BLM uplands within the RRLW, utilization of upland forage plants was generally found to be less than 50% under current management. Upland utilization levels would continue in most areas or be changed on a site-specific basis in order to further enhance herbaceous plant community cover and composition. Earlier grazing treatments may allow sufficient time for plant re-growth while later deferred treatments may enhance seedling establishment and species composition. Utilization patterns within a pasture are not uniform and livestock-preferred areas would generally sustain higher levels of use while other areas may receive less utilization. Livestock distribution is influenced by distance from water, topography and season of use. Improvements in cover would

improve infiltration, and reduce soil erosion, overland sediment transport, and sediment delivery to streams.

With the exception of the range improvement projects that would be removed, existing improvements would remain permanent features within the watershed. Modifications would be made to existing fences not meeting BLM specifications which are expected to reduce conflicts with wildlife movements and reduce mortalities. Modification of wildlife barrier fences would facilitate seasonal movements by elk, mule deer, moose and antelope in specific areas within the watershed, particularly for young of all species. Adjusting wire spacing, removing wires or providing gaps would allow animals to pass over or under these fences with a reduced risk of entanglement. New fences may impede wildlife movements but constructing all new fences to BLM specifications would mitigate conflicts.

Water troughs, mineral placement, and trailing along fences would cause some localized impacts to vegetation but would be considered incidental. The proposed water developments are designed to improve livestock distribution and are expected to change utilization patterns so that more use would occur on upland forage plants and less in riparian areas. New livestock water troughs may also provide increased water for wildlife if they are available when livestock are not present. Increased forage utilization can be expected within ¼ mile of new water troughs due to concentrated livestock use within close proximity to these watering locations. New two-track ways may be created along the pipeline route. Use may be authorized on these routes for administrative and maintenance purposes only by permit holders and BLM employees.

Targeting new noxious weed infestations for eradication would keep new populations or new plant species from becoming established. Using biological control and/or aerial application on larger established infestations would reduce the size and density to more manageable levels. Conducting pre and post weed inventories within conifer treatment units would keep noxious weeds from being spread or established by these activities.

Operations to reduce conifer encroachment would result in localized short term displacement of sagebrush dependent species and elk calves, but would result in long term maintenance of sagebrush plant populations. Re-introducing natural disturbance regimes would create a myriad of successional and structural stages in sagebrush steppe habitats.

### **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (Action Alternatives)**

Revised grazing systems included in the action alternatives were generally developed in consultation with the grazing permittees in order to increase support in implementation and success in meeting resource objectives. Ehrhardt and Hansen (1998) acknowledge that there are “numerous techniques available for developing and implementing an appropriate prescription to address any given riparian ecosystem.” The only required ingredient which helps to ensure potential success was “serious commitment and personal

involvement on the part of the operators and managers.” Alternatives developed in consultation with affected permittees have an improved chance for success.

Utilizing use guidelines as tools to indicate livestock movements are expected to help improve overall watershed conditions along with the proposed management changes. This analysis is based on the assumption that these allowable use levels and associated livestock rotations are employed in a timely manner. A 4” sedge stubble height guideline should benefit stream channel morphology by reducing impacts to streambanks and bank-holding riparian vegetation in most areas, but is not expected to initiate significant progress toward meeting PFC on its own. Clary and Leninger (2000) recommend a 4” residual stubble height as a starting point for improved riparian grazing management while acknowledging that 6” of stubble height may be required to reduce browsing of willows or limit trampling impacts to vulnerable streambanks. Excessive wetland hummocking and drying is expected to be reduced where wetlands are adjacent to streams. Improvements in stream channel morphology and reduced impacts to streamside wetlands would reduce sediment input associated with channel erosion.

Spring development plans are aimed at maintaining adequate flows for wetland hydrology. Fencing spring sources and associated wet meadows when developing water for livestock would benefit the spring’s ecological functions and processes, conserve habitat for rare plants in the vicinity of developed springs and improve existing habitat for wildlife. Design features for spring developments listed in Section 2.3.3 would mitigate the potential of spring developments drying up or decreasing wetland areas associated with spring sources.

The construction of fences and water developments/exclosures throughout the RRLW would allow better livestock control, distribution and management. These improvements would also increase the level of human intrusion on the landscape and increase habitat fragmentation in specific areas. The greater intensity of human activity needed to meet guidelines or management strategies may increase potential wildlife disturbance or displacement on a localized and/or short term basis.

Water development in upland areas that lack water is often a key factor in reducing livestock concentrations in riparian areas. The proposed water developments would improve site conditions at spring sources by fencing the source and developing offsite water. Fencing the spring source would protect the associated habitat in the immediate vicinity. A common effect within riparian or spring exclosures in southwestern Montana is an increase in Canada thistle. New exclosures would be monitored for noxious weeds and treated where necessary.

The development of offsite water is expected to reduce trailing along streams and grazing/loitering in the riparian zone. Clawson (1993) found that installation of a water trough substantially reduced the duration of use of a perennial stream and also reduced the use of a spring in the same pasture. Reducing the duration of riparian area use would vary depending on water location and topography, but is expected to help improve channel morphology and increase composition of deep rooted riparian vegetation along

the greenline. Ehrhart and Hansen (1997) stated that, “The one quantifiable factor which was highlighted in successful riparian management was the presence of off-stream water.”

Case studies, controlled experiments, and common experience all confirm that, unless discouraged from doing so, cattle tend to spend a disproportionate amount of time in the riparian portion of any pasture. Mid-summer grazing, second only to season long grazing, is generally considered most injurious to riparian zones. Pastures can be grazed during this period successfully when the operator closely monitors the conditions and effective actions are taken to move livestock out of the riparian zone, and when there is an opportunity for re-growth (Ehrhardt and Hansen 1998). Alternate sources of water appear to be an important tool to encourage livestock to move away from the riparian area. Alternative water provides cleaner water for livestock and releases pressure off streams and wetlands reducing waste inputs to streams, soil compaction, channel damage and grazing on riparian vegetation. The planned spring developments could de-water low flowing springs and decrease the available riparian habitat if no overflow is available to be returned back into the channel. Obtaining flow measurements prior to developing these springs would provide important feasibility data that would be used in the engineering design. Augmenting the water development with shade, such as placing the watering trough near existing trees would also help to reduce the time livestock spend in riparian areas (TR-1737-20, 2006).

Revised livestock management that reduces the duration of time in the pasture is predicted to improve riparian vegetation, stream channel morphology and sediment transport at varying degrees and timeframes. While different opinions exist within the scientific community regarding the best season of use, there is consensus that the length of time animals spend in a riparian area can be a significant factor in the condition of that area. According to Marlow and his colleagues (1991), “The most critical aspect in any grazing plan for the protection of riparian areas is the length of time cattle have access to a particular stream reach.” Myers (1989), reviewing 34 allotments in southwestern Montana, concluded that, “duration in grazing treatments becomes a key factor in determining the severity of damage”. Shortening the duration of treatments, providing or increasing rest or deferment, and/or constructing off-site water developments is expected to facilitate improvement of the vegetative component along the riparian areas with noted resource concerns.

Removing juniper in three stream reaches is expected to increase sedges and deciduous woody riparian species, which would increase streambank stability, decrease channel erosion and over time improve channel morphology. Treatment of western juniper using chainsaws and/or herbicides in riparian zones in northeastern California and western Nevada was followed by “greater than expected” release of deep rooted herbaceous and deciduous woody vegetation within three years (Lancaster pers. comm., 2007). These changes would be beneficial to fish and wildlife habitat. Soil disturbance during manual treatment of juniper may allow localized increases of noxious weeds such as hounds tongue and/or Canada thistle.

All proposed conifer treatments would result in short term impacts (i.e. increased soil erosion, overland flow, and flushing flows in streams) which would diminish as vegetation responds to new conditions. Changes in forest structure would reduce snow and rainfall interception, and increase infiltration and runoff. According to Robichaud et al. (2006), “no measurable increase in runoff can be expected from thinning operations that remove less than 15 percent of the forest cover or in areas with less than 18 inches of annual precipitation”. Data from 95 watershed experiments conducted in the United States shows that, on average, streamflow increases by nearly 2.5 mm for each percent of watershed harvested (Troendle, et al. 2006). Streamflow is quite variable and the proposed treatments under all action alternatives within affected watersheds are small enough to be well below the threshold necessary to detect statistically significant change in streamflow.

Noxious weed impacts would be similar to what is described in Upland Health impacts above.

### **Issue #3: Forest and Woodland Health (Action Alternatives)**

Herbaceous vegetation would increase within all conifer treatment areas. The BLM does not intend to increase authorized livestock use as a result of increased herbaceous vegetation. However, it is expected there would be increased ungulate use in the treated areas because of the increase in palatability as well as production of herbaceous vegetation. This would change distribution and use patterns of herbivory (both wild and domestic) within the affected allotments for five or more years. There may be a short term increase in soil erosion within treated areas, but the long term effect would be decreased soil erosion due to increased cover of herbaceous vegetation.

Where conifer encroachment treatments utilizing prescribed fire are proposed, there would be a short-term loss of sagebrush habitats as sagebrush/forested areas are converted to grasslands. However, recovery of sagebrush would facilitate the BLM’s goals and objectives of maintaining and improving sagebrush/grassland habitat. Based on past prescribed fires/wildfires in the area, it may take up to thirty years before sagebrush is reestablished at current levels and structure within the treated areas. Re-introducing natural disturbance regimes would provide for a diversity of successional and structural stages in sagebrush habitats.

Burning of slash materials may result in short term air quality deterioration. Prescribed burning is done in accordance with the MT/Dakotas Fire Management Plan and is coordinated with MT DEQ and the MT/ID Airshed Group. During prescribed fire season, the Smoke Monitoring Unit supports the Montana/Idaho Airshed Group to prevent/reduce the impact of smoke on area communities, especially when it could contribute to a violation of national air quality standards.

### **Resource Concern #1: Special Status Species (Action Alternatives)**

Impacts to special status species are included in the discussions under Issue #1 and Issue #2 where appropriate.

**Resource Concern #2: Socioeconomics (Action Alternatives)**

Beaverhead County’s economy is highly dependent on agriculture, primarily the livestock industry. The jobs and tax revenue generated by livestock associated activities plays a major role in fueling the economy of southwest Montana. The inter-mixed lands including private, BLM administered and State of Montana creates a woven ownership pattern on which many livestock producers have been dependant for decades to effectively run a livestock operation. Alternatives that the BLM Authorized Officer selects, including management changes, changes to grazing permit authorizations and structural projects to improve a resource concern often have a financial impact on the BLM grazing permittee and cumulatively on Beaverhead County’s economy. These impacts are considered and balanced with the alternative’s ability to effectively mitigate resource concerns and make progress towards meeting resource objectives.

A variety of projects are proposed on BLM administered grazing allotments to improve land health. The table below summarizes the total proposed projects by alternative on all BLM administered grazing allotments. Alternative B has proposed projects from 15 different grazing allotments and one unleased tract. Alternative C has proposed projects from nine allotments and one unleased tract, while Alternative D has projects on five different allotments summarized in the table.

**Table 9. Summarized Proposed Projects by Alternative on All Grazing Allotments.**

<b>Proposed Project</b>	<b>Alternative B (15 allot. &amp; 1)</b>	<b>Alternative C (9 allot. &amp;1)</b>	<b>Alternative D (5 allotments)</b>
New fence construction (miles)	6.25	3	5
Fence reconstruction (miles)	3	3	2.25
Riparian exclosure fences (linear miles)	3	3.75	2
Spring developments (# of developments)	0	0	2
New 1,000g troughs (# of troughs)	8	7	2
New wildlife guzzlers (# of guzzlers)	1	0	0
New stockwater pipelines (miles)	5.75	5.75	2.5
Abandon springs (# of springs)	1	1	1
Restore reaches (# of reaches)	1	1	1
Restore wetlands (acres)	Up to 5	Up to 5	Up to 5
Repair/reroute roads (miles)	0.75	0.5	0.5
Commercial timber harvest (acres)	Up to 1,685	0	No Alternative D
Non-commercial mechanical or burns (acres)	Up to 2,481	Up to 3,960	
Chemically treat cheatgrass (acres)	Up to 300	Up to 100	
Chemically treat knapweed (acres)	Up to 400	Up to 200	
Treat riparian conifers (acres)	Up to 31	Up to 25	

### **Resource Concern #3: Recreational Activities and Public Access (Action Alternatives)**

All of the Action Alternatives (B, C, and D) have identified one minor change to the travel management plan described in the Dillon RMP. This change affects approximately ½ mile of road found in Bell Canyon allotment that was designated open in the RMP, which would be closed in favor of a preferable route in the same area which accesses the same location. There would be no impacts to recreation opportunities or public access by making this adjustment.

### **Critical Element: Cultural Resources (Action Alternatives)**

Any direct impacts to identified cultural or paleontological resources resulting from proposed range improvement or vegetation treatment projects would be avoided through project redesign or abandonment. Changes in grazing management to meet the Standards of Rangeland Health would be expected to provide a corresponding benefit and improvement of conditions at approximately 20% of the previously recorded cultural properties (see discussion in Section 3.2.7).

### **Critical Element: Wilderness Characteristics (Action Alternatives)**

The proposed conifer treatments for Alternatives B & C that would affect the Bell-Limekiln WSA are similar and would be consistent with management of the WSA according to the IMP. The stated objective for each of the treatments is to “reduce Douglas-fir encroachment into former sagebrush/grassland dominated communities to restore sagebrush steppe habitat”. The IMP (p. 39) states that, “Prescribed burning may be used where necessary to maintain fire-dependent natural ecosystems”. The conifer treatments proposed in both alternatives are re-introducing a natural process to maintain/restore sagebrush steppe habitat, a fire-dependent ecosystem.

Alternatives B & C also propose construction of more than one mile of new fence in the Bell Canyon drainage of the WSA. Generally speaking, “Permitted activities in WSAs (except grandfathered and valid existing rights) are temporary uses that create no new surface disturbance, nor involve permanent placement of structures.” (IMP, p.3) Although the grazing use itself within the Bell-Limekiln Canyon WSA is a grandfathered use, specific guidance in the IMP regarding new, permanent livestock developments states that they may be approved only if they are determined to enhance wilderness values, and are substantially unnoticeable. The proposed fence would create more than one additional mile of fence within the WSA, compromising the natural character of the WSA. Construction of this fence would provide an opportunity to manage the authorized livestock in a 4-pasture grazing system, which could improve the range condition on uplands and sagebrush-steppe both inside and outside the WSA. Although this alternative would benefit upland plant health, the additional one mile of fence within the WSA would impact wilderness values and the naturalness of the WSA. This project is a new impact to the naturalness of the WSA and is inconsistent with the IMP.

Alternative D proposes approximately one mile of fence on the WSA boundary, or perhaps even outside of the WSA that would accomplish the same objective of creating a

4-pasture grazing system without the impacts to naturalness that would occur in the WSA. The IMP says, on page 8, “If a facility must be constructed within a given geographic area, it would be in the best interest for protecting wilderness values to construct the facility outside the WSA. Other alternatives should always be considered before deciding to allow a use or activity within a WSA.” In this instance, it appears that both alternatives accomplish the same objective, and the fence proposal provided under Alternative D should be favored because it has little or no negative impacts to the naturalness of the WSA.

As stated above, “The construction of fences and water developments/exclosures throughout the RRLW would allow better livestock control, distribution and management. These improvements would also increase the level of human intrusion on the landscape, increasing localized habitat fragmentation. The greater intensity of human activity needed to meet guidelines or management strategies may increase potential wildlife disturbance or displacement on a localized basis and/or short term basis.” “...Better livestock control, distribution and management” alone does not justify the increased levels of human intrusions associated with these projects within the WSA. Predicted effects to upland and riparian health are stated below under each alternative.

Alternatives B & C also propose the aerial spraying of a cheatgrass infestation in the area surrounding three of the four non-functional springs within the Bell-Limekiln Canyons WSA. If this treatment is done, it will encourage re-colonization of these areas with native vegetation, in combination with the proposed changes in grazing management. The short term impacts associated with the use of a helicopter to conduct the aerial herbicide application would be minimal in comparison to the long term benefit of restoring native grasses and other vegetation.

#### **4.2.4 Predicted Effects of Alternative B**

##### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species (Alternative B)**

###### ***Clark Canyon***

Reducing the time livestock are in the fall pastures by five days would maintain or improve upland conditions. One of the most important advantages of late season grazing (October to December) is that for many herbaceous species seed set has already occurred, and defoliation will have less impact than during earlier development stages (Kaufman and Krueger 1984; Gillen and others 1985).

###### ***Phalarope West***

Lengthening the season of use in the Phalarope West Allotment to include October 1 to December 25 grazing is expected to not have any impacts to upland health or to sage grouse, pygmy rabbits, or raptors. Cattle would not be on the allotment during the nesting and brood rearing period for sage grouse. Constructing a wildlife guzzler would provide a valuable water source for sage grouse and antelope potentially resulting in greater use of this area by these species.

### ***Roe Isolated***

Lengthening the season of use by fifteen days in May would have no negative impacts to upland health. The permittee may, on occasion, graze the 95% privately owned allotment earlier than what has been previously authorized to accommodate an earlier green-up. Total authorized BLM AUMs would not change on this allotment.

### ***Snowline AMP***

Developing a pipeline with troughs and repairing a non-functional pipeline would facilitate better livestock distribution and reduce use in upland areas close to existing water sources. This would allow maintenance or improvement of upland health. The patch of cheatgrass found in the Dutch Hollow South Pasture would be treated with an aerial chemical spraying operation to reduce cheatgrass and give native plants a competitive advantage to establish in areas vacated by treated cheatgrass. Modifying wildlife barrier fences would reduce wildlife entanglement hazards in these areas.

### ***Snowline AMP Custodial***

Reducing grazing to a fifteen day period in spring during odd years, a fifteen day period in the fall during even years and eliminating trailing along the riparian is expected to maintain or improve upland health.

### ***Roe West***

Reducing authorized AUMs by 464 annually and resting one of the two pastures each year would slightly benefit upland health and sagebrush steppe habitat. The rest that would occur each year on one pasture would give upland plants a chance to recover from the previous year's grazing event and result in improved plant health. However, upland health met standards on this allotment. The current grazing plan (Alternative A) is to graze cattle on the entire allotment every year but early enough in the growing season (April 10 to May 10) where fast plant growth has not initiated. During a typically year, much of the grazing period is during the dormant season due to the high elevation of the allotment, and has little affect on plant health.

Non-commercial mechanical and/or prescribed fire treatment would benefit upland health in the allotment by reducing the encroachment of conifers in the upland grasslands and sagebrush steppe habitat. The encroachment of conifers into the sagebrush steppe habitat type is primarily caused by fire exclusion.

Resting the railhead milkvetch population occurring within the allotment from livestock grazing one year and limiting grazing to no more than 21 days (that may or may not occur during the growing season) in alternate years is expected to allow for maintenance of this population.

Resting half the allotment would provide for better security cover and forage for sage grouse brood rearing and pygmy rabbits. This allotment is not a primary sage grouse nesting area but it is used by adults and may support some brood rearing.

### ***Ellis Peak***

No changes are expected in the condition, trend &/or composition of upland plant species and communities. Modifying the Homestead fence to BLM wildlife specifications would reduce wildlife conflicts. A reduction in livestock numbers and a shorter use period would mitigate wildlife displacement.

### ***Hildreth Livestock***

No changes are expected in the condition, trend &/or composition of upland plant species and communities.

The proposed grazing rotation should not have an impact sage grouse or pygmy rabbits. It may have some beneficial effects due to the later (June 15) season of use start date. This would allow sage grouse nesting to be completed and some early brood rearing to take place. The stubble height and upland utilization standards would allow sufficient residual vegetation remains to provide forage and cover for pygmy rabbits, sage grouse broods as well as big game species.

### ***Bell Canyon***

The mid to late stages of woodland succession noted in the upper pastures of the allotment would initially be replaced by an Idaho fescue/bluebunch wheatgrass plant association after the non-commercial mechanical/prescribed fire treatments are completed. Within 20 years mountain big sagebrush is expected to reestablish across most of the treated acreage and the most common plant community would be mountain big sagebrush/Idaho fescue.

No major changes are expected in the condition, trend &/or composition of native upland plant species and communities in the Flats pastures. Chemically treating spotted knapweed and cheatgrass is expected to reduce the presence and distribution of these invasive species on the allotment.

Implementing the proposed projects and grazing rotation would improve overall wildlife habitat and allowing for better management of livestock which would allow for less wildlife displacement and increased upland forage.

### ***Shoshone Cove, Cedar Creek and Williams***

Marked improvement is expected in the production and vigor of needle-and-thread in the Williams allotment. The production and vigor of other cool season bunchgrasses is expected to improve over time across all three allotments. Bitterroot milkvetch populations would be subjected to grazing during between May 15 and July 15, one year out of three. The proposed 3-treatment grazing rotation (June; Oct; Rest) should allow enough recruitment to maintain these populations.

The proposed turnout dates on these allotments would benefit sage grouse by allowing the majority of nesting to be completed on years the turnout date is June 15. Switching to a spring-fall -rest rotation would provide better security cover for pygmy rabbits and sage grouse and additional forage big game.

### ***Little Sheep***

No changes are expected in the condition, trend &/or composition of upland plant species and communities.

### ***154 Acres of Unleased BLM Land***

Upland health conditions were met on these BLM administered acres. Impacts resulting from creating a new BLM allotment with 47 acres of these lands and maintaining the remainder as unallotted and only available to periodic trailing would be the same as Alternative A.

### **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (Alternative B)**

#### ***Clark Canyon***

Suspending 250 AUMs of Active Use, reducing the duration cattle are in the fall pastures by five days, shortening the time cattle are in the more sensitive Clark Canyon #1 and Clark Canyon #3 riparian pastures, and developing off-site water developments is expected to benefit sedges, willows, and other woody species on reaches 928, 930 and 986 in the Clark Canyon Allotment. Increases in sedges and willows would trap sediments and promote bank building. Over time channel morphology is also expected to improve. Reaches 928 and 930 did not meet riparian standards due to concerns over stream channel morphology and conifer encroachment while reach 986 had a lack of woody regeneration and unstable beaver dams. Planned riparian conifer reduction treatments would help mitigate conifer encroachment in reaches 928 and 930. Orienting the felled conifers to deter livestock use would allow successful establishment of palatable riparian vegetation and reduce streambank impacts. Riparian habitat within the 1,685 acres of commercial harvest/prescribed fire treatments would benefit due to improved deciduous riparian woody regeneration, a primary forage and dam building material for beaver.

Late season grazing every other year in the upper pastures has the potential to impact riparian vegetation as livestock switch to woody browse. With the high volume of wildlife use on aspen and willows, additional use by livestock could further speed up the decline of these species within Clark Canyon, itself. To offset livestock's affinity to woody browse in fall, grazing rotations after September 1<sup>st</sup>, have been reduced to <15 days in the modified grazing rotation. Projects designed to disperse livestock use away from riparian areas (e.g. protein supplement, water developments) would also reduce livestock impacts to riparian areas and improve riparian wildlife habitat. Prescribed burning in association with timber harvest would improve re-generation of aspen and willow within the basin.

#### ***Clark Canyon Isolated***

The riparian conifer treatment in Clark Canyon reach 926 would reduce conifer encroachment and improve chances for regeneration of cottonwood, willow and dogwood. Orienting felled conifer to deter livestock use and limiting the time cattle are in the allotment should allow successful establishment of riparian vegetation and improve channel morphology on this reach.

### ***Phalarope West***

Determining the presence or absence of hazardous materials within the historic landfill in the floodplain (Junction Creek, reach 933) southeast of Lima and removing these materials, if present, to an appropriate facility is expected to mitigate the concern over toxic wastes. Treating noxious weeds in the riparian corridor would reduce the existing infestation and spread of knapweed.

### ***Roe Isolated***

Constructing a riparian exclosure fence on a ¼ mile of Maurer Creek riparian reach 987 would lead to improvement in sedge composition, channel morphology and increased willow regeneration. Sediment load would also be reduced and provide better habitat for fish and other aquatic species. This relatively small portion of the allotment would be excluded from livestock grazing to initiate riparian habitat recovery. Skovlin (1984) found that exclusion of livestock has produced improved riparian and aquatic habitat following 4 to 7 years of rest, woody plant recovery following 5 to 8 years of rest, a doubling of fish biomass following 3 to 5 years of rest, and attendant positive responsive in birds and small mammals.

### ***Snowline AMP***

Fence modifications and maintenance projects identified would help to reduce or eliminate unauthorized livestock. Eliminating unauthorized livestock from adjacent lands, increased riding by BLM permittees, and developing or re-positioning off-site watering sites is expected to mitigate riparian concerns regarding channel morphology and woody regeneration on reaches 906 in the Snowline AMP Allotment. The development of offsite water is expected to reduce trailing along streams and grazing/loitering in the riparian zone (Clawson, 1993; Ehrhart and Hansen, 1997).

### ***Snowline AMP Custodial***

Reducing grazing to a fifteen day period in spring during odd years, a fifteen day period in the fall during even years and eliminating trailing along the riparian zone is expected to improve channel morphology and deep-rooted herbaceous riparian vegetation on reach 946. The primary advantage of fall grazing is that soils are drier, which reduces the probability of compaction and bank trampling. Most plants have completed their growth cycle, and grazing would not adversely affect plant development. Reduced disturbance without trailing along the riparian zone would result in immediate improvements of herbaceous riparian vegetation and improved channel stability.

### ***Ellis Peak***

Removing the dams, dikes, old spring boxes and pipe associated with stream reach 721 and wetland 735 would restore natural free flowing water to these aquatic systems. Closing the Law Creek riparian pasture to livestock grazing would provide the best opportunity for riparian and wetland habitat recovery. Initially, the existing vegetation along stream reaches 721, 730, 731, 756, 757 and wetland 735 would increase in both vigor and density. This vegetation would begin to trap sediments causing deposition and building stream banks. Concurrent with the deposition, the existing vegetation would become denser and more vigorous. Over time as ecological succession is allowed to

proceed, changes in herbaceous species composition are expected with deep-rooted, riparian obligate species replacing shallow-rooted and introduced species. Willow regeneration would be restricted only by wildlife browsing. As the vegetative component of riparian areas and wetlands continues to progress toward site potential, a corresponding improvement in the physical attributes of these reaches is also expected. Stream channels would narrow, floodplains would become more effective in reducing erosive energies within the channel, local water tables would rise, and sediment transport efficiency would increase.

Static trends are expected to continue on FAR stream reaches 718, 719 and 795, and reaches 720 and 796 are expected to remain in PFC.

Repairing two stream crossings in the Airport pasture would reduce the sediment input to stream reaches 720 and 795.

#### ***Hildreth Livestock***

The benefits of utilizing guidelines to indicate livestock moves are discussed above under 4.2.3. Riparian vegetation is expected to increase.

#### ***Bell Canyon***

Fencing the spring sources and the first 300 feet of stream reaches 900, 902, 931 and 985 would eliminate livestock trampling and herbivory along the upper sections of these four riparian areas. The existing vegetation would increase in both vigor and density and the spring brooks would begin to stabilize and reestablish their natural channel shape and sinuosity inside the exclosures. Over time, the vegetative communities and stream channel morphology would progress toward site potential inside the exclosures. Wildlife would continue to have access to the entire length of all four reaches and may limit willow recruitment. Livestock would be expected to water directly below the exclosure fences which would contribute to maintaining conditions as described under Alternative A outside the livestock exclosures.

#### ***Williams, Shoshone Cove, Cedar Creek***

Excluding Spring Gulch stream reach 925 and 901 would provide improved habitat and possibly some additional water for a wide range of wildlife. The exclosure could also benefit willow regeneration and channel morphology.

Neither of these reaches currently supports known populations of sensitive plants, but both could provide habitat for Idaho sedge, Rocky Mountain dandelion, and meadow lousewort. The anticipated improvements in habitat conditions inside the proposed exclosures would be conducive to supporting these species.

#### ***Little Sheep***

Excluding stream reach 915 to livestock access would allow for rapid improvements to stream bank vegetation and bank stability would likely occur. This would result in an improvement in fisheries habitat. Stream reach 915 isn't known to currently support any

sensitive plant species; however the anticipated improvements in vegetation and bank stability could provide an opportunity for colonization by Idaho sedge.

### ***154 Acres of Unleased BLM Administered Land***

Creating a new BLM allotment that is mostly private land with 47 BLM administered acres would have the same impacts as Alternative A (Standards were met).

### **Issue #3: Forest and Woodland Health (Alternative B)**

Reducing stand density on up to 1,685 acres in Units Clark Canyon 1 and Clark Canyon 2 would decrease intra-stand competition and increase the availability of water and nutrients for the remaining trees, increasing residual stand vigor. As trees susceptible to Douglas-fir bark beetle are removed and environmental conditions improve, resistance to insect populations would increase (Furniss et al, 1979). Selective thinning and patch cutting with retention patches of uncut timber would increase structural diversity in the Clark Canyon area. Small clear cuts of less than five acres would provide for more forage opportunity for elk. Creating breaks in continuous stands would decrease the potential for widespread stand replacing wildfire and enhance suppression opportunities. Follow up prescribed fire treatments would reduce fuels and recycle nutrients from the mechanical treatments.

The removal of conifers from within and around aspen stands followed by prescribed fire would promote regeneration and revitalize these stands for a 20 to 50 year period. The use of prescribed fire has the potential to be very beneficial to regenerating aspen and willow, which would improve habitat for beaver, elk, moose and other riparian obligate species. Timing of spring burns would be coordinated between resource specialists to mitigate impacts to amphibians.

Ground based yarding would further enhance aspen regeneration response by disturbing the aspen root system and promoting sprouting. Helicopter yarding would have no additional beneficial effect upon aspen regeneration response except by removal of conifer competition. The use of cable and helicopter harvest would greatly reduce the impact to the unstable soil found in the area. The use of tractors to remove harvested timber should be carefully considered as it has the potential to cause considerable impacts due to the very unstable highly erosive soils found in the area.

Additional site-specific effects of commercial harvest activities would be identified and analyzed in subsequent NEPA documentation.

Non-commercial mechanical and prescribed fire conifer treatments in Roe West and Bell Canyon allotments would stop or reverse the conversion of affected sagebrush/grasslands into forested habitat on up to 2115 acres. Non-commercial mechanical and prescribed fire conifer treatments in the Lima Peaks allotment would reduce conifer encroachment into aspen woodlands, promote aspen regeneration and decrease competition for water, nutrients and sunlight on up to 366 acres. Cut conifers left intact on the ground would also offer some browse protection for seedling/sapling size aspen regeneration.

**Resource Concern #1: Special Status Species (Alternative B)**

Impacts to special status species are included in the allotment discussions above under Issue #1 and Issue #2 where appropriate.

**Resource Concern #2: Socioeconomics (Alternative B)**

Grazing management or structural improvement projects that are proposed on BLM administered land in order to improve resource conditions will vary in cost depending on a variety of factors. Generally, management changes such as increased riding to distribute livestock, changes in pasture rotations and season of use, deferment of pastures and/or adding rest into the grazing rotation are the least expensive options to mediate a livestock causal resource concern while various structural projects are the most expensive. A listing of the total proposed projects associated with alternative B are discussed in Sections 4.2.3 page 10, of this document.

Timber sales planned by the BLM would generate revenue and provide indirect monetary benefits to the regional economy. Prescribed burns associated with timber sale clean-up/enhancement or planned prescribed burns would not generate any revenue but rather cost the BLM on a per acre basis. In a similar fashion, treatment of noxious and invasive weeds is billed to the BLM on a per acre basis.

Socioeconomics associated with Forest, Woodland Health and Invasion Weed treatments will not be analyzed further in this document. Socioeconomics was fully analyzed under Alternative B in Chapter 4 pp 331 of the Final EIS for the Dillon RMP.

**Resource Concern #3: Recreational Activities and Public Access (Alternative B)**

Refer to Common to Action Alternatives in Section 4.2.3.

**Critical Element: Cultural Resources (Alternative B)**

Refer to Common to Action Alternatives in Section 4.2.3.

**Critical Element: Wilderness Characteristics (Alternative B)**

In addition to those impacts described in Common to Action Alternatives (Section 4.2.3) above, there are four spring exclosures proposed only in Alternative B within the WSA. Construction of these exclosure fences involves fencing at least 300 feet of the riparian reach on both sides, amounting to at least ½ to 1-mile of new fencing in the interior of the WSA. While these wildlife friendly fences would provide protection for the spring sources and associated natural vegetation, they would slightly alter wildlife use of the springs and require periodic maintenance due to wildlife-caused damage when they access the springs. This would slightly increase the level of human activity in and around these springs, and result in additional impacts from more regular human use of these areas.

These four springs did not meet the riparian health standard due, at least in large part, to the cattle grazing that occurs at the spring sources. Construction of exclosure fencing to protect the spring sources and associated wetland would restore these natural water sources. Protection and/or restoration of these springs would provide important benefits

to the wilderness values by maintaining the associated natural processes. The imprint of human activity in the immediate area of the springs would be offset by the benefits of retaining the natural processes in the WSA as a whole. While this alternative might be compatible with management of the WSA according to the IMP, and would enhance wilderness values in comparison to the current management, it is less preferable in terms of managing for wilderness values than Alternative D, which would better protect the springs without creating new human impacts near the springs or altering wildlife use of these important water sources.

#### **4.2.5 Predicted Effects of Alternative C**

##### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species (Alternative C)**

###### ***Clark Canyon***

The uplands in the fall riparian pastures would slightly benefit from the rest they would receive every other year. In order to allow this rest to occur, the Horse Mountain, Clark Canyon #2 and Clark Canyon #4 pastures would need to be grazed for an additional 3 to 15 days in fall as compared to Alternative B. This change, along with the other proposed changes (e.g. reduced stocking, additional rest), is not expected to impact the upland health in the Horse Mountain, Clark Canyon #2 and Clark Canyon #4 pastures.

Incorporating 2-3 years of rest out of five in the grazing cycle should reduce conflicts between livestock and wildlife.

###### ***Snowline AMP***

Same as Alternative B.

###### ***Snowline AMP Custodial***

Same as Alternative B.

###### ***Ellis Peak***

Modifying the Homestead fence to BLM wildlife specifications would reduce wildlife conflicts. The production and vigor of cool season bunchgrasses is expected to increase over time, but no changes in plant species composition is anticipated.

###### ***Hildreth Livestock***

No changes are expected in the condition, trend &/or composition of upland plant species and communities.

###### ***Bell Canyon***

A slight improvement is expected in the production and vigor of needle-and-thread in the Flats pastures, especially if the option to graze more cows for a shorter time-frame is exercised. Changes in upland plant communities in the Hills and Mountain pastures would be the same as described for Alternative B.

### ***Lima Peaks***

Through a Memorandum of Understanding (MOU), the Beaverhead-Deerlodge National Forest has the management lead on this co-managed allotment. Effects to upland health, sagebrush steppe habitat and associated species resulting from the implementation of new management that may be proposed by the USFS would be addressed in a future NEPA document.

### ***Shoshone Cove, Cedar Creek, Williams***

Existing conditions would be maintained in upland plant communities. Bitterroot milkvetch populations would be subjected to grazing prior to July 15, two years out of three. The proposed 3-treatment grazing rotation (May; June; Rest) may allow enough recruitment to maintain these populations.

The proposed season of use of May 9 to June 5 would likely have some impact on sage grouse nesting, as this occurs during peak nesting periods. The later period June 6 to 30 could have a minor impact on later nesting or re-nesting sage grouse that may not have completed nesting until mid June, but the majority of nests should have hatched by this date. The later season could have some minor displacement impacts to elk and deer during fawning and calving, but this area does not see a substantial amount of spring use.

## **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (Alternative C)**

### ***Clark Canyon***

Predicted effects of Alternative C would be similar to Alternative B with the exception of incorporating rest in the more sensitive Clark Canyon #1 and Clark Canyon #3 riparian pastures.

The proposed rest rotation system allows one year of complete rest every other year in Clark Canyon #1 and Clark Canyon #3 riparian pastures to allow seedling establishment and enhance vigor of forage plants.

Kovalchik and Elmore, (1991) showed generalized relationships between grazing systems and willow and sedge response on willow-dominated plant associations. They indicated that rest rotation grazing systems are moderately compatible for these types of plant communities (highly compatible for sedge management and showed no change to highly compatible for willows, depending on the length of the fall season).

Riparian habitat within the 1,351 acres of non-commercial mechanical/prescribed fire conifer treatments would benefit by the release of aspen and willow and would benefit riparian obligate wildlife species such as beaver. Riparian conifer treatments on reaches 928 and 930 would have the same effects as described in Alternative B.

Fencing Clark Canyon reach 930 would prohibit livestock from grazing on newly released willows, aspen and dogwood while increasing the recovery of these species. Over time, stream bank, sediment trapping and channel morphology characteristics would improve.

### ***Snowline AMP***

Predicted effects would be similar to Alternative B except that fencing Dutch Hollow reach 906 and the Snowline portion of reach 937 to exclude livestock grazing would facilitate an increase in riparian vegetation and over time improve channel morphology. Skovlin (1984) found that exclusion of livestock has produced improved riparian and aquatic habitat following 4 to 7 years of rest, woody plant recovery following 5 to 8 years of rest and attendant positive response in birds and small mammals.

### ***Snowline AMP Custodial***

Predicted effects would be similar to Alternative B except fencing Big Beaver Creek reach 946 to exclude livestock grazing would eliminate livestock grazing on riparian species and provide the best opportunity for colonization by Idaho sedge. As riparian vegetation increases in density and vigor, it would be able to trap sediments and build banks, and over time channel morphology is expected to improve.

### ***Ellis Peak***

Recovery of riparian habitat associated with Law Creek and its tributaries would progress as outlined under Alternative B for three years. It is not likely that riparian and wetland habitats would improve to PFC in that time-frame. Conditions inside the enclosures on upper portions of stream reach 721 and wetland 735 would be the same as described in Alternative B. The proposed 3-treatment rest rotation grazing system could be expected to maintain existing riparian conditions in the Airport pasture and in the Morrison Creek allotment. Continued improvement in riparian and wetland conditions in the Law Creek watershed would be contingent on moving livestock in a timely manner when sedges are grazed down to a 4" stubble height. It is doubtful that more than 15 days of use would be possible with 200 cow/calf pairs before the stubble height guideline is reached. This would effectively reduce the grazing season on the allotment 25 days in year four and 15 days in year six.

### ***Bell Canyon***

A slight improvement in the existing vegetative cover is expected along stream reaches 900, 902, 931 and 985 during the year the Mountain Pasture is rested. Allowing livestock access to these riparian areas between 45 and 60 days in the summer during the subsequent three years would result in impacts similar to those described for Alternative A and would likely prevent these reaches from recovering to proper function condition.

### ***Lima Peaks***

Through a MOU, the Beaverhead-Deerlodge National Forest has the management lead on this co-managed allotment. Effects to riparian, wetland, aquatic habitat and associated species resulting from the implementation of new management that may be proposed by the USFS would be addressed in a future NEPA document.

### ***Williams, Shoshone Cove, and Cedar Creek***

The predicted effects of Alternative C would be similar to Alternative B with the exception of stream reach 925 which would not be fenced under this alternative. The earlier seasons of use and relatively short grazing periods combined with a rest period

every third year should allow for recruitment of willows while increasing sedge cover along the stream channel of reach 925.

### ***154 Acres of Unleased BLM Land***

Constructing an exclosure around the entire 47 acres of unleased BLM administered land would exclude livestock grazing from Junction Creek reach 942 and not create a new BLM grazing allotment. Riparian conditions are expected to improve along a short (<50 yards) portion of reach 942 that is not already fenced into the right-of-way.

### **Issue #3: Forest and Woodland Health (Alternative C)**

Non-commercial/prescribed fire conifer treatments discussed in Alternative B would stop or reverse the conversion of affected sagebrush/grasslands into forested habitat on the same number of acres as in Alternative B, but also would include up to an additional 1479 acres of aspen treatment in the Clark Canyon and Snowline AMP allotments. Aspen woodlands would benefit from conifer reduction treatments due to decreased competition for water, nutrients and sunlight. Cut conifers left intact on the ground would also offer some browse protection for seedling/sapling size aspen regeneration.

This alternative would result in less aspen habitat being treated in the Clark Canyon Allotment than in Alternative B. Therefore, there would be less benefit to wildlife species dependent on aspen (e.g. beaver, elk). Soil stability and erosion concerns would be less than in Alternative B because only lightweight equipment or hand falling with chainsaws would be used to complete the non-commercial mechanical/prescribed fire treatment.

### **Resource Concern #1: Special Status Species (Alternative C)**

Impacts to special status species are included in the allotment discussions above under Issue #1 and Issue #2 where appropriate.

### **Resource Concern #2: Socioeconomics (Alternative C)**

Refer to Common to Action Alternatives in Section 4.2.3.

### **Resource Concern #3: Recreational Activities and Public Access (Alternative C)**

Same as Alternative B.

### **Critical Element: Cultural Resources (Alternative C)**

Refer to Common to Action Alternatives in Section 4.2.3.

### **Critical Element: Wilderness Characteristics (Alternative C)**

Under Alternative C, no spring exclosures are proposed to protect the non-functional springs identified within the Bell-Limekiln Canyon WSA. Even though this alternative provides the fewest authorized AUMs of any of the alternatives, the impacts to these springs are likely to continue similar to alternative A with exception of the rest year.

Aerial spraying of cheatgrass would allow perennial cool-season bunchgrasses to become established and reduce the extent of cheatgrass within the WSA.

#### 4.2.6 Predicted Effects of Alternative D

##### **Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species (Alternative D)**

###### ***Ellis Peak***

The predicted effects of Alternative D would be similar to Alternative C. Anticipated reductions in the grazing season due to moving livestock out of Law Creek when the stubble height guideline is reached would be 15 days in both years four and six. Water provided by the two spring developments would provide additional watering locations for livestock, but wouldn't meet the daily water demand of the permitted livestock so some cattle would continue to water from Law Creek and its tributaries. Water location and topography would necessitate placing the tanks associated with both of these developments in or adjacent to riparian or wetland habitat. This would provide little opportunity or incentive for livestock to forage elsewhere.

###### ***Bell Canyon***

Existing conditions should be maintained in most grassland communities and all upland plant communities in the lower pastures. Late stages of woodland succession would become increasingly evident in the upper pastures of the allotment. Douglas-fir would continue to expand into the mountain big sagebrush/Idaho fescue community suppressing understory vegetation and dominating sites with tree canopies approaching full coverage. This would result in a reduction in sagebrush steppe habitat.

Alternative D proposes to close the Mountain Pasture to livestock. This would eliminate livestock impacts to wildlife habitat, increase forage for native species and eliminate wildlife displacement from livestock. Wildlife habitat conditions would be expected to improve under this alternative.

###### ***Williams, Shoshone Cove, Cedar Creek***

Existing conditions are expected to be maintained in upland plant communities with a possible increase in the production and vigor of cool season grasses. Bitterroot milkvetch populations would be subjected to grazing prior to July 15, two years out of three. The proposed 3-treatment grazing rotation (June; July; Rest) may allow enough recruitment to maintain these populations.

Effects to sage grouse and pygmy rabbit habitat would be similar to Alternative B. However, the grazing rotation under Alternative D would be less favorable to sage grouse due to livestock being on the allotments during June and July as compared to a June and Oct rotation with no summer use under Alternative B.

##### **Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (Alternative D)**

###### ***Ellis Peak***

The effects of implementing Alternative D would be very similar to those described for Alternative C. Anticipated reductions in the grazing season due to moving livestock out of Law Creek when the stubble height guideline is reached would be 15 days in both

years four and six. Water provided by the two spring developments would mitigate impacts to Law Creek and its tributaries, but it would be insufficient to meet the daily water demand of the permitted livestock so some cattle would continue to water from Law Creek and its tributaries. Water location and topography would necessitate placing the tanks associated with both of these developments in or adjacent to riparian or wetland habitat. This would provide little opportunity or incentive for livestock to forage elsewhere.

### ***Bell Canyon***

The improvements in riparian vegetation and stream channel morphology described for Alternative B could be expected along the entire length of stream reaches 900, 902, 931 and 985.

Over time these reaches would be expected to recover to PFC. As the local water table rises, water flow would be expected to continue farther down canyon for a greater period of time.

Alternative D proposes to close the Mountain Pasture which contains all the riparian reaches. Closing the pasture to livestock would eliminate their impacts but impacts from wildlife use would continue. Riparian conditions would be expected to improve to PFC under this alternative.

### ***Williams, Shoshone Cove, Cedar Creek***

The predicted effects of Alternative D would be very similar to Alternative C. Maintenance of mature willows would be expected along the unfenced stream reach, but recruitment may be limited during the year reach 925 is grazed in July.

Effects to sage grouse and pygmy rabbit habitat would be similar to Alternative B. However, the grazing rotation under Alternative D would be less favorable to sage grouse due to livestock being on the allotments during June and July as compared to a June and Oct rotation with no summer use under Alternative B.

### **Issue #3: Forest and Woodland Health (Alternative D)**

No conifer treatments are proposed under Alternative D. Effects would be the same as expected under Alternative A.

### **Resource Concern #1: Special Status Species (Alternative D)**

Impacts to special status species are included in the allotment discussions above under Issue #1 and Issue #2 where appropriate.

### **Resource Concern #2: Socioeconomics (Alternative D)**

Refer to Common to Action Alternatives in Section 4.2.3.

### **Resource Concern #3: Recreational Activities and Public Access (Alternative D)**

Same as Alternative A.

**Critical Element: Cultural Resources (Alternative D)**

Refer to Common to Action Alternatives in Section 4.2.3.

**Critical Element: Wilderness Characteristics (Alternative D)**

Alternative D proposes the construction of nearly four miles of fence in, or near the Bell-Limekiln WSA in order to close the Mountain Pasture (the majority of the WSA) to livestock grazing. Of the roughly three miles of proposed fence near the eastern boundary of the WSA, at least one mile could be constructed outside of the WSA. An additional one mile of fence is proposed on the west side of the WSA to restrict cattle grazing State Lands in Section 16 from entering the Mountain Pasture. This would also eliminate the need to construct enclosure fences to protect the four springs within the Mountain Pasture. These springs would most likely be returned to a functional condition, restoring the native vegetation and all of the natural processes associated with a properly functioning riparian area.

Closure of this pasture to livestock grazing would also allow the recovery of the fine fuels in the area, which would restore an opportunity for natural fires to carry into the Douglas fir stands that are slowly encroaching into the historic range of the sagebrush-steppe habitat. This might eliminate the need for the prescribed fire activities proposed under the other action alternatives and still accomplish the objective of restoring this fire-dependent ecosystem to this area. However, this area remains within a Fire Management Category C, which identifies fire as desirable, but with significant constraints for its use in resource management. Therefore, depending on the timing and location of the fire, it is possible that a natural fire could result in fire suppression impacts rather than resource benefits. It is impossible to predict with any certainty how this scenario might play out. Clearly, the most certain way to ensure the restoration of the historic sagebrush-steppe habitat would be through the prescribed fire activities proposed in Alternatives B & C.

Opportunities for primitive and unconfined recreation would be enhanced by reduced conflicts with livestock and improved wildlife viewing and hunting opportunities.

**4.2.7 Comparative Effects for All Alternatives by Issue (A,B,C,D)**

**Issue #1 – Upland Health, Sagebrush Steppe Habitat and Associated Species**

<b>Alt</b>	<b>Clark Canyon</b>	<b>Phalarope West</b>	<b>Roe West</b>	<b>Snowline AMP</b>
<b>A</b>	No change expected, Upland health standard was met.			
<b>B</b>	Maintenance or improvement of cool season grasses expected especially in pastures with riparian reaches.	Same as Alternative A.	Slight improvement in cool-season grasses due to complete rest of one of two pastures every other year.	Maintenance or improvement of cool season grasses expected.
<b>C</b>	Same as Alternative B	No Alternative C.	No Alternative C.	Same as Alternative B.
<b>D</b>	No Alternative D			

Alt	Snowline AMP Cust.	Ellis Peak	Hildreth Livestock	Williams, Shoshone Cove & Cedar Creek
A	Existing conditions maintained - upland health standard met.			
B	Upland conditions would be maintained or improved due to reduced grazing period and limited trailing.	Similar to Alternative A.		Increase in production and vigor of cool season bunchgrasses.
C	Same as Alternative B.	Sight increase in production and vigor of cool season bunchgrasses.	No Alternative C.	Similar to Alternative A.
D	No Alternative D.	Same as Alternative C.	No Alternative D.	Sight increase in production and vigor of cool season bunchgrasses.

Alt	Bell Canyon	Little Sheep	154 Acres Unleased BLM
A	Short-term: increase in mid to late stages of woodland succession. Long-term: loss of sage steppe habitat.	Existing conditions maintained - upland health standard met.	No change expected. Upland health standard was met.
B	Short-term: increase in grassland habitat. Long-term: Maintenance/restoration of sage steppe habitat.	Same as Alternative A.	Same as Alternative A.
C	Short-term: increase in grassland habitat. Long-term: Maintenance/restoration of sage steppe habitat. Improve vigor and composition of cool season grasses in lower pastures.	No Alternative C.	
D	Short-term: increase in mid to late stages of woodland succession. Long-term: loss of sage steppe habitat.	No Alternative D.	

**Issue #2: Riparian, Wetland, Aquatic Habitat and Associated Species (A,B,C,D)**

Alt	Clark Canyon	Clark Canyon Iso.	Phalarope West	Roe Isolated
A	No progress expected.		No change expected. Riparian concerns out of the control of manager.	No progress expected.

<b>B</b>	Moderate progress expected in riparian pastures due to reduced grazing period and increased water development projects. -Sedimentation from road maintenance would continue. Increases in aspen, willow and cottonwood expected.	Improved channel morphology and woody regeneration.	No change expected. Riparian concerns out of the authorized officers control (run-off from I-15, upstream uses). Decrease in density of knapweed.	Immediate progress expected in increasing riparian vegetation and improving streambank stability.
<b>C</b>	More increase in aspen, willow and cottonwood cover expected on reach 930 than under Alternative B. -Sedimentation from county road maintenance would continue.	No Alternative C.		
<b>D</b>	No Alternative D.			

<b>Alt</b>	<b>Snowline AMP</b>	<b>Snowline AMP Cust.</b>	<b>Ellis Peak</b>	<b>Hildreth Livestock</b>
<b>A</b>	No progress expected.		No progress expected.	
<b>B</b>	Moderate progress expected with increased off-site water and pipeline repairs.	Good progress expected with reduced grazing period and minimal trailing.	Upward trend on 3.5 miles of riparian habitat; static trend on 1.7 miles.	Upward trend on 0.3 miles of riparian habitat.
<b>C</b>	Good progress expected on reaches 906 and 937 that are fenced.	Same as Alternative B except 946 is fenced. Excellent progress expected.	Short-term: Similar to Alternative B. Long-term: Upward trend on 1.7 miles; static to upward on 3.5 miles.	No Alternative C.
<b>D</b>	No Alternative D.		Similar to Alternative C.	No Alternative D.

<b>Alt</b>	<b>Cedar Creek</b>	<b>Little Sheep</b>	<b>Bell Canyon</b>	<b>154 Acres Unleased BLM</b>
<b>A</b>	No progress expected.			No progress expected, riparian standards met.
<b>B</b>	Upward trend on 1.2 miles of riparian habitat.	Upward trend on 0.2 miles of riparian habitat.	Upward trend on 0.2 miles of riparian habitat Static – downward trend on 2 miles.	Same as Alternative A.
<b>C</b>	Upward trend on 0.4 miles; static to upward trend on 0.8 miles	No Alternative C.	Static – downward trend on 2.2 miles of riparian habitat	No Alternative C.
<b>D</b>	Similar to Alternative C.	No Alternative D.	Upward trend on 2.2 miles of riparian habitat.	No Alternative D.

Issue # 3: Forest and Woodland Health

<b>Alt.</b>	<b>Predicted Effects</b>
<b>A</b>	The density, structure and species composition of forest stands would continue to be departed from the historic range of variation. Conifers would continue to expand into forest openings and sagebrush/grasslands. Spruce budworm and bark beetles would continue to cause tree mortality, leading to decreased canopy cover, increased fuel loading, and potential for more severe impacts from wildfire and insects/disease. Aspen would continue to decline, and could become non-existent in some areas.
<b>B</b>	Treatments would move habitats toward the historic range of variation on up to 4,166 acres. Commercial harvest treatment in would increase residual stand vigor, increase resistance to insects/disease, increase structural diversity, and decrease the potential for a widespread stand replacing fire on up to 1,685 acres in the Clark Canyon allotment. The removal of conifers from within and around aspen stands followed by prescribed fire would promote regeneration and revitalize aspen stands for a 20 to 50 year period. Non-commercial mechanical and prescribed fire conifer treatments would stop or reverse the conversion of effected sagebrush/grasslands into forested habitat on up to 2,115 acres (Bell Canyon and Roe West allotments), and would reduce conifer encroachment into aspen woodlands to promote regeneration on up to 366 acres (Lima Peaks allotment).
<b>C</b>	Treatments would move habitats toward the historic range of variation on up to 3,960 acres. Non-commercial/prescribed fire conifer treatments would stop or reverse the conversion of affected sagebrush/grasslands into forested habitat on the same number of acres as in Alternative B, but also would include up to an additional 1,479 acres of aspen treatment (Clark Canyon, Lima Peaks, and Snowline AMP allotments). Aspen woodlands would benefit from conifer reduction treatments due to decreased competition for water, nutrients and sunlight. No commercial harvest is proposed under Alternative C.
<b>D</b>	No Alternative D

**Resource Concern #2 – Special Status Species (A,B,C,D)**

A summary table and a detailed discussion of predicted effects and potential impacts to special status plant species and their habitat is provided in the BE for Special Status Plants in Appendix D.

<b>Alt</b>	<b>Phalarope West</b>	<b>Roe West</b>	<b>Snowline AMP</b>	<b>Snowline AMP Cust.</b>
<b>A</b>	No change, adequate Sage Grouse brood and nesting habitat	Marginal Sage Grouse habitat on ½ of allotment, fair nesting and brood rearing habitat	Sage grouse brood rearing habitat would be maintained.	Sage grouse brood rearing and pygmy rabbit habitat would be maintained.
<b>B</b>	No change, adequate Sage Grouse brood and nesting habitat. Increase in use likely to occur with installation of a guzzler	Improved sage grouse brood rearing, and nesting cover on half of allotment that is rested.	Improved sage grouse nesting and brood rearing and pygmy rabbit habitat through improved riparian conditions	Improved sage grouse nesting and brood rearing and pygmy rabbit habitat.

<b>C</b>	No alternative C	Greater progress to improve sage grouse brood rearing and pygmy rabbit habitat by implementing projects	Greater progress to improve brood rearing and pygmy rabbit habitat by implementing projects
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<b>Alt</b>	<b>Williams and Shoshone Cove</b>	<b>Cedar Creek</b>	<b>Hildreth Livestock</b>
<b>A</b>	Sage grouse and pygmy rabbit habitat requirements are likely being met but under this alternative sage grouse nesting and brood rearing habitat would be maintained.	Sage grouse and pygmy rabbit habitat requirements are likely being met but under this alternative sage grouse nesting and brood rearing habitat would be maintained.	Sage grouse and pygmy rabbit habitat requirements are likely being met but under this alternative sage grouse nesting and brood rearing habitat would be maintained.
<b>B</b>	Improved sage grouse nesting, brood rearing and pygmy rabbit habitat This alternative would be the most desired for sage grouse and pygmy habitat.	Improved sage grouse brood rearing and summer habitat. Expect progress in improving streambank stability and increasing riparian vegetation. Habitat is expected to rapidly move toward Desired Future Condition.	Improved sage grouse nesting, brood rearing and pygmy rabbit habitat
<b>C</b>	Would meet sage grouse and pygmy rabbit habitat requirements but would not make progress towards improving habitat conditions and would continue to allow livestock use during peak breeding seasons.	Would meet sage grouse and pygmy rabbit habitat requirements but would be the least desirable alternative due to early seasons of use in some years.	No Alternative C
<b>D</b>	Improved sage grouse nesting and brood rearing habitat. Improved pygmy rabbit habitat. A June/July rotation would have more impacts than a June/Oct rotation	Improved sage grouse nesting and brood rearing habitat. Improved pygmy rabbit habitat. A June/July rotation would have more impacts than a June/Oct rotation.	No Alternative D

**Resource and Social Concern #2 – Socioeconomics (A,B,C,D)**

**Comparison of Effects on Socioeconomics for Livestock Permittees.**

<b>Alt</b>	<b>Clark Canyon</b>	<b>Clark Canyon Isolated</b>	<b>Phalarope West</b>	<b>Roe West</b>
<b>A</b>	1519 AUMs	2 AUMs	75 AUMs	1186 AUMs
<b>B</b>	Up to 935 AUMs Considerable construction and maintenance costs for these projects.	2 AUMs	75 AUMs	700 AUMs No structural projects.
<b>C</b>	< 935 AUMs. Slightly higher construction and maintenance costs for these projects compared to Alt. B projects.	2 AUMs	No Alternative C	

<b>Alt</b>	<b>Roe Isolated</b>	<b>Snowline AMP</b>	<b>Snowline AMP Cust.</b>	<b>Lima Peaks</b>
<b>A</b>	12 AUMs	1989 AUMs	632 AUMs	236 AUMs
<b>B</b>	12 AUMs	< 1989 AUMs Moderate construction and maintenance costs for these projects.	Up to 632 AUMs Alternate season of use and eliminating trailing along reach 946 necessitates more herding.	236 AUMS
<b>C</b>	12 AUMs  Low construction and maintenance costs for exclosure project.	< 1989 AUMs Slightly higher construction and maintenance costs for projects compared to Alt. B projects.	Up to 632 AUMs Higher construction and maintenance costs for riparian exclosure compared to Alt. B management changes.	To be determined

<b>Alt</b>	<b>Hildreth Livestock</b>	<b>Ellis Peak</b>	<b>Shoshone Cove</b>	<b>Cedar Creek</b>
<b>A</b>	104 AUMs	215 AUMs	200 AUMs	307 AUMs
<b>B</b>	104 AUMs	< 206 AUMs - Combined project cost would be moderately high.	< 250 AUMs	< 255 AUMs Combined project cost would be moderately low.
<b>C</b>	No Alternative C	< 206 AUMs - Combined project cost would be low to moderate, substantially less than Alt. B	< 250 AUMs	< 230 AUMs Combined project cost would be low and cost less than Alt. B.
<b>D</b>	No Alternative D	< 206 AUMs - Combined project cost would be moderate and slightly more expensive than Alt. B.	< 250 AUMs	< 205 AUMs - Same projects as Alt. C, cost would be less than Alt. B.

<b>Alt</b>	<b>Williams</b>	<b>Bell Canyon</b>	<b>Little Sheep</b>	<b>154 Acres Unleased BLM</b>
<b>A</b>	230 AUMs	640 AUMs	8 AUMs	Unleased
<b>B</b>	230 AUMs - Project cost would be moderately low.	640 AUMs - Combined project cost would be moderate.	8 AUMs - Project cost would be low.	7 AUMs No projects proposed
<b>C</b>	230 AUMs No projects proposed.	445 AUMs - Combined project cost would be moderate and less than Alt. B projects.	No Alternative C	0 AUMs Project would be moderately low cost. BLM acres remain unleased.
<b>D</b>	199 AUMs No projects proposed.	571 AUMs - Combined project cost would be moderately high and more expensive than Alt. B or C.	No Alternative D	

### 4.3 Cumulative Effects for All Alternatives (A,B,C,D)

Cumulative effects are those that result from adding the anticipated direct and indirect effects of the proposed action, to impacts from other past, present and reasonably foreseeable future actions. These additional impacts are considered regardless of what agency or person undertakes such actions. The cumulative impacts area for this EA is

defined as follows: the Idaho/Montana continental divide on the south to the Medicine Lodge Mountains west of Roe West and Williams BLM administered grazing allotments, to and including the Rocky Hills to Grasshopper Creek on the north and following the ridge top from Gallagher Butte south back to the Montana/Idaho border.

These effects or actions are common to all alternatives:

***Historical Events, Past Management, and Current Use Trends***

- Severe over-trapping of beavers and unregulated livestock use during the late 1800s and early 1900s changed the character (hydrologically and vegetatively) of most mountain streams in the Intermountain West (Elmore and Beschta 1987, Elmore and Kaufman 1994, Naiman 1988). Although there are still active beaver colonies in the RRLW, beaver activity is substantially reduced from historical levels.
- In the late 1890s and early 1900s, wolves and other large predators in the western United States were hunted, trapped and poisoned. The removal of large predators has increased the level of impact that elk and moose historically had on riparian areas (Ripple and Beschta (2005). Recent increases in wolf numbers in SW Montana may have a small effect on reversing this. However, wolf numbers are not likely to be allowed to reach the required density to greatly affect moose and elk distribution in the RRLW due to conflicts with livestock.
- Exclusion of fire from the landscape (removal of fine fuels by livestock coupled with fire suppression over the past century) has resulted in increased fuel loads and reduced forest health.
- Watershed-wide under all management schemes on all land ownerships, there has been and continues to be a decline in aspen. This is a western state wide phenomenon that can be attributed primarily to a combination of successional processes including reduction (or elimination) of fire, loss of predator influence on herbivores, and long-term overuse by ungulates (Bartos and Campbell, 1998; Beschta, 2003; Ripple and Beschta, 2004).
- There has been timber harvest, pole cutting, Christmas tree cutting, and firewood collecting in the past throughout the RRLW. There have been no timber sales on BLM-administered lands within the RRLW in the past 30 years.
- Elk and moose populations in southwest Montana have increased over the past 20-25 years, primarily as a result of light snow conditions during fall and winter.
- Livestock and wildlife impacts on lands upstream from BLM administered land may contribute sediment to streams and subsequently may adversely affect downstream water quality on public land.
- Road use and maintenance adjacent to or crossing streams have impacted some streams in the watershed by adding sediments and/or removing vegetation at the crossing or adjacent to the stream. Roads in the uplands allow opportunities for noxious and invasive weeds to become established and in isolated areas (steep slopes) contribute to soil erosion.
- Increased recreation has adversely impacted isolated areas within the watershed (camp sites, new trails and roads, spreading of weed seed, etc.).
- The economic situation of the permittees is affected by changes in cattle prices,

hay prices, fuel prices, interest rates, land prices, labor costs, labor inputs, equipment costs, equipment maintenance costs, facilities maintenance costs, costs of feed supplements, irrigation costs and availability of irrigation water, livestock loss, private land lease rates, veterinary costs, local weather and other miscellaneous factors. Cumulative economic impacts to permittees could add pressure to permittees to subdivide private land to maintain a cash flow.

### ***Anticipated Future Actions***

- Fencing on other land ownerships and on BLM boundaries may lessen the benefit of fence modification efforts on public lands to improve wildlife movements.
- Recreation, especially hunting, is expected to increase in the RRLW in the future. Impacts expected from this increased use are new camp sites, spreading of weed seed, more use of roads and increased wildlife disturbance.
- Sub-dividing of private land within the watershed is currently occurring on a very small scale. Although not expected to be extensive, subdivision may expand in the foreseeable future. Sub-dividing and development cause's habitat fragmentation, increases traffic, soil and vegetation disturbance, spread of noxious and invasive species, and other human uses in the area, and may increase the demand for water.
- The State of Montana is planning a 25 acre permit timber sale in Garr Canyon in 2008-2009.
- Fire suppression efforts, utilizing Appropriate Management Response criteria, will continue on federally administered lands in the watershed. Some isolated tracts of BLM in the Lima Peaks area may be considered for inclusion in the Forest Services' proposed Fire Use Plan. This Fire Use Plan would allow managers the flexibility to manage naturally occurring wildfires for resource benefit.
- A Notice of Intent was filed with BLM in 2007 for a 500 Kilovolt transmission line. There were numerous options suggested for the location of the power line that would begin in the vicinity of Townsend, Montana and travel into Idaho. The potential location for the power line has been narrowed to two options.
  - The first option follows a route similar to Interstate 15 south of Clark Canyon Reservoir, the northern boundary of the RRLW. The proposed route would roughly follow the I-15 corridor and pass through RRLW BLM administered grazing allotments including Cedar Creek and likely intersect portions of Allotment E and Ellis Peak. This route travels within moderate populations of sage grouse and pygmy rabbits. Assuming the standard 3-mile buffer from a sage grouse lek, this route would impact the area around at least 4 leks as well as dissect some occupied pygmy rabbit habitat. The primary negative influence from the power line to sage grouse and pygmy rabbits would be increased the number of perches for predators in the area.
  - The second route location option, beginning at Clark Canyon Reservoir, parallels Interstate 15 but from a distance of about 10 to 15 miles to the west. It travels in a southerly direction parallel from the Interstate to the Idaho state line. The route would pass through portions of Clark Canyon

Reservoir and Bell Canyon BLM administered grazing allotments and might intersect Phalarope West and Snowline allotments. This proposed route would intersect areas with high populations of sage grouse and pygmy rabbits. Assuming the standard 3-mile buffer from a sage grouse lek, this route would impact the area around at least 12 leks as well as enter a considerable amount of occupied pygmy rabbit habitat. The primary negative influence from the power line to sage grouse and pygmy rabbits would be increasing the number of perches for predators.

- Recently a Notice of Intent was filed with the BLM, the Forest Service, the State of Montana and with private landowners to do geophysical exploration work in the RRLW. This would include about 36 miles of seismic lines with shot holes drilling along the line approximately 220 feet apart. Work would likely occur during the summer/fall of 2008. The activity is temporary and would result in little surface disturbance. This area does have potential for oil and gas development and over the years there have been various levels of exploration done. However, no wells on BLM have produced any amounts of oil and/or gas.

#### **4.3.1 Cumulative Effects of Alternative A – No Action (Continuation of Current Management)**

The intermingling of private and state lands with public lands throughout the watershed ensures that activities outside the control of BLM will continue. Grazing on these lands at various times throughout the year will influence forage and cover availability, and distribution of seasonal wildlife uses. Although wildlife habitat needs are generally met within the watershed, this grazing may influence suitability and availability of that habitat on a localized basis or during a specific time frame.

#### **4.3.2 Cumulative Effects of All Action Alternatives**

Slightly increased labor costs are assumed under Alternatives B and C to check and employ the allowable use guidelines. During drought periods, total authorized AUMs may not be available.

Many of the fences identified that present barriers to wildlife movement are boundary fences between BLM and adjacent landowners. Modifying, replacing, or removing barrier fences would mitigate the presence of barriers and collision/entanglement hazards on public lands and would be done in coordination with adjacent landowners as they are identified. The action alternatives are proposing to add up to a maximum of eight additional miles of new fence (built in accordance with BLM wildlife specifications.)

There are approximately 25 developed springs in the RRLW. The action alternatives proposed to add up to a maximum of three new spring developments with enclosures, ten watering troughs, over six miles of pipeline, eight miles of new fence, reconstruct three miles of fence, build three miles of riparian enclosures and restore one wetland complex and one mile of degraded stream reach. This may vary depending on which alternative is selected. For water developments, the number may vary depending on engineering feasibility results and flow measurements.

The effects of implementation of the selected alternative would be quantitatively determined by monitoring physical and vegetative indicators of riparian and upland function, and monitoring vegetative components of habitat. Managing to improve riparian conditions throughout the watershed would allow for better dispersal of wild ungulates and reduce site specific riparian impacts.

The proposed changes in livestock management would generally improve riparian function on BLM administered land and other lands within BLM allotments at varying degrees and time frames. The expected effect to downstream riparian habitats and water quality would be decreased sediment load, lower energy flows and lower water temperatures.

Managing for larger, more productive cool season grasses by changing the frequency, timing, duration and/or intensity of livestock grazing on specific allotments would leave more cover and forage for wildlife species and may slightly change alter of use in specific areas within the watershed. Additional off-site water locations would better disperse livestock use in specific areas within the watershed and reduce use in riparian areas.

Where less forage (AUMs) would be authorized from BLM lands, cattle would have to be pastured elsewhere for part of the grazing season or the herd size may have to be reduced. Increasing livestock use could have a direct effect to these habitats on private property adjacent to or near public lands offsetting the benefits to public land when viewing the watershed as a whole. If private livestock numbers are reduced permanently, a corresponding decrease in tax revenues could be expected for Beaverhead County.

#### **4.3.3 Cumulative Effects of Alternatives B**

Several of the allotments (Phalarope West, Clark Canyon, Snowline, Radio TV) in the RRLW have a considerable amount of private and State of Montana land intermixed with BLM land. The management changes and structural projects proposed by the BLM would positively affect these non-BLM acres found within the allotments.

The largest number of structural projects is proposed under this alternative to mitigate resource concerns. The 6.25 miles of new fence, three miles of fence reconstruction and three linear miles of riparian enclosure fence would eliminate livestock from entering sensitive resource areas. However, the addition of over ten miles of fence would create additional obstacles for wildlife, especially young animals, and contribute to localized fragmentation of habitat near these fences.

In the Roe West Allotment, incorporating rest every other year in the two pastures on the allotment would provide one of two pastures complete rest during the entire year. This could provide a benefit to adjacent private landowners by supplying additional forage and habitat for elk and deer on BLM administered land during the spring, summer and fall. Private landowners would probably have more forage for their livestock that would have normally been consumed by elk.

Forest health treatments completed on BLM-administered lands and other ownerships would increase the diversity of forest structure and composition throughout the RRLW. This increase in structural diversity across the landscape would likely result in a more patchy spruce budworm outbreak regime in the future (Swetnam and Lynch, 1989). Increasing structural and compositional diversity across the landscape, as a result of forest treatments and prescribed burning, decreases the probability of large-scale disturbances that produces negative impacts over a large area. Large-scale disturbances would still have the potential to occur; however, areas treated would create buffers of less susceptible (in terms of insects/disease) and more fire resilient habitats.

#### **4.3.4 Cumulative Effects of Alternatives C**

There are five fewer allotments included in Alternative C than Alternative B. However, the total number of structural projects proposed is similar for alternative B and C (See Table 9). In general, to help mitigate resource concerns under alternative C, more structural projects and/or more intensive livestock management is proposed. This would result in more expenditure by BLM grazing permittees and the BLM to mitigate resource concerns.

##### ***Ellis Peak***

The same herd of cattle would graze the Ellis Peak allotment and BLM's adjacent Morrison Creek allotment (# 20621). Functional-at risk riparian conditions are expected to continue to improve and proper functioning stream reaches are expected to be maintained in the Morrison Creek allotment under the joint allotment management proposal detailed under Alternative C. Sagebrush steppe and forested habitats are expected to continue to meet the Standards for Rangeland Health however Douglas-fir is expected to increase along the ecotone of these two habitats types on the Morrison Creek allotment. Grazing one herd of cattle instead of two on these allotments should reduce the social displacement of wildlife, particularly elk during calving season.

#### **4.3.4 Cumulative Effects of Alternatives D**

##### ***Ellis Peak***

The cumulative effects of implementing joint management on the Ellis Peak and Morrison Creek allotments detailed under Alternative D would be similar to the effects described for Alternative C.

Closing the Mountain Pasture to livestock grazing in the Bell Canyon allotment would effectively close the state section (Sec. 16, T11S, R11W) to grazing unless the optional fence is constructed on the Bell Canyon and Johnson Gulch divide. Even with this one mile of fence in place, stocking the "State Pasture" would be difficult and may not be cost effective unless the state grazing lease was transferred to a livestock producer on the west side of the afore mentioned divide.



## **5.0 List of Preparers - Consultation/Coordination**

### **5.1 List of Preparers**

#### **5.1.1 Core IDT members:**

Ryan Martin	Rangeland Management Specialist – IDT Leader
Aly Piwowar	Forester
Kipper Blotkamp	Fuels Specialist
Paul Hutchinson	Fisheries Biologist (Wildlife & Fisheries; TES wildlife)
Stephen Armiger	Hydrologist (Soil, Water & Air, Riparian)
Brian Hockett	Rangeland Management Specialist (TES plants)
Bart Howells	Rangeland Management Specialist
Pat Fosse	Supervisory Natural Resource Specialist

#### **5.1.2 Support IDT members include:**

Michael Mooney	Weeds Specialist
Joe Casey	Forester (since retired)
Jim Roscoe	Wildlife Biologist (since retired)
Kelly Bockting	Wildlife Biologist
Jason Strahl	Archaeologist
George Johnson	Fuels Specialist
Laurie Blinn	GIS Specialist
Rick Waldrup	Outdoor Recreation Planner

### **5.2 Consultation/Coordination**

#### **5.2.1 Persons and Agencies Consulted**

Reyer Rens	Rangeland Management Specialist, USFS
Katie Smith	Rangeland Management Specialist, USFS (since moved)
Ken Scalzone	Soil Scientist, NRCS
Gary Berger	Soil Scientist, NRCS
Robert Mitchell	Soil Scientist, NRCS (was BLM during 2007)
Dick Oswald	Fisheries Biologist, Montana FWP
Craig Fager	Game Biologist, Montana FWP
Bob Brannon	Game Biologist, Montana FWP
Chuck Barrone	Forester, Montana DNRC
Chuck Maddox	Land Use Specialist, Montana DNRC
John Murray	THPO, Blackfeet Tribe
Arlene Caye	Confederated Salish and Kootenai Tribes
Francis Auld	Confederated Salish and Kootenai Tribes
Carolyn Boyer Smith	Cultural Resource Coordinator, Shoshone-Bannock Tribes
Yvette Tuell	Env. Program Manager, Shoshone-Bannock Tribes
Ken Duncan and Urs Schmidlin	Rancher and Ranch Manager
Roger Peters	Rancher

Rick Kunz	Rancher
Jim McBee	Rancher
Donna Hildreth	Rancher
Ned and David Wellborn	Ranchers
Frank Snellman	Ranch Manager
Jeremy Gingerich	Ranch Manager
Ted Schmidt	Rancher
Snowline Grazing Association	Ranchers

### **5.2.2 Notifications**

Internet NEPA Log – Dillon Field Office – July 2007  
Mailing List for RRLW Assessment  
Media Releases in Southwest Montana – May 2007 and December 2007

### **5.2.3 Statement of Public Interest**

Several individuals and groups have expressed interest in this proposed action. The mailing list of individuals and groups who have expressed interest to date is available at the Dillon Field Office and will be included with the Proposed Decision.

## GLOSSARY OF TERMS

**actual use:** a report of the actual livestock grazing use certified to be accurate by the permittee or lessee. Actual use may be expressed in terms of animal months or animal months.

**adaptive management:** management in which monitoring measures progress toward or success at meeting an objective and provides the evidence for management change or continuation. In practice, most monitoring measures the change or condition of the resource; if objectives are being met, management is considered effective.

**allotment:** an area of land designated and managed for grazing livestock.

**allotment management plan (AMP):** a documented program which applies to livestock grazing on the public lands, prepared by consulting, cooperating, and coordinating with the permittee(s), lessee(s), or other interested publics.

**analysis:** (1) a detailed examination of anything complex in order to understand its nature or determine its essential features; or (2) a separating or breaking up of any whole into its component parts for the purpose of examining their nature, function, relationship, etc. A rangeland analysis includes an examination of both biotic (plants, animals, etc.) and abiotic (soils, topography, etc.) attributes of the rangeland.

**animal unit month (AUM):** the amount of dry forage required by one animal unit for one month, based on a forage allowance of 26 pounds per day.

**apparent trend:** an assessment, using professional judgment, based on a one-time observation. It includes consideration of such factors as plant vigor, abundance of seedlings and young plants, accumulation or lack of plant residues on the soil surface, and soil surface characteristics (i.e., crusting, gravel pavement, and sheet or rill erosion).

**atmospheric maintenance:** wetlands store carbon within their live and preserved (peat) plant biomass instead of releasing it to the atmosphere as carbon dioxide, a greenhouse gas affecting global climates.

**authorized officer:** The manager of a defined portion of public land. For example, the Dillon Field Manager is the Authorized Officer or line manager for the public lands administered by the Dillon Field Office.

**biogeochemical cycling:** biologic, physical, and chemical transformations of various nutrients within the biota, soils, water, and air. Wetlands are very important in this regard, particularly relating to nitrogen, sulfur, and phosphorous

**browse:** (1) the part of shrubs, half shrubs, woody vines, and trees available for animal consumption; or (2) to search for or consume browse.

**browse plant or browse species:** a shrub, half shrub, woody vine, or tree capable of producing shoot, twig, and leaf growth suitable for animal consumption.

**canopy cover:** the percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included. Canopy cover is synonymous with crown cover.

**community:** an assemblage of populations and/or animals in a common spatial arrangement.

**cool season species:** plants whose major growth occurs during the late fall, winter and early spring.

**ecological functions:** atmospheric maintenance, biogeochemical cycling, floodwater retention, groundwater recharge, sediment trapping

**ecological processes:** processes which play an essential role in maintaining ecosystem integrity. four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution).

**evaluation:** (1) an examination and judgment concerning the worth, quality, significance, amount, degree, or condition of something; or (2) the systematic process for determining the effectiveness of on-the-ground management actions and assessing progress toward meeting objectives.

**forage:** (1) browse and herbage which is available and can provide food for animals or be harvested for feeding; or (2) to search for or consume forage.

**forb:** (1) any herbaceous plant other than those in the Gramineae (true grasses), Cyperaceae (sedges), and Juncaceae (rushes) families—i.e., any non-grass-like plant having little or no woody material on it; or (2) a broadleaved flowering plant whose above ground stem does not become woody and persistent.

**functional at risk (FAR):** riparian wetland areas that are functional, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

**goal:** the desired state or condition that a resource management policy or program is designed to achieve. A goal is usually not quantifiable and may not have a specific date by which it is to be completed. Goals are the base from which objectives are developed. (See objective)

**grazing system:** a systematic sequence of use and non use of an allotment.

**greenline:** the first perennial vegetation that forms a lineal grouping of community types on or near the water's edge. Most often it occurs at or slightly below the bankfull stage.

**herbaceous:** vegetation growth with little or no woody component; non-woody vegetation such as graminoids and forbs.

**hot season:** in southwest Montana, hot season grazing use is generally considered to include July 1 through September 15.

**hummock:** a mound rising above the surrounding land, usually overgrown with vegetation. In the southeast, a small hill or mound, also referred to as hammock. Often used in reference to marsh lands.

**hydric soil:** soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

**hydrologic heaving:** The lifting of a surface by the internal action of frost or hydrostatic pressure. The process is exacerbated when there is compaction between plant tussocks, (e.g. hoof action ) or excessive removal of vegetation. The result is the hummocked appearance of plants being elevated above the normal ground surface, rootshearing between plants, and exposure of interspaces to increased erosional forces.

**interested public:** an individual, group or organization that has submitted a written request to the authorizing officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific grazing allotments, or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

**interpretation:** explaining or telling the meaning of something and presenting it in understandable terms.

**inventory:** the systematic acquisition and analysis of information needed to describe, characterize, or quantify resources for land-use planning and management or the public lands.

**key area:** “Key areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a larger stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, etc., depending on the management objectives being addressed by the study....”

**lentic:** standing or still water such as lakes and ponds.

**lotic:** flowing or actively moving water such as rivers and streams.

**monitoring:** the orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting objectives.

**objective:** planned results to be achieved within a stated time period. Objectives are subordinate to goals, are narrower in scope and shorter in range, and have increased possibility of attainment. The time periods for completion, and the outputs or achievements that are measurable and quantifiable, are specified. (See goal)

**palustrine:** from the Latin "palus" or marsh. All non-tidal wetlands dominated by trees, shrubs, persistent emergent plants, emergent mosses or lichens...(Cowardin *et al.*, 1979)

**pasture:** a grazing area enclosed and separated from other areas by a fence or natural barrier.

**plagiarize:** *transitive verb* : to steal and pass off (the ideas or words of another) as one's own : use (another's production) without crediting the source *intransitive verb* : to commit literary theft : present as new and original an idea or product derived from an existing source.

**proper functioning condition (PFC): lotic** riparian-wetland areas are considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to:

- Dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality;
- Filter sediment, capture bedload, and aid floodplain development;
- Improve flood-water retention and ground-water recharge;
- Develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses;
- Support greater biodiversity

**public lands:** any land interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management (see 43 CFR 41000.0-5)

**resource reserve allotment:** a unit of public land that will not have term grazing permits issued. Such an allotment would only be grazed on a temporary nonrenewable basis. The use of these allotments would be to provide temporary grazing to rest other areas following wildfire, habitat treatments, or to allow for more rapid attainment of rangeland health. The allotment must be of sufficient size to be managed as a discrete unit.

**riparian zone:** the banks and adjacent areas of water bodies, water coursed, seeps, and springs whose waters provide soil moisture sufficiently in excess of that otherwise available locally so as to provide a moister habitat than that of contiguous flood plains and uplands.

**shrub:** a plant that has persistent woody stems and a relatively low growth habit, and that generally produces several basal shoots instead of a single bole. It differs from a tree by its low stature—less than 5 meters (16 feet)—and non-arborescent form.

**shrubland:** land on which the vegetation is dominated by shrubs. Non-forested lands are classified as shrubland if shrubs provide more than 20 percent of the canopy cover, excluding trees. Lands not presently shrubland that were originally or could become shrubland through natural succession may be classified as potential natural shrubland.

**spring brook:** a channel that carries water from a spring. Where there is sufficient flow, the channel forms a perennial stream. Frequently in arid environments, the flow is insufficient to create a perennial stream. Groundwater emerges at the springhead, flows a short distance within the spring brook, and then submerges.

**succession:** the orderly process of community change; it is the sequence of communities that replace one another in a given area.

**trend:** the direction of change in ecological status or in resource value ratings observed over time. Trend in ecological status is described as “toward” or “away from” the potential natural community or as “not apparent.” Appropriate terms are used to describe trends in resource value ratings. Trends in resource value ratings for several uses on the same site at a given time may be in different directions, and there is no necessary correlation between trends in resource value ratings and the trend in ecological status.

**understory:** plants growing beneath the canopy of other plants; usually refers to grasses, forbs, and low shrubs under a tree or shrub canopy.

**use guideline:** (1) a degree of utilization of current year’s growth which, if continued, will achieve objectives and maintain or improve the long-term productivity of the site; or (2) the percentage of a plant that is utilized when the rangeland as a whole is properly utilized. This use level can vary with time and systems of grazing.

**utilization:** the proportion or degree of the current year’s forage production by weight that is consumed or destroyed by animals (including insects). The term may refer either to a single plant species, a group of species, or the vegetation community as a whole. Utilization is synonymous with use.

**vigor:** relates to the relative robustness of a plant in comparison to other individuals of the same species. It is reflected primarily by the size of a plant and its parts in relation to its age and the environment in which it is growing.



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