DECISION RECORD

AND

FINDING OF NO SIGNIFICANT IMPACT

MUSSELSHELL BREAKS WATERSHED PLAN

Bureau of Land Management
Lewistown Field Office
Lewistown, MT

An Environmental Assessment (EA) that analyzes proposed management decisions on public land administered by the BLM, Lewistown Field Office (LFO) has been completed. The EA (EA # MT060-04-09) is available for review at the LFO, Lewistown, MT.

Decision: The information and analysis included in the Musselshell Breaks Watershed Plan (MBWP) EA are the basis for my decision to authorize actions as outlined in Alternative 2 of the EA, the proposed action.

Two other alternatives were considered:

- Continuation of Current Management (This was the No Action alternative)
- No Livestock Grazing

Rational for Decision: The decision to authorize the proposed action as outlined in Alternative 2 of the EA satisfies the Bureau's concerns, objectives, and obligations, has been determined to be in the public interest, and does not result in any undue or unnecessary environmental degradation. This decision is in conformance with the Judith, Valley, Phillips Resource Management Plan, approved 1992

Authority: This action is in accordance with 43 CFR 4130.2, 4110.2-2(a), 4130.3, 4180.1 and 4180.2(c).

Finding of No Significant Impact: Based on the analysis of the potential environmental impacts contained in the MBWP, this activity is not a major federal action which will significantly affect the quality of the human environment, therefore, an Environmental Impact Statement is not required.

June Bailey
June Bailey
Lewistown Field Manager

August 18, 2005
Date

United States Department of the Interior
Bureau of Land Management
Lewistown Field Office

ENVIRONMENTAL ASSESSMENT

MUSSELSHELL BREAKS WATERSHED PLAN

Environmental Assessment Number MT060 - 04 - 09

August 2005

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1.0 Purpose of and Need for Action

This environmental assessment (EA) analyzes public land resource issues within the Musselshell Breaks Watershed and is part of a field office wide planning effort.

The EA defines the issues, details the alternatives considered, describes the biological and physical characteristics of the affected environment, and explains the environmental consequences of each alternative.

The information in this chapter is organized into the following headings:

1.1 Background:

The Lewistown Field Office (LFO) has undertaken a field office wide planning effort, focused on implementing decisions in the Judith Valley Phillips Resource Management Plan (JVP RMP) (1994). The LFO administers 850,000 acres of public land in 15 central Montana counties; an area approximately 225 miles long by 150 miles wide. The vastness of this jurisdictional area, combined with direction from the JVP-RMP has prompted the LFO to delineate smaller, manageable planning units based on watersheds. Planning has been completed on 7 of the 23 watersheds identified within the LFO; the Musselshell Breaks Watershed is the 8th plan.

1.2 Location:

The Musselshell Breaks Watershed is located in Petroleum County, MT. It encompasses an area northwest of Mosby, west of the Musselshell River including most of the Blood Creek drainage, portions of Cottonwood Creek, and the Tin Can Hill and Cat Creek areas (see Map M1).

The watershed planning area contains 175,000 acres (273 square miles) including 96,895 acres of land administered by the BLM (public land), 11,760 acres of State land and 67,110 acres of private land. Forty (40) BLM grazing permits are issued to twenty (20) permittees (Maps M1 and M2).

1.3 Decision Needed:

The LFO manager is the responsible official who must decide whether to implement decisions proposed in the preferred alternative. These decisions would include:

- Renewing grazing permits based on determinations of rangeland health standards and livestock grazing guidelines.
- Designating roads and trails
- Initiating and sustaining cooperative noxious weed control efforts.

1.4 Direction From and Conformance With Land Use Plans:

The JVP RMP specifies land use plan decisions and objectives to be implemented in the Musselshell Breaks Watershed. It also specifies that implementation of

riparian/wetland decisions will be conducted on a watershed basis and will consider management of streams, water sources and uplands.

The watersheds administered by the LFO were prioritized for implementation of land use plan decisions based on multiple use criteria. The BLM is also required to complete an environmental analysis when renewing 10-year grazing permits. This watershed analysis will review the allotments in the Musselshell Breaks Watershed for compliance with the standards for rangeland health (Appendix B). Existing permits will be cancelled and new 10-year grazing permits will be offered at the conclusion of this effort.

The JVP RMP was amended by the Standards for Rangeland Health and Guidelines for Livestock Grazing Management Environmental Impact Statement (USDI, BLM, 1997). Standards and guidelines specific for the Lewistown District were then developed with the benefit of public participation and conveyed as recommendations to the BLM by the Central Montana Resource Advisory Council (RAC). (Appendices A and B).

The JVP RMP has been amended by the Fire Management Plan/Plan Amendment for Montana and the Dakotas. The amendments replace or include language to bring these plans up to date with the Federal Wildland Fire Management Policy.

The JVP RMP set forth the land use decisions and conditions guiding management of public land and minerals within the Musselshell Breaks Watershed. All uses and activities within the area must conform with the decisions, terms and conditions described in this plan. Appendix L describes the guidance contained in the JVP RMP that is pertinent to this watershed.

1.5 Issues and Objectives Specific to the Musselshell Breaks Watershed

1.5.1 Riparian Health

Issue: The riparian area standard recommended by the RAC is not being met for some of the riparian areas on public lands. Livestock are a significant factor in some cases.

Short-term objective: Maintain the 15 miles of riparian areas that are in proper functioning condition (PFC) or are making significant progress toward PFC. Make significant progress toward achieving PFC on the 28.7 miles of riparian areas in functioning-at-risk (FAR) condition and the 3.8 miles of non-functioning (NF) riparian areas where livestock are a significant factor within the next grazing year. Also, enter into cooperative weed treatment agreements with those permittees where 13.0 miles of streams are not meeting the riparian standard due to noxious and/or undesirable weed infestations.

Long-term objective: Maintain or improve all riparian areas to PFC within 10 years where livestock are a significant factor affecting riparian health.

1.5.2 Upland Health

Issue: The upland health standard recommended RAC is not being met for some of the upland areas on public lands. Livestock are a significant factor in some cases.

Short-term objective: Maintain the 37 allotments that are meeting the upland standard and take actions that will ensure significant progress is made toward meeting the standard on the 3 allotments that are

functioning at risk as a result of livestock grazing.

Long-term objective: Maintain or improve upland areas so that all allotments are meeting the upland health standard or making significant progress within 10 years where livestock are a significant factor affecting upland health.

Issue: Residual understory vegetation is not adequate to meet the needs of nesting upland game bird (sage grouse) habitat in some allotments.

Objective: Maintain and/or enhance known upland game bird habitat (sage grouse).

1.5.3 Noxious Weeds

Issue: Noxious weed populations are present on public, private, and state lands within the watershed, but are most prevalent along Blood Creek and the Musselshell River.

Objective: Continue control on the known noxious weed sites and any new infestations found. Initiate new cooperative weed control agreements with grazing permittees within the watershed. Contain and/or eradicate any new populations of category 3 weeds.

1.5.4 OHVs

Issue: The BLM Off Highway Vehicle (OHV) management plan, 2003, has directed BLM to implement OHV travel planning at the local level. A current travel plan does not exist for the Musselshell Breaks Watershed. Development of a travel plan would require a complete road and trail inventory.

Objective: Development of a detailed OHV travel plan. The OHV plan would identify roads and trails which would be open, restricted, and closed to OHVs.

1.6 Issues Considered But Not Addressed In This Plan

The following issues were discussed but not considered relevant for the purposes of this analysis.

- recreation
- access
- lands (exchanges and purchases)
- mining
- oil and gas field development

1.6 Issue Objectives Summary

	UPLAND VEG.	RIPARIAN VEG.	WEEDS	OHV TRAVEL PLAN
ALT #1	Not meeting objectives on three allotments due to livestock grazing.	Not meeting objectives on six allotments due to livestock grazing.	The weed objective would be minimally met.	The OHV objective would not be met.
ALT #2	All allotments would meet upland objectives.	All allotments would meet riparian objectives.	The weed objective would be met.	The OHV objective would be met.
ALT #3	All allotments would meet upland objectives without the need for range improvements.	All allotments would meet riparian objectives without the need for exclosure fences.	The weed objective would not be met.	The OHV objective would be met.

2.0 Alternatives, Including the Proposed Action

Three alternatives, including the proposed action were developed to address the issues outlined in Chapter 1.

The information in this chapter is organized into the following headings:

In compliance with the National Environmental Policy Act (NEPA), and national BLM policy, an environmental assessment (EA) must be prepared for issuing a livestock grazing permit(s). At a minimum, the EA must address the following:

- Issuing a new permit with the same terms and conditions as the expiring permit
- Issuing a new permit based on the application (proposed action)
- A "no grazing" alternative.

2.1 Alternative 1 - <u>Continuation of Current Management.</u> This is the No Action Alternative

Alternative 1 renews the grazing permits within the watershed with the same terms and conditions as the current permits. No changes would be made and range improvement projects would not be proposed or constructed. Cooperative weed control would not be made a condition of the grazing permit. A travel plan would not be implemented.

2.1.1 Vegetation Management (Riparian and Upland Health)

Livestock grazing would remain consistent with the current permit and no new projects would be constructed to protect/enhance riparian or upland values. If allotments are currently not meeting standards and guidelines, this alternative provides no measures to take corrective actions. Prescribed fire projects would not be implemented. Issue objectives would not be met with this alternative.

2.1.2 Weeds

The BLM would continue current weed control efforts within the watershed, including chemical, biological and mechanical methods. A limited use of herbicides along the Musselshell River would continue, primarily aimed at salt cedar eradication. Extreme caution would be taken to avoid damage to desirable vegetation, especially woody species.

BLM would continue to develop cooperative

agreements with livestock grazing permittees for noxious weed control on upland weed infestations. Under these agreements, the BLM agrees to provide the proper type and amount of herbicide and the permittee agrees to apply the herbicide. Application may be made by the properly licensed permittee or may be contracted to a licensed applicator at the permittee's cost.

Biological control efforts would continue through release and dissemination of newly available and established biocontrol agents. Cooperative weed control agreements would not be included in the terms and conditions of renewed grazing permits. The issue objectives for weeds would be minimally met in this alternative.

2.1.3 OHVs

An OHV travel plan does not currently exist in the watershed area. Under Alternative 1, a travel plan would not be developed, and the BLM OHV guidelines would not be implemented. The issue objectives for OHVs would not be met with this alternative.

2.2 Alternative 2 – Proposed Action

This alternative proposes changes to better manage desirable vegetation, water, soils, wildlife habitat, noxious weeds and OHV use. Management changes for those allotments not meeting standards and guidelines are included in the proposed action listed under each grazing allotment in section 2.2.1. No grazing management changes are proposed for allotments currently meeting standards and guidelines.

Vegetation treatments including crested wheatgrass and dense clubmoss conversion, prescribed burns and mechanical removal of trees on forest margins would be initiated on some allotments. Noxious weed control efforts would be increased. Several range improvement projects are proposed including livestock water developments, cross fences, exclosures, etc. Specific range improvement projects are described in section 2.2.1. Current grazing permits would be cancelled and new 10 year grazing permits would be offered with Standards and Guidelines for Rangeland Health and cooperative weed control agreements incorporated into the terms and conditions of the permit (Appendix A & B). An OHV travel plan would be developed and implemented under this alternative.

2.2.1 Vegetation Management (Riparian and Upland Health)

Standards for Rangeland Health (Appendix B) state that rangelands should be meeting or making significant and measurable progress toward meeting the upland and riparian standards. Significant progress toward meeting standards for rangeland health would be accomplished and guidelines followed through a variety of management techniques. Management on allotments that are not meeting standards would be modified to improve resource conditions and meet standards. Rangeland conditions which do not meet standards could be improved with changes to allotment management, including, but not limited to:

- increasing length of rest periods between grazing periods
- changing season of use
- altering livestock turnout location
- changing grazing intensity
- changing grazing duration
- improving livestock distribution

Improved livestock distribution could be achieved through construction of water developments and fences, selective salt and/or mineral placement, and changes to

livestock turnout location and season of use. In some cases exclosure fencing would be used to protect riparian areas. Specific details are listed by allotment below.

Guidelines for livestock grazing management were developed specifically for this watershed; they are based on the Guidelines for Grazing Management that were recommended by the RAC with input from the public. Livestock grazing guidelines are listed in Appendix A.

A 4 inch stubble height or 50% utilization limit of upland grass species would be implemented with Alternative 2. The 4 inch stubble height or 50% utilization limit is based on studies that demonstrate greater vigor of grasses grazed at moderate levels (Van Pollen and Lacey 1979, Troxel and White 1989, Vallentine 1990). The stubble height requirement would not be enforced during drought periods if grasses are severely stunted. In times of severe drought, utilization measurements would be used instead of stubble height measurements.

Utilization of key riparian grasses would be limited to an average 4 inch stubble height at the end of the grazing season or growing season, whichever occurs last. Key riparian grasses include Spartina pectinata (prairie cordgrass), Agropyron smithii (western wheatgrass), Carex spp. (sedges) and Scirpus pungens (three-square bulrush). Utilization of the key palatable woody species Prunus virginiana (chokecherry) and Ribes spp. (currants) should be limited to light to moderate browsing as described in “Browse Evaluation By Analysis of Growth Form, Volume I, Methods For Evaluating Condition and Trend” (Keigley and Frisina, 1998). Intense browsing shall be considered not meeting the riparian standard.

Other proposed vegetation treatments include the use of prescribed fire and/or mechanical thinning in several allotments as a method to reduce hazardous fuels, improve wildlife habitat, and improve rangeland/forest health. Prescribed burning would be implemented under specific conditions that create low to moderate fire intensities. Areas within the treated site would remain unburned so that a mosaic burn pattern is achieved.

Mechanical thinning would be accomplished with chainsaws and/or other low impact mechanical methods such as a rubber tired/tracked feller-buncher (tree harvester). Mechanical thinning would only occur within those areas that are proposed to be treated with prescribed fire. Thinning areas of dense understory vegetation prior to burning would allow for increased safety during burn implementation and success in achieving resource objectives. Potential prescribed fire/mechanical treatment areas are identified on Map M6. The areas shown on the map represent general areas where treatments may be done. Specific projects would be identified within these areas. Agreements would be formalized with landowners and/or other agencies if prescribed burn units span ownership boundaries and other landowners/agencies are agreeable to the use of prescribed fire.

Requirements for resting areas from livestock grazing following fire (wild or prescribed) will depend on a variety of factors including resource objectives, the type of fuel, time of burn, accessibility of the burned area to livestock, and climatic factors post-burn. Specific timing and the type of rest will be determined during the site specific environmental assessment phase.

Appendices D and E describe the current status of the allotments and permits in the watershed. Map M1 shows the location of the allotments.

Under the proposed action, the following actions would be implemented to meet

standards or make significant progress towards meeting rangeland health standards on individual allotments. Rangeland health determinations are displayed in Appendix M.

Allotments are listed alphabetically by permittee name. The permitted use in animal unit months (AUMs) applies only to public land administered by the BLM.

Musselshell Breaks Watershed Grazing Allotments:

Ahlgren, Larry
Cat Creek, Allotment 04844
Public acres – 3,164;
AUMs - 476
Public land - 43%
Livestock No. – 185 cattle
Season of Use – 5/01 – 10/31
Existing AMP - Yes

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives:
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: The permitted use would continue as outlined in the Cat Creek AMP - 185 head of cattle, 476 AUMs, season of use 05/01 – 10/31. Public lands would be managed with private and state lands in the current five pasture deferred rotation grazing system.

Year 1

	May	June	July	Aug	Sept	Oct
P.1	graze	graze				
P.2		graze	graze			
P.3			graze			
P.4				graze	graze	
P.5					graze	graze

Year 2

	May	June	July	Aug	Sept	Oct
P.1	graze	graze				
P.2		graze	graze			
P.3			graze			
P.4				graze	graze	
P.5					graze	graze

Year 3

	May	June	July	Aug	Sept	Oct
P.1					graze	graze
P.2	graze	graze				
P.3		graze				
P.4			graze	graze		
P.5				graze	graze	

Year 4

	May	June	July	Aug	Sept	Oct
P.1					graze	graze
P.2	graze	graze				
P.3		graze				
P.4			graze	graze		
P.5				graze	graze	

Year 5

	May	June	July	Aug	Sept	Oct
P.1				graze	graze	
P.2					graze	graze
P.3	graze					
P.4		graze	graze			
P.5			graze	graze		

Range Improvements: The permittee is currently developing a water pipeline and two (2) stock tanks utilizing the NRCS EQIP program. The pipeline crosses BLM land in T. 15 N., R. 29 E., sec. 30, E½W½; the two tanks are located on private and state land (Map M2). BLM would not contribute to this project.

The permittee proposes renovating approximately 160 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. The

proposed project would be located in T. 15 N., R. 29 E., sec. 34, E½SE¼, sec. 35, W½SW¼ (Map M2). The chiseled area would be electric fenced and excluded from grazing for two growing seasons following the treatment. BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would provide electric fence materials; the permittee would provide labor to construct the fence. The BLM would also provide the chisel plow/seeder (if available); the permittee would provide the tractor and labor to complete the operation. BLM may provide native shrub, forb, and/or grass seed to be applied during the chiseling operaton if deemed appropriate by BLM resource specialists at the time the project is completed. This site is devoid of native perennial grass species, contains less than 5% sagebrush, and no known grouse leks are located within 2 miles.

Brady, Evert
Bohn Ex. Pasture, Allotment 04866
Public acres – 160
AUMs - 44
Public land - 100%
Livestock No. – 3 cattle
Season of Use – 3/1-2/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; 3 head of cattle, 44 AUMs, season of use – 3/01-2/28.

Range Improvements: No range improvements would be proposed.

Brady, Evert
Twin Buttes, Allotment 15063
Public acres – 2,958
AUMs - 759
Public land – 88%
Livestock No. – 143 cattle
Season of Use – 5/01 – 10/31
Existing AMP - Proposed

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives:
- No riparian habitat on this allotment.

Meeting Riparian Health Standard
- N/A

Proposed Action: The current permitted use would continue - 143 head of cattle, 759 AUMs, season of use 05/01 – 10/31. Public lands would be managed with private and state lands in the proposed 5 pasture rest-rotation grazing system.

Range Improvements: The BLM and permittee propose fencing approximately 240 acres of crested wheatgrass into a separate pasture to be utilized for early spring grazing. A reservoir within the new crested wheatgrass pasture would be fenced to facilitate livestock use from both the crested pasture and the adjacent pasture to the east. Location of these proposed improvements is: T. 16 N., R. 27 E., sec. 10 (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide fence material and construction specifications and the permittee would

provide labor to construct and maintain the fence.

The permittee also proposes drilling a well on private land in T. 16 N., R. 27 E., sec. 15, NE¼, and extending a pipeline north approximately 1½ miles into BLM land. A total of 6 stockwater tanks in 5 different pastures are proposed on private, state and BLM land (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private and state portions of the project, in addition to the stocktanks and all installation costs.

Browning Brothers
Tin Can, Allotment 15082
Public acres – 4,290
AUMs – 824
Public land – Various by pasture
Livestock No. – 150 cattle
Season of Use – 5/01–10/31
Custodial – 3/01–2/28
Winter Pasture, Allotment 01518
Public acres – 1,385
AUMs – 225
Public land – Various by pasture
Livestock No. – 57 cattle
Season of Use – 5/01–11/30
Existing AMP - Yes

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives:
- Maintain current grazing system.

Meeting Riparian Health Standard
- Not meeting the riparian objective on Biggett Coulee due to natural erosion.

Proposed Action: The permitted use would continue as outlined in the Tin Can AMP - 140 head of cattle,705 AUMs, season of use 05/01 – 10/31; 10 head of cattle, 119 AUMs, custodial, season of use 3/01-2/28; Winter Pasture – 57 head of cattle, 225 AUMs, season of use 05/01-11/30. Public lands would be managed with private and state lands in the current rest-rotation grazing system. Subsequent to initial watershed analysis, an ownership change and transfer has resulted in an administrative modification; the Winter pasture would be separated from the Tin Can allotment and assigned its own allotment number – 01518. The resultant Winter Pasture allotment would be issued a new 10 year permit.

Range Improvements: The BLM and permittee propose using prescribed fire and mechanical thinning to reduce the hazardous fuels west of and adjacent to the ranch buildings (Map M6). Additionally, the potential use of prescribed burning/mechanical thinning to reduce hazardous fuels and pine encroachment and improve rangeland/forest health would be considered on approximately 4,429 acres of public and private land within and adjacent to this allotment.

The BLM and permittees propose re-location of an existing cross-fence within this allotment. The current fence is located in very steep terrain, is difficult to maintain, and does not facilitate equitable livestock distribution. The proposed new fence route would be finalized at the time of project approval. BLM would enter into a range improvement cooperative agreement for this project; BLM would provide fence materials and construction specifications and the permittees would provide labor to construct the fence and assume maintenance responsibilities.

The existing Gilfeather pipeline within this allotment would be utilized to distribute water from the proposed Solar well project.

Browning, Tom
River Ranch, Allotment 15115
Public acres – 4,766
AUMs - 683
Public land – River Ranch - Various
Livestock No. – 196 Cattle
Season of Use – River Ranch - 5/01–10/31
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The permitted use would continue as outlined in the River Ranch AMP; River Ranch pasture - 196 head of cattle,683 AUMs, season of use 05/01 – 10/31. Public lands would be managed with private and state lands in the current rest-rotation grazing system. Subsequent to initial watershed analysis, an ownership change and transfer has resulted in an administrative modification which may alter % public land, cattle numbers and/or season of use.

Range Improvements: The BLM and permittee propose using prescribed fire and mechanical thinning to reduce the hazardous fuels west of and adjacent to the ranch buildings near the Musselshell River. Additionally, the potential use of prescribed burning/mechanical thinning to reduce hazardous fuels and pine encroachment and improve rangeland/forest health would be considered on approximately 7,709 acres of public and private land within and adjacent to this allotment (Map M6).

A short extension of an existing water pipeline is also proposed. The pipeline and one stockwater tank would be located in T. 17 N., R. 29 E., sec. 28, SE¼SW¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

Cat Creek Cattle Co.; Dutton
Long Coulee, Allotment 04839
Public acres – 3,911
AUMs - 591
Public land – 63%
Livestock No. – 124 cattle
Season of Use – 5/01 – 11/30
Custodial – 3/01-2/28
Existing AMP - Yes

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain current grazing system

Meeting Riparian Health Standard - Yes

Proposed Action: The current permitted use would continue as outlined in the Long Coulee AMP; Pastures A, C, & D, 119 head of cattle, 528 AUMs, season of use 5/01-11/30. Pasture B, 5 head of cattle, 63 AUMs, custodial season of use 3/01-2/28. Public lands would be managed with private and state lands in the current 4 pasture deferred rotation grazing system.

Range Improvements: The BLM and permittee propose the extension of an existing water pipeline located on private land within the allotment. The pipeline

would begin at an existing stocktank located in T. 15 N., R. 29 E., sec. 1, SW¼NW¼ and extend southeasterly through private land into BLM. A new stocktank would be located on BLM in T. 15 N., R. 30 E., sec. 7, NW¼NW¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

Chamberlin, Lyle
Deep Coulee, Allotment 02540
Public acres – 463
AUMs – 65
Public land – 100%
Livestock No. – 12 cattle
Season of Use – 4/01-9/13
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain current grazing system

Meeting Riparian Health Standard
- Yes

Proposed Action: The current permitted use would continue – 12 head of cattle, 65 AUMs, season of use 04/01 – 09/13. Public lands would be managed with private lands; no grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Gardner, Richard
Dry Blood, Allotment 05057
Public acres – 2,718
AUMs - 600
Public land – 71%
Livestock No. – 70 cattle
Season of Use – 3/01-2/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives:
- Treat the noxious/undesirable weed infestations in the riparian areas.

Meeting Riparian Health Standard
- Not meeting the riparian standard on Blood Creek due to noxious/undesirable weed infestations.

Proposed Action: The current permitted use would continue – 70 head of cattle, 600 AUMs. Public lands would be managed with private and state lands. This allotment is utilized with two other allotments in a rest rotation grazing system. The BLM and permittee propose to consolidate allotments and develop a normal grazing system for all pastures in the Dry Blood, CFHI, and Individual E allotments.

Range Improvements: Emphasize the current cooperative weed control agreement. See 2.2.2.

Gardner, Richard
Gardner Ind. CFHI, Allotment 05113
Public acres – 1,875
AUMs – 477
Public land – 100%
Livestock No. – 44 cattle

Season of Use – 3/01-2/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain riparian health in proper functioning condition on 0.3 miles of Blood Creek. Treat weeds on 2.0 miles of Blood Creek.

Meeting Riparian Health Standard
- Yes, on 0.3 miles of Blood Creek. Two miles of Blood Creek are not meeting the standard due to noxious weed infestations.

Proposed Action: This is a custodial grazing allotment. The current permitted use would continue – 44 head of cattle, 477 AUMs. Public lands would be managed with private and state lands. This allotment is utilized with two other allotments in a rest rotation grazing system. The BLM and permittee propose to consolidate allotments and develop a normal grazing system for all pastures in the Dry Blood, CFHI, and Individual E allotments.

Range Improvements: Emphasize the current cooperative weed control agreement. See 2.2.2.

Gardner, Richard
Gardner Ind. E, Allotment 15058
Public acres – 1,200
AUMs - 274
Public land – 43%
Livestock No. – 80 cattle
Season of Use – 05/01-12/31
Existing AMP - No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain current grazing system.

Meeting Riparian Health Standard
- The 0.5 miles of Dry Blood Creek are not in PFC but are making significant progress toward PFC.

Proposed Action: The current permitted use would continue – 80 head of cattle, 274 AUMs. Public lands would be managed with private and state lands. This allotment is utilized with two other allotments in a rest rotation grazing system. The BLM and permittee propose to consolidate allotments and develop a normal grazing system for all pastures in the Dry Blood, CFHI, and Individual E allotments.

Range Improvements: The BLM and permittee propose a short extension from an existing private water pipeline into BLM. Approximately ¼ mile of pipeline and one stockwater tank would be located in T. 17 N., R. 27 E., sec. 28, SE¼NE¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

The BLM and permittee also propose renovating approximately 80 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. The proposed project is located in T. 17 N., R. 27 E., sec. 20, E½NE¼ (Map M2). The chiseled area would be electric fenced and excluded from grazing for two growing seasons following the treatment. BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would provide electric fence

materials; the permittee would provide labor to construct the fence. The BLM would also provide the chisel plow/seeder (if available); the permittee would provide the tractor and labor to complete the operation. BLM may provide native shrub, forb, and/or grass seed to be applied during the chiseling operation if deemed appropriate by BLM resource specialists at the time the project is completed. This site is devoid of native perennial grass species, contains less than 5% sagebrush, and no known grouse leks are located within two miles.

Gardner, Richard / Solf Brothers
Gardner-Solf Area, Allotment 04860
Public acres – 623
AUMs - 51
Public land – 59%
Livestock No. – 22 cattle
Season of Use – 5/1-7/31 odd years
9/1-11/30 even years
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The current permitted use would continue – 22 head of cattle, 51 AUMs, season of use 5/1-7/31 odd years 9/1-11/30 even years. This is a common allotment grazed by Gardners and Solf Brothers. Public lands would be managed with private lands. The BLM and permittees propose to separate this common allotment into separate allotments. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Gardner, Richard
North Forty, Allotment 15135
Public acres – 40
AUMs - 8
Public land - 100%
Livestock No. – 1 cattle
Season of Use – 3/1-2/28
Existing AMP - No
Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; 1 head of cattle, 8 AUMs, season of use – 03/01-02/28.

Range Improvements: No range improvements are proposed.

Gillett, Fred
Chimney Rock AMP, Allotment 05017
Public acres – 4,169
AUMs – 1,180
Public land – 51%
Livestock No. – 301 cattle
Season of Use – 5/1-12/20
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives

- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard

- Yes

Proposed Action: The permitted use would continue as outlined in the Chimney Rock AMP and the revised rotation schedule dated 04/24/01 - 301 head of cattle, 1,180 AUMs, season of use 05/01 – 12/20. Public lands would be managed with private and state lands in the current 5 pasture rest-rotation grazing system with grazing occurring between 05/01 and 12/20. Two additional pastures (Early A – Wagon Box and Early B – Scale) which are dominated by crested wheatgrass would be grazed in early May and mid-October on a rotational basis.

Year 1

	May 01 - July 15	July 16 - Aug. 30	Aug. 31 - Oct. 15	Oct. 16 - Dec. 20
P.1				graze
P.2			graze	
P.3	←	rest	→	
P.4	graze			
P.5		graze		

Year 2

	May 01 - July 15	July 16 - Aug. 30	Aug. 31 - Oct. 15	Oct. 16 - Dec. 20
P.1			graze	
P.2	←	rest	→	
P.3	Graze			
P.4		graze		
P.5				graze

Year 3

	May 01 - July 15	July 16 - Aug. 30	Aug. 31 - Oct. 15	Oct. 16 - Dec. 20
P.1	←	rest	→	
P.2	Graze			
P.3		graze		
P.4				graze
P.5			graze	

Year 4

	May 01 - July 15	July 16 - Aug. 30	Aug. 31 - Oct. 15	Oct. 16 - Dec. 20
P.1	graze			
P.2		graze		
P.3				graze
P.4			graze	
P.5	←	rest	→	

Year 5

	May 01 - July 15	July 16 - Aug. 30	Aug. 31 - Oct. 15	Oct. 16 - Dec. 20
P.1		graze		
P.2				graze
P.3			graze	
P.4	←	rest	→	
P.5	graze			

Range Improvements: The BLM and permittee propose extending a pipeline from a private well into the allotment. The well is located in T. 17 N., R. 25 E., sec. 35, NE¼SW¼. The pipeline would extend northeasterly approximately 2 miles across private land before entering the southwest corner of the allotment located T. 17 N., R. 26 E., sec. 19, SW¼SW¼. The pipeline would then travel east through BLM and state land approximately 3 miles to an intersection with an existing pipeline in sec. 16, SE¼SE¼. Stocktank locations would be determined along the route. This proposed pipeline would provide stockwater for 4 pastures in the grazing system (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks and all installation costs.

In addition, the BLM and permittee propose rehabilitating an existing stockwater reservoir located in T. 17 N., R. 26 E., sec. 24, SW¼. Rehabilitation would include dredging sediment from the reservoir; the dredged material would be deposited on the dam. This project would be completed by the permittee.

Buffaloberry bare root stock would be planted into selected snow drift areas within this allotment. Buffaloberry died out in the Chimney Rock area in the late 1980s due to a spring cold spell after the plants were in bud. Buffaloberry is valuable for many wildlife species, particularly sharp-tailed grouse.

One or two batches of Merriam's turkeys would be released on the Gillett ranch. The turkeys would frequent the BLM and private land in the vicinity, likely using the conifer cover on BLM land for roosting and nesting cover and the private land for foraging. The goal would be to establish turkeys in the headwaters of the Blood Creek drainage that would eventually tie in with the birds populating the Blood Creek area from the Tin Can Hill population.

Gillett, Fred
Gillett Ind. F Custodial, Allotment 15015
Public acres – 710
AUMs – 146
Public land – 100%
Livestock No. – 12 cattle
Season of Use – 03/01 – 02/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: This is a custodial allotment. The current permitted use would continue; 12 head of cattle, 146 AUMs, season of use – 03/01-02/28.

Range Improvements: The BLM and permittee propose renovating 160 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. The proposed project is located in T. 17 N., R. 26 E., sec. 24, SW¼. The chiseled area would be electric fenced and excluded from grazing for two growing seasons following the treatment (Map M2). BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would provide electric fence materials; the permittee would provide labor to construct the fence. The BLM would also provide the chisel plow/seeder (if available); the permittee would provide the tractor and labor to complete the operation. BLM may provide native shrub, forb, and/or grass seed to be applied during the chiseling operaton if deemed appropriate by BLM resource specialists at the time the project is completed. This site is devoid of native perennial grass species, contains less than 5% sagebrush, and no known grouse leks are located within two miles

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Hale, Raymond & Steven
Upper Cat Creek 2, Allotment 02537
Public acres – 1,399
AUMs - 321
Public land - 61%
Livestock No. – 104 cattle
Season of Use – 07/01–11/30
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The current permitted use would continue – 104 head of cattle, 321 AUMs, season of use 07/01 – 11/30. Public lands would be managed with private lands.

Range Improvements: This allotment consists of one pasture. The extreme southern end of the allotment contains approximately 280 acres of crested wheatgrass which is underutilized due to the July 01 turnout date. The BLM and permittees propose one of two range improvement projects (Map M2):

- Renovate crested wheatgrass with a farming/re-seeding operation. Crested would be farmed and seeded with an annual grain hay crop for 3 years to remove the crested wheatgrass and break the weed cycle. A native grass/forb mix would be seeded the fourth year; the new seeding would be excluded from the allotment with electric fence for two growing seasons.

- or -

- Crested wheatgrass would be permanently fenced from the remainder of the allotment, and stockwater would be provided in the crested pasture utilizing the proposed Solar well project discussed below. Cyclic use of prescribed fire may be utilized in conjunction with this management strategy. Occasionally burning off the residual crested wheatgrass and a portion of the seed source would result in new-growth crested wheatgrass which is more desirable forage. Grazing would be introduced shortly after the burn implementation, resulting in a net decrease in the amount of crested wheatgrass present.

This crested wheatgrass field is devoid of native perennial grass species, contains less than 5% sagebrush, and no known grouse leks are located within two miles. BLM would enter into a range improvement cooperative agreement for either of these two proposed projects. BLM would provide electric fence material and the grass/forb seed mix for the renovation proposal. The permittees would provide labor to construct the electric fence, and all farm equipment needed to complete the project. If the permanent fence proposal is selected, BLM would provide fence materials and construction specifications; the permittees would provide labor to construct the fence. In addition, BLM would provide pipeline material for the water development portion of the project located on BLM land. The permittees would provide the stocktank and all installation costs.

The Upper Cat Creek 2 allotment contains a water well commonly referred to as the Solar well. This well is an unproductive exploratory oil well developed as a livestock water well; water production was logged in excess of 100 gallons per minute (gpm) at the time of development. The Solar well currently provides water for the Upper Cat Creek 2 allotment, water is extracted utilizing a small submersible electric pump powered by a solar panel. BLM proposes further development of this valuable water source into a community livestock water well servicing several adjacent grazing allotments. The proposed project would:

- Flow test the well to determine current production
- Test current well casing integrity.
- Provide electricity through an overhead powerline (an existing overhead electric powerline is located 1.25 miles east of the well)
- Provide a submersible electric pump
- Develop a pipeline and storage network capable of servicing multiple grazing allotments.
- Develop a cooperative agreement between all interested parties

regarding installation, production, maintenance, and repair costs.

Harris, Bill
River Pasture, Allotment 04882
Public acres – 194
AUMs - 19
Public land - 100%
Livestock No. – 2 cattle
Season of Use – 3/1-2/28
Existing AMP - No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Eliminate grazing during July, August, and September each year.

Meeting Riparian Health Standard
- No

Proposed Action: This is a custodial allotment; the riparian health standard is not being met, livestock grazing is a significant factor. The current permitted use would continue; 2 head of cattle, 19 AUMs, season of use – 03/01-02/28. Significant progress toward meeting the riparian health standard would be achieved by the elimination of hot season grazing. The authorized season of use would not change in this custodial allotment, however, hot season grazing would be eliminated as agreed. Hot season grazing is defined as 7/1-9/30.

Range Improvements: No range improvements are proposed.

Harris, Bill
CK Cattle, Allotment 15081
Public acres – 2,603
AUMs - 242
Public land – 77%
Livestock No. – 39 cattle
Season of Use – 05/01-12/31
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain current grazing system.

Meeting Riparian Health Standard
- The 0.8 miles of the Musselshell River is not meeting the riparian standard due to natural erosion.

Proposed Action: The current permitted use would continue – 39 head of cattle, 242 AUMs, season of use 05/01 – 12/31. Public lands would be managed with private lands. No grazing changes are proposed.

Range Improvements: An effective livestock fence does not currently exist between the west and southern boundaries of this allotment and Lower Blood Creek, Allotment No. 04870. The BLM and permittee propose constructing a permanent 4-wire barbed wire fence to separate these two allotments (Map M2). BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would contract construction of this fence, the permittees would each assume maintenance responsibilities for ½ of the fence.

Iverson, Daniel
Ind. B, Allotment 02560
Public acres – 1,368
AUMs - 266
Public land – 100%
Livestock No. – 22 cattle
Season of Use – 03/01 – 02/28
Existing AMP - No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; 22 head of cattle, 266 AUMs, season of use – 03/01-02/28.

Range Improvements: No range improvements are proposed.

Iverson, Daniel
Blood Creek, Allotment 04896
Public acres – 4,599
AUMs - 824
Public land – 78%
Livestock No. – 188 cattle
Season of Use – 05/15-11/01
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain current grazing system and treat noxious/undesirable weeds.

Meeting Riparian Health Standard
- 4.8 miles of Blood Creek are not meeting the riparian standard due to natural erosion and weed infestations.

Proposed Action: The permitted use would continue as outlined in the Blood Creek AMP - 188 head of cattle, 824 AUMs, season of use 05/15 – 11/01. Public lands would be managed with private and state lands in the current three pasture rest-rotation grazing system which utilizes the West Blood Creek allotment as one of the pastures. No grazing changes are proposed.

Year 1

	May	June	July	Aug	Sept	Oct
P.1	←	—	rest	—	—	→
P.2	graze	graze	graze	graze	graze	graze
P.3				graze	graze	graze

Year 2

	May	June	July	Aug	Sept	Oct
P.1	graze	graze	graze	graze	graze	graze
P.2				graze	graze	graze
P.3	←	—	rest	—	—	→

Year 3

	May	June	July	Aug	Sept	Oct
P.1				graze	graze	graze
P.2	←	—	rest	—		→
P.3	graze	graze	graze	graze	graze	graze

Range Improvements: The BLM and permittee propose an extension from an existing water pipeline with the addition of two stockwater tanks on BLM. The pipeline would originate in T. 17 N., R. 28 E., sec. 8, SE¼SW¼, and extend northerly for approximately 1½ miles into section 5. The two tanks would be located in sec. 8, NW¼NW¼, and section 5, NW¼NW¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the project. The permittee would provide the stocktanks and all installation costs. Emphasize the current cooperative weed control agreement. See 2.2.2.

Iverson, Daniel
West Blood Creek, Allotment 04963
Public acres – 518
AUMs - 78

Public land – 12%
Livestock No. – 115 cattle
Season of Use – 05/15-11/01
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes
- Transect 2 is not meeting the upland standard because it is in the middle of an active prairie dog town; not livestock caused.

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The permitted use would continue as outlined in the Blood Creek AMP; 115 head of cattle, 78 AUMs, season of use 05/15-11/01. Public lands would be managed with private and state lands in the current three pasture rest-rotation grazing system which utilizes the Blood Creek allotment No. 04896 as two of the pastures. No grazing changes are proposed.

Range improvements: No range improvements are proposed.

Jenson, Jack
Sage Creek, Allotment 04856
Public acres – 1,986
AUMs – 327
Public land – 74% & 100%
Livestock No. – 80 cattle
Season of Use – 05/10-10/24
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: The permitted use would continue as outlined in the Sage Creek AMP; 80 head of cattle, 327 AUMs, season of use 05/10-10/24. Public lands would be managed with private lands in the current three pasture deferred-rotation grazing system. No grazing changes are proposed. The following table is an approximation. Period of use depends on number of livestock and availability of water in Blood Creek and the reservoirs. Livestock are moved when standards are met or AUMs have been consumed.

Year 1

	May	June	July	Aug	Sept	Oct
P.1	graze	graze				
P.2			graze	graze		
P.3					graze	graze

Year 2

	May	June	July	Aug	Sept	Oct
P.1					graze	graze
P.2	graze	graze				
P.3			graze	graze		

Year 3

	May	June	July	Aug	Sept	Oct
P.1			graze	graze		
P.2					graze	graze
P.3	graze	graze				

Range Improvements: The permittee proposes installing a water pipeline from a private well easterly through BLM terminating on private land. The well is located in T. 17 N., R. 26 E., sec. 2, NE¼SW¼. The pipeline would pass through ½ mile of BLM land located in sec. 2, N½SE¼, and enter private land located in sec. 1, NW¼SW¼. A stockwater tank would be placed on private land.

The permittee proposes planting 280 acres of cropland to a perennial grass pasture and incorporating it into the grazing system (Map M2). The 280 acres of private land is within the allotment but fenced separately; it is presently cropped and utilized in the grazing rotation when available depending on the crop year. This project would be completed by the permittee; AUMs would remain the same.

Koenig Ranch
Cottonwood Creek, Allotment 04840
Public acres – 1,491
AUMs - 319
Public land – 61% & 100%
Livestock No. – 85 cattle
Season of Use – 5/01 – 10/31
Custodial – 3/01-2/28
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: The current permitted use would continue as outlined in the Cottonwood Creek AMP; Spring Pasture is a custodial pasture containing 80 acres of LU; 1 head of cattle, 9 AUMs, season of use 03/01-02/28. All other pastures; 84 head of cattle, 310 AUMs, season of use 5/01-10/31. Public lands would be managed with private and state lands in a 9 pasture rest rotation grazing system. The T-1 upland range transect is located in close proximity to Cottonwood Creek and does not accurately represent upland vegetation. T-1 would be relocated to a representative upland site.

BLM proposes developing the Solar well project and extending a pipeline and stocktank into this allotment (Map M2). Placement of the proposed stocktank in conjunction with existing stock water sources would help evenly distribute upland grazing.

In addition, BLM and the permittees propose to extend a pipeline eastward into the southwestern portion of the allotment from an existing well on their private land. The well is located in T. 16 N., R. 28, sec. NW¼SW¼; the pipeline would extend easterly approximately ½ mile through private and ¼ mile into BLM. A stocktank which would provide water for two pastures would be placed on the fenceline in sec. 23, NW¼SW¼.

Range improvements: If the Solar well project is developed, a pipeline and stocktank would be extended into this allotment. BLM would enter into a range improvement cooperative agreement with each permittee for the applicable portion of the stockwater system (Map M2). BLM would provide pipeline material for the portion of the project located on BLM land. The permittees would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

BLM would also enter into a range improvement cooperative agreement with the permittees for the BLM portion of the pipeline from the private well. This proposal includes ¼ mile of pipeline on BLM. The remainder of the pipeline and the stocktank would be placed on private surface (Map M2). The agreement would have the same terms as the Solar well proposal discussed above.

The BLM and permittees propose installation of a new cross fence to more equitably utilize available livestock forage within the allotment. The permanent 3 wire barbed-wire fence would be approximately ¾ mile long, located on both BLM and private land in section 23. The cross fence would split one of the current pastures in half, creating another pasture in the rest-rotation grazing system (Map M2). BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would provide permanent fence materials and specifications; the permittee would provide labor to construct the fence.

The BLM and permittees also propose renovating approximately 80 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. The proposed project is located in T. 16 N., R. 28 E., sec. 23, NW¼ (Map M2). The chiseled areas would be electric fenced and excluded from grazing for two growing seasons following the treatment. BLM would enter into a range improvement cooperative agreement for this proposed project. BLM would provide electric fence materials; the permittees would provide labor to construct the fence. The BLM would also provide the chisel plow/seeder (if available); the permittees would provide the tractor and labor to complete the operation. BLM may provide native shrub, forb, and/or grass seed to be applied during the chiseling operaton if deemed appropriate by BLM resource specialists at the time the project is completed. This site is devoid of native perennial grass species, contains less than 5% sagebrush, and no known grouse leks are located within two miles.

Manuel, Walt
Manuel Place, Allotment 04842
Public acres – 1,528
AUMs - 403

Public land:
- Pasture A - 100%
- Pasture B – 57%
- Pasture C – 63%
- Pasture D – 100%

Livestock No.
- Pasture A – 1 cattle
- Pasture B – 197 cattle
- Pasture C – 209 cattle
- Pasture D – 2 cattle

Season of Use:
- Pasture A – Custodial, 03/01-12/31
- Pasture B – 07/15-09/15
- Pasture C – 05/01-05/31
- Pasture D – Custodial, 03/01-12/31

Existing AMP – No (proposed but not implemented).

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes
- Transect 1 is not meeting the upland standard because it is a solid stand of crested wheatgrass – not caused by livestock. The crested wheatgrass is fenced into a separate pasture and is being utilized by the permittee for early season grazing.

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

<u>Proposed Action:</u> The permitted use would continue; Pasture A is a custodial pasture, 1 head of cattle, 13 AUMs, season of use 03/01-12/31. Pasture B, 197 head of cattle, 232 AUMs, season of use, 07/15-09/15. Pasture C is primarily crested wheatgrass permitted for spring use; 209 head of cattle, 134 AUMs, season of use 05/01-05/31. Pasture D is a custodial pasture, 2 head of cattle, 24 AUMs, season of use 03/01-

12/31. Public lands would be managed with private and state lands. No grazing changes are proposed.

Range improvements: The BLM and permittee propose extending the Solar well pipeline from the Windmill West allotment east into this allotment. One stocktank would be located on private land located in sec. 3, SW¼NW¼. This project would promote better livestock distribution by drawing cattle into the underutilized private uplands in sections 3 and 4 (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

Manuel, Walt, Ahlgren, Larry Common
Vontver-Dobson, Allotment 04838
Public acres – 205
AUMs - 31
Public land – 12% & 100%
Livestock No. – 20 cattle & 1 cattle
Season of Use – 5/15-10/31 - 3/1-2/28
Existing AMP - No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; Manuel - 1 head of cattle, 2 AUMs, season of use – 05/15-10/31. Ahlgren – 20 head of cattle, 29 AUMs, season of use – 03/01-02/28. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Marks, Hans
Breaks, Allotment 15016
Public acres – 3,463
AUMs - 686
Public land – 80%
Livestock No. – 171 cattle
Season of Use – 05/15-10/15
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes
- Transect 2 has a very high big sage component resulting in a down upland trend, but desirable sage grouse habitat.

Riparian Objectives
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: The permitted use would continue as outlined in the Breaks AMP; 171 head of cattle, 686 AUMs, season of use 05/15-10/15. Public lands would be managed with private lands in the current three pasture deferred-rotation grazing system. No grazing changes are proposed.

Year 1

	May 15	June	July 5	Aug 24	Sept	Oct
P.1	graze	graze				
P.2			graze	graze		
P.3					graze	graze

Year 2

	May 15	June	July 5	Aug 24	Sept	Oct
P.1					graze	graze
P.2	graze	graze				
P.3			graze	graze		

Year 3

	May 15	June	July 5	Aug 24	Sept	Oct
P.1			graze	graze		
P.2					graze	graze
P.3	graze	graze				

Range improvements: The permittee proposes rehabilitating the spillway on a reservoir in pasture 1 located in T. 17 N., R. 27 E., sec. 15, SW¼SW¼. All work would be completed by the permittee.

The BLM and permittee propose construction of a new reservoir in pasture 1, located in sec. 14, NE¼NE¼ (Map M2). BLM would provide specifications for this reservoir and contract the construction work. The reservoir would be constructed only if the Solar well project is not available.

If the proposed Solar well project water pipeline and stockwater tanks are developed on the neighboring allotment east and south of the Breaks allotment (Blood Creek/Marty) the BLM and permittee propose extending the pipeline into this allotment. Placement of stockwater tanks would be determined at a later date.

Murnion, Vince
Blood Creek-Marty, Allotment 04849
Public acres – 11,816
AUMs – 1,622
Public land – 59%
Livestock No. – 547 cattle
Season of Use – 05/01-09/30
Existing AMP - No

Upland Objectives:

- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard

- Yes, 2 transects; No, 1 transect
- Transect 1 received an ecological condition rating of Fair/mid-seral, ESI 30, +4 upward trend.
- Transect 2 received an ecological condition rating of good/late-seral, ESI 72, +7 upward trend.
- Transect 3 received an ecological condition rating of fair/mid-seral, ESI 35, -7 downward trend.

Riparian Objectives

- Exclose the 1.3 miles of riparian habitat on Blood Creek on public lands from livestock grazing. Do not allow grazing until the riparian vegetation has recovered sufficiently to withstand light to moderate grazing. Do not allow hot season grazing (July, August, September).

Meeting Riparian Health Standard

- No. 1.3 miles of Blood Creek are not meeting the riparian standard due to livestock grazing and weed infestations.

Proposed Action: Blood Creek – Marty is currently utilized as one large pasture for the duration of the grazing period. This allotment lacks the fencing and water necessary to distribute cattle evenly throughout the upland rangeland and alleviate the predictable livestock congregation along Blood Creek during the hot season. The majority of Blood Creek riparian within this allotment is private land, however, two tracts of BLM are located on the creek. The BLM proposes working with the permittee to develop two new cross fences and repair an existing fence within the allotment, thereby creating four pastures. The pastures would be used in a four pasture rest rotation grazing system. A deferred-rotation system would be utilized through the first 4 year cycle, followed by

implementation of the rest-rotation system. The BLM and permittee also proposes construction of an additional north/south cross-fence located along the west side of T. 17 N., R. 27 E., sec. 36, intersecting the south allotment boundary fence in section 6. This fence would create a pasture on the extreme west end of the allotment to be utilized for fall grazing only, 10/1-12/31.

This proposal would be contingent on development of adequate, season-long livestock water within each of the four pastures and the fall pasture. BLM proposes developing the Solar well project and extending pipelines and stocktanks into each of the proposed pastures within this allotment (Map M2). Placement of the proposed stocktanks in conjunction with existing stock water sources would help evenly distribute upland grazing.

The permitted use would continue; 547 head of cattle, 1,622 AUMs, season of use 05/01-09/30. Public lands would be managed with private and state lands in a new four pasture rest rotation grazing system. The following table is an approximation. Period of use depends on number of livestock and availability of water in Blood Creek, reservoirs, windmill wells, watersavers, and newly developed water. Livestock are moved when standards are met or AUMs have been consumed.

Year 1

	May	June 20	Aug. 10	Sept.
P.1	graze	graze		
P.2		graze	graze	
P.3			graze	graze
P.4	←	rest	→	→

Year 2

	May	June 20	Aug. 10	Sept.
P.1		graze	graze	
P.2			graze	graze
P.3	←	rest	→	→
P.4	graze	graze		

Year 3

	May	June 20	Aug. 10	Sept.
P.1			graze	graze
P.2	←	rest	→	→
P.3	graze	graze		
P.4		graze	graze	

Year 4

	May	June 20	Aug. 10	Sept.
P.1	←	rest	→	→
P.2	graze	graze		
P.3		graze	graze	
P.4			graze	graze

Range improvements: Three new cross fences, an existing fence repair, and construction of a non-existent portion of the boundary fence between this allotment and the Lower Blood Creek allotment are proposed: (Map M2)

- Fence 1 (repair): Beginning T. 17 N., R. 28 E., sec. 31, NW corner, extending easterly app. 2½ miles to a point intersecting the allotment fence in sec. 28, NW¼SE¼.
- Fence 2: Beginning at an intersection with Fence 1 located in sec. 29, NE¼NE¼, extending northerly along an existing two track trail app. 3/4 mile to Sec. 20, SE¼SE¼. At this point, the fence would leave the trail and extend northwesterly into section 20, then northerly through the center of section 17 to a point intersecting the allotment fence on the north boundary located in sec. 8, SW¼SE¼.
- Fence 3: Beginning at a point where Fence 2 leaves the two-track trail in section 20, extending northeasterly along the trail into section 21 to the point where the trail enters section 16. The proposed fence would then extend easterly ½ mile along the section line into section 15, then southeasterly app. 1-3/4 miles through sections 22 and 23 to a point intersecting the eastern

allotment boundary fence in sec. 23, SW¼SE¼.

- Fence 4: Beginning at the point in T. 17 N., R. 28 E., sec. 13, NE¼NE¼, where the existing boundary fence stops, continuing southerly along the allotment boundary to the point in sec. 24 where the existing boundary fence resumes.
- Fence 5: Beginning at a point in T. 17 N., R. 27 E., sec. 36, NW¼NW¼, extending southerly along the section line into T. 16 N., R. 28 E., sec. 6 and directly south to an intersection with the southern allotment boundary fence in sec. 6.

BLM would enter into range improvement cooperative agreements for these projects; BLM would provide fence material and construction specifications, and the permittee would provide labor to construct and maintain the fences.

Four wells with non-functioning windmills would be repaired to provide livestock water in the allotment. If the windmill repair is not feasible, the wells would be retrofitted with 12V DC submersible water pumps powered by solar panels. This retrofit would be dependant on well casing size, depth to static water level, and well output in gallons per minute. If all conditions are acceptable, solar pumps would help provide adequate water to this allotment. The windmills are located:

- T. 17 N., R. 27 E. sec. 36, NW¼NE¼, (State land)
- T. 16 N., R. 28 E., sec. 5, SW¼NE¼, (private land)
- T. 17 N., R. 28 E., sec. 33, SW¼NW¼, (private land)
- T. 17 N., R. 28 E., sec. 29, SW¼NE¼ (BLM land).

BLM would enter into a range improvement cooperative agreement for this project; BLM would provide the 12V submersible pumps, solar panels, and pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks, all installation costs, and maintenance responsibilities.

If the proposed Solar well project is developed, pipelines and stocktanks would be extended into this allotment (Map M2). BLM would enter into a range improvement cooperative agreement with each permittee for the applicable portion of the stockwater system. BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks and all installation costs. This project could preclude the windmill/well project mentioned above if livestock water location would be redundant and/or more cost effective.

Emphasize the current cooperative weed control agreement. See 2.2.2.

BLM would install a control on the flowing well located in T. 17 N., R. 27 E., sec. 34, NE¼NE¼SE¼, JDR #5807.

Other proposed vegetation treatments in this allotment include the use of prescribed burning within portions of a 7,909 acre parcel located in the eastern 1/3 of the allotment (Map M6). Much of the private land included in the southern portion of this area was logged in the past. The logged area contains a moderate amount of remaining slash. A majority of the slash has been piled; however, a significant amount of slash remains scattered on the ground. If the landowner is agreeable, prescribed burning under cool conditions could be used to effectively reduce the fuels hazard created by the slash.

Additionally, most of the identified prescribed burning treatment area is forested, with many areas of dense understory vegetation present. Encroachment of pine onto the rangelands

is also occurring at a relatively high rate in this area. Prescribed burning within this area would help reduce the ladder fuels created by the dense understory and reduce pine encroachment.

Murnion, Vince
Upper Cat Creek, Allotment 15019
Public acres – 254
AUMs – 42
Public land – 100%
Livestock No. – 4 cattle
Season of Use – 3/1-5/31
Existing AMP – No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No Riparian

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; 4 head of cattle, 42 AUMs, season of use – 03/01-05/31. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Murnion, Vince
Anderson Ind., Allotment 04861
Public acres – 1,444
AUMs - 399
Public land – 100%
Livestock No. – 33 cattle
Season of Use – 03/01 – 02/28
Existing AMP - No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Maintain riparian health in proper functioning condition

Meeting Riparian Health Standard
- Yes

Proposed Action: This is a custodial allotment. The current permitted use would continue; 33 head of cattle, 399 AUMs, season of use – 03/01-02/28. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Murnion, Vince (Gibson Lease)
Lower Blood Creek, Allotment 04870
Public acres – 7,826
AUMs - 892
Public land – 79%
Livestock No. – 140 cattle
Season of Use – 05/01-12/31
Existing AMP – No (Proposed but not implemented).

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Exclose the 3.5 miles of Blood Creek on public land from livestock grazing. Allow grazing only after the riparian habitat has recovered sufficiently to allow light to moderate grazing. Do not graze in the hot season.

Meeting Riparian Health Standard
- No. The 3.5 miles of public land on Blood Creek is not meeting the

riparian objective due to excessive livestock grazing.

Proposed Action: This allotment is currently being utilized as one large pasture during the entire grazing season, permitted 05/01-12/31. The permittee has installed a water pipeline and a series of stockwater tanks along the bottom of Blood Creek. The pipeline extends from the Gibson ranch headquarters at the mouth of Blood Creek on the Musselshell River westerly up Blood Creek approximately 4 miles. All stocktanks associated with this pipeline are located on private land within the Blood Creek riparian zone. A second pipeline within the allotment originates at Kettle Spring located in T. 17 N., R. 29 E., sec. 30, NE¼SW¼, and extends northerly down Camelbratten Coulee approximately 4 miles to a point of intersection with the Blood Creek pipeline. The two pipelines intersect in T. 17 N., R. 29 E., sec. 8, NE¼NW¼. Kettle Spring has been developed, and a series of stocktanks are located along the Camelbratten Coulee pipeline. This stockwater system is not currently utilized due to a break in the pipeline at the upper end near the spring. A water saver is located in T. 17 N., R. 29 E., sec. 6, NW¼NE¼ in the extreme northwestern corner of the allotment at the top of Dunn Ridge. This water source is minimally used by livestock due to the relatively steep terrain and 1½ mile distance between Blood Creek and the top of Dunn Ridge.

As a result of the steep terrain, lack of upland stockwater, and absence of cross-fencing, the majority of livestock grazing occurs in and near the Blood Creek riparian zone. Riparian vegetation is being overutilized and upland vegetation is underutilized by livestock. The Blood Creek riparian zone extends approximately 5½ miles through this allotment; 1-3/4 mi. of riparian is located on BLM. To improve the public land riparian vegetation, BLM proposes constructing a crossfence at the west end of the allotment which would effectively exclude the BLM riparian and a small percentage of upland vegetation from the remainder of the allotment (map M 2). This riparian pasture would be alternately grazed in early spring or late fall, once per year, thereby eliminating hot-season grazing. This crossfence would intersect with the north allotment boundary fence creating a small upland pasture extending to Dunn Ridge (see Map M 2). The current permitted use would continue; 140 head of cattle, 892 AUMs, season of use – 05/01-12/31. The riparian pasture would be utilized once per year; alternating between 05/01-06/15 and 10/15-12/31.

If the Solar well project is developed, it would service this allotment with a pipeline and series of stocktanks (Map M2). Placement of the proposed stocktanks in conjunction with existing stock water sources would help evenly distribute upland grazing.

The permittee has proposed repairing the Kettle Spring (Camelbratten Coulee) pipeline and returning the stockwater system to operational status. If this proposal is successful, the BLM proposes to construct a north/south crossfence which was originally proposed in the AMP. This fence would begin at an intersection with the south allotment boundary fence located in T. 17 N., R. 29 E., sec. 21, NW¼SW¼. The fence would extend northerly down a ridge into sections 20, 17 and 8 to a point of intersection with the north allotment boundary fence in sec. 8, NE¼NE¼.

Range Improvements: The permittee proposes a short extension of the existing Blood Creek water pipeline. The new line would originate at a current terminal stockwater tank on private land located in T. 17 N., R. 29 E., sec. 8, SE¼NW¼, and extend westerly into the proposed riparian pasture. A single stocktank would be added to the pipeline located in T17 N., R. 29 E., sec. 7, SW¼NE¼ (Map M2). BLM would enter into a range improvement cooperative

agreement for this project; BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktank and all installation costs.

If the Solar well project is developed, a pipeline and stocktanks would be extended into this allotment (Map M2). BLM would enter into a range improvement cooperative agreement with each permittee for the applicable portion of the stockwater system. BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks and all installation costs.

The permittee also proposes fixing the Kettle Spring/Camelbratten Coulee pipeline and utilizing the existing stocktanks. At each stocktank location, the permittee proposes installation of a buried, frost-free concrete storage tank with a tailpiece and rubber stocktank attached (Map M2). This project would be within the pre-approved pipeline corridor requiring no additional authorization; costs for this proposal would be incurred by the permittee.

BLM proposes construction of the riparian pasture crossfence discussed in the proposed action above. This would be a permanent 4-wire barbed wire fence. BLM would contract construction of this fence; the permittee would assume maintenance responsibility (Map M2).

The permittee would be responsible for fixing and maintaining the fence separating the Blood Creek – Marty allotment from the Lower Blood Creek allotment.

The BLM would construct a permanent, 4-wire allotment boundary fence between the Blood Creek Allotment and the CK Cattle Allotment to the north. The fence would be built on the BLM/private property line where possible. A watersaver on Dunn Ridge near the northwestern corner of this proposed fence would serve both the CK Cattle and Blood Creek Allotments. BLM would incur all costs associated with this fence (Map M2).

BLM would construct a north/south cross fence through the allotment as proposed in the original AMP and discussed in the proposed action above (Map M2). BLM would contract construction of this fence; the permittee would assume maintenance responsibility.

Murnion, Vince (Greytak lease)
Windmill East, Allotment 15011
Public acres – 160
AUMs – 41
Public land – 100%
Livestock No. – 3 cattle
Season of Use – 03/01 – 02/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

<u>Proposed Action:</u> This is a custodial allotment. The current permitted use would continue; 3 head of cattle, 41 AUMs, season of use – 03/01-02/28. No grazing changes are proposed.

<u>Range Improvements:</u> No range improvements are proposed.

Murnion, Vince
Brush Creek Gavel, Allotment 15022
Public acres – 2,112
AUMs - 470
Public land – 38%
Livestock No. – Various (see below)
Season of Use – 141 cattle: 03/01-05/31
136 cattle: 09/01-02/28
Existing AMP – No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Improve upland range health

Meeting Upland Standard
- No
- Transect 1 received an ecological condition rating of Fair/mid-seral, ESI 29, -5 downward trend.
- Transect 2 received an ecological condition rating of Fair/mid-seral, ESI 40, -10 downward trend.

Riparian Objectives
- Maintain proper numbers of livestock and AUMs.

Meeting Riparian Health Standard
- 1.9 miles of Brush Creek are not meeting the riparian standard due to livestock grazing, weeds and natural erosion.

Proposed Action: The current permitted use splits the grazing between spring and fall/winter grazing. This allotment as currently configured contains 62% private land which is primarily farmland. The public rangeland and private farmland is fenced separately. BLM proposes to eliminate the private land from this allotment; the resultant allotment would contain 2,112 acres of BLM and 640 acres of State land.

Native vegetation on public and state land within the allotment is in fair to poor condition and in a downward trend. Perennial, decreaser grass species composition has notably diminished; primary vegetative components currently consist of perennial and annual forbs, annual grasses and clubmoss. Current range condition is primarily attributed to recent heavy utilization by the previous permittee. The current permittee utilizes this allotment as a calving pasture; primary use occurs Feb. 1 – April 30. This grazing schedule should allow the upland vegetation to positively respond and gradually shift toward an upward trend.

The current permitted use would continue, however, primary use would be calving season, Feb. 1 – April 30.
- 141 cattle: 03/01-05/31
- 136 cattle: 09/01-02/28

470 AUMs.

If future monitoring results indicate that upland health is not positively responding to the proposed primary season of use, BLM may alter the course of grazing management as directed in section 2.4.1 below.

Range Improvements: Supplemental seeding of native perennial decreaser grass species and leguminous forbs is proposed in sections 2, 25, and 35. The seed would be aerially applied in the fall to take advantage of fall moisture and the livestock trampling effect. Seed mixture and application rate would be determined prior to project initiation.

Containerized and/or bare root Wyoming big sagebrush stock would be planted in the crested wheatgrass stands in sections 1 and 2. Fabric mesh would be utilized for moisture and weed management. Temporary electric or wire fence would be installed to protect the sagebrush seedlings from livestock. BLM would be responsible for all proposed seeding projects in this allotment.

Murnion, Vince
Windmill West, Allotment 25006
Public acres – 2,491
AUMs – 792
Public land – 84%
Livestock No. – Various (see below)
Season of Use – 102 cattle: 9/1-11/30 (native)
106 cattle: 10/1-5/31(crested)

Existing AMP – No

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Improve upland range health

Meeting Upland Standard
- No
- Transect 1 received an ecological condition rating of Poor, ESI 15, -8 downward trend.
- This allotment contains a large amount of crested wheatgrass – not livestock caused.

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This allotment is currently used by the permittee for spring and fall/winter grazing in conjunction with the Brush Creek/Gavel, Upper Cat Creek and Windmill East allotments. Approximately 1,000 acres of public land within Windmill West are crested wheatgrass or crested wheatgrass dominated vegetative stands; the crested wheatgrass is not fenced separately from the native rangeland. Though early spring grazing is permitted in this allotment, the crested wheatgrass is underutilized. Cattle will utilize crested wheatgrass in early spring if confined, but will seek native grasses if given the choice. Due to the high carrying capacity allocated to crested wheatgrass on public land, underutilization of this grass concentrates livestock grazing on native rangeland within the allotment.

BLM proposes to fence approximately 1,160 acres of crested wheatgrass dominated pasture separately from native vegetation in T. 15 N., R. 28 E., sec. 4, 5, 6, 9 (map M2). Stockwater would be supplied by a pipeline and stocktanks from the Solar well project (if developed) or an existing well in sec. 5, SE¼SE¼ with a power/pump upgrade. A winterized concrete stocktank would be included as a component of either stockwater option. This pasture would be utilized for concentrated winter and spring grazing, permitted 10/01-05/31. The new pasture would contain 120 acres of private land which would be utilized for winter feeding.

Range Improvements: BLM proposes construction of a new 4-wire barbed wire fence to create the proposed crested wheatgrass pasture. BLM would contract construction of this fence; the permittee would assume maintenance responsibility. As part of this project, BLM would install a cattleguard in the road at the corner of sec. 5, 6, 7, 8; the cattleguard would meet BLM and Petroleum County specifications. (Map M2).

BLM would install a winterized concrete stocktank at the well in sec. 5. The water source for the stocktank would be from either the Solar well project or an existing well upgrade. If the Solar well project is developed, a pipeline would extend southerly into this allotment from the adjacent Upper Cat Creek 2 allotment. If the existing well is used, it would be upgraded to provide a more reliable water source.

BLM would enter into a range improvement cooperative agreement for this project.

Option 1, Solar well: BLM would provide the winterized stocktank and pipeline material for the portion of the project located

on BLM land. The permittee would provide all pipeline installation costs.

Option 2: Existing well upgrade: BLM would provide the winterized stocktank and submersible electric pump. The permittee would provide an automatic propane powered generator to energize the electric pump and assume maintenance responsibilities.

Containerized and/or bare root Wyoming big sagebrush stock would be planted in the crested wheatgrass stands in sections 5, 6, 7, and 18. Fabric mesh would be utilized for moisture and weed management. Temporary electric or wire fence would be installed to protect the sagebrush seedlings from livestock. BLM would be responsible for all seeding projects in this allotment.

Shaw, Orval
Shaw Place, Allotment 04851
Public acres – 215
AUMs - 36
Public land - 100%
Livestock No. – 3 cattle
Season of Use – 3/1-2/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: This is a custodial allotment. The current permitted use would continue; 3 head of cattle, 36 AUMs, season of use – 03/01-02/28.

Range Improvements: No range improvements are proposed.

Solf Brothers
Idhe Ranch, Allotment 04852
Public acres – 2,917
AUMs – 604
Public land – 63%
Livestock No. – 190 cattle
Season of Use – 5/15-10/15
Existing AMP - Yes

Upland Objectives:
- Improve vegetation to late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- No
- Transect 1 received an ecological condition rating of Fair/mid-seral, ESI 36, -5 downward trend.
- Transect 2 received an ecological condition rating of Fair/mid-seral, ESI 40, -7 downward trend.

Riparian Objectives
- Implement rest rotation grazing and provide off site waters to attract livestock away from the riparian areas on Cottonwood Creek.

Meeting Riparian Health Standard
- No. 7.4 miles of public lands on Cottonwood Creek are not meeting the riparian standard due to livestock grazing.

Proposed Action: Idhe Ranch is currently utilized as one large pasture for the duration of the grazing period. This allotment lacks the fencing and water necessary to distribute cattle evenly throughout the upland rangeland and alleviate the predictable livestock congregation along Cottonwood Creek. The BLM proposes working with the permittee to develop one new cross fence and rebuild an existing cross fence, thereby creating three

pastures. The pastures would be used in a three pasture rest rotation grazing system. A deferred-rotation system would be utilized through the first 3 year cycle, followed by implementation of the rest-rotation system. This proposal would be contingent on development of adequate, season-long livestock water within each of the three pastures.

BLM proposes developing the Solar well project and extending pipelines and stocktanks into each of the proposed pastures within this allotment (Map M2). Placement of the proposed stocktanks in conjunction with existing stock water sources would help evenly distribute upland grazing and successfully implement the proposed three pasture deferred/rest rotation grazing system. Proposed stocktank locations are included on map M2. The permitted use would continue, with a slight shift in the season of use: 190 head of cattle, 604 AUMs, current season of use 06/01-10/31. Permittees propose changing the season of use to: 05/15-10/15. Public lands would be managed with private and state lands in a new three pasture rest-rotation grazing system. The following table is an approximation. Period of use depends on number of livestock and availability of water and forage in each of the pastures. Livestock would be moved when standards are met or AUMs have been consumed.

Year 1

	May 15	June	July	Aug	Sept	Oct 15
P.1	graze	graze	graze			
P.2				graze	graze	graze
P.3	◄———		rest	———		———►

Year 2

	May 15	June	July	Aug	Sept	Oct 15
P.1				graze	graze	graze
P.2	◄———		rest	———		———►
P.3	graze	graze	graze			

Year 3

	May 15	June	July	Aug	Sept	Oct 15
P.1	◄———		rest	———		———►
P.2	graze	graze	graze			
P.3				graze	graze	graze

Range improvements: Two cross fences are proposed: (Map M2)

- Fence 1: Beginning T. 16 N., R. 29 E., sec. 20, NW¼NW¼, extending north into section 17 approximately 1¼ miles to a point intersecting the allotment fence in sec. 17, NW¼NW¼. This fence exists but needs repair.
- Fence 2: Beginning at an intersection with the western allotment boundary fence near the ¼ corner between T. 16 N., R. 28 E., sec. 13 and 24, west ¼ mile, then south ¼ mile, then west ¼ mile, then south to a point intersecting the allotment boundary fence in T. 16 N., R. 28 E., sec. 24, SE¼NE¼.

BLM would enter into a range improvement cooperative agreement for this project; BLM would provide fence materials and construction specifications and the permittee would provide labor to construct the fence and assume all maintenance responsibilities.

The BLM and permittees propose increasing the capacity of the reservoir in sec. 17, NW¼SE¼ by adding a lift to the dam and dredging sediment from the reservoir. BLM would enter into a range improvement cooperative agreement for this project; BLM would provide engineering design and support for the reservoir upgrade and the permittee would provide equipment and labor.

If the Solar well project is developed, it would service this allotment with a pipeline and series of stocktanks (Map M2). BLM would enter into a range improvement cooperative agreement with each permittee

for the applicable portion of the stockwater system. BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks and all installation costs.

Solf Brothers
Dunn Ridge, Allotment 15089
Public acres – 2,185
AUMs - 258
Public land – 67%
Livestock No. – 96 cattle
Season of Use – 06/01-09/30
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: Dunn Ridge is currently utilized as one large pasture for the duration of the grazing period. The allotment has adequate livestock water including two watersavers and two reservoirs. The watersavers are both on Dunn Ridge, and the reservoirs are both at the southern end of the allotment below the ridge. Due primarily to the nature of the terrain, cattle tend to congregate on the southwest end of this allotment, and grazing use is not evenly distributed. The BLM and permittees propose a north/south crossfence through the allotment to develop a two pasture deferred rotation system. The crossfence would split the west watersaver resulting in the west pasture containing one watersaver and one reservoir, and the east pasture containing two watersavers and one reservoir. This proposed grazing system would more equitably distribute livestock grazing throughout the allotment. The permitted use would continue: 96 head of cattle, 258 AUMs, current season of use 06/01-09/30. Public lands would be managed with private land in the two pasture deferred rotation grazing system.

Year 1

	June	July	Aug	Sept
P.1	graze	graze		
P.2			graze	Graze

Year 2

	June	July	Aug	Sept
P.1			graze	graze
P.2	graze	graze		

Range Improvements: The two watersavers in the allotment are located:
- T. 17 N., R. 28 E., sec. 3, NE¼NE¼,
- T. 17 N., R. 28 E., sec. 1, NE¼NE¼,

The reservoirs are located:
- T. 17 N., R. 28 E., sec. 3, SE¼SW¼
- T. 17 N., R. 28 E., sec.11, NE¼NE¼

The watersaver in section 1 needs a new apron and top ½ of the storage bladder. The BLM would provide the material for this project; the permittees would provide the labor and equipment required to complete the repairs.

The proposed crossfence would be a permanent 4-wire barbed wire fence located: beginning at an intersection with the north allotment boundary fence in T. 17 N., R. 28 E., sec. 3, NE¼NE¼ and extending southeasterly down a ridge approximately 1¼ miles to a point intersecting the south allotment boundary fence in sec. 11, NE¼NW¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide fence materials and construction specifications and the

permittee would provide labor to construct the fence and assume all maintenance responsibilities.

Solf Brothers
Idhe B, Allotment 15110
Public acres – 540
AUMs – 80
Public land – 100%
Livestock No. – Various (see below)
Season of Use – 6 cattle: 03/01-06/30
8 cattle: 08/01-02/28
Existing AMP – No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The permitted use would continue: 6 head of cattle, 24 AUMs, season of use 03/01 – 06/30; 8 head of cattle, 56 AUMs, season of use 08/01-02/28. Public lands would be managed with private lands. No grazing changes are proposed. This allotment contains 239 acres of public land, 30 AUMs, which is used by the Manuel ranch in an exchange of use agreement with Solf Brothers.

Range Improvements: No range improvements are proposed.

Solf Brothers / Gardner, Ray
Gardner-Solf Area, Allotment 04860
Public acres – 520
AUMs - 128
Public land – 100%
Livestock No. – 32 cattle
Season of Use – 5/1-7/31 even years
9/1-11/30 odd years
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard
- N/A

Proposed Action: The current permitted use would continue – 32 head of cattle, 128 AUMs, season of use 5/1-7/31 even years 9/1-11/30 odd years. This is a common allotment grazed by Gardners and Solf Brothers. Public lands would be managed with private lands. The BLM and permittees propose to separate this common allotment into separate allotments. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

Teigen Land & Livestock
West Cat Creek, Allotment 15054
Public acres – 2,765
AUMs - 685
Public land – 100%
Livestock No. – 157 cattle
Season of Use – 05/21-09/30
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- No riparian on BLM

Meeting Riparian Health Standard

- N/A

Proposed Action: This allotment is used as one pasture for the duration of the grazing season. Uplands are in good condition. The current permitted use would continue; 157 head of cattle, 685 AUMs, season of use – 05/21-09/30. No grazing changes are proposed.

Range Improvements: BLM proposes extension of a pipeline and stocktank from the Solar well to sec. 21, NW¼NW¼ (Map M2). BLM would provide pipeline material, the permittee would provide the stocktank and all installation costs.

The permittee proposes construction of a small set of corrals on BLM located in T. 16 N., R. 28 E., sec. 21, SE¼SE¼. The corrals would be utilized by the permittee for transporting cattle to and from the allotment. This project would be completed by the permittee.

Thomas, Ben & Claudia
Hailey Coulee, Allotment 04841
Public acres – 9,685
AUMs – 1,491
Public land – 80%
Livestock No. – 368 cattle
Season of Use – 05/15-10/15
Existing AMP - Yes

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Implement a four pasture rest rotation grazing system
- Construct off site waters to attract livestock away from the riparian zone.

Meeting Riparian Health Standard
- No. 7.3 miles of public land on Cottonwood Creek are not meeting the riparian standard due to livestock grazing.

Proposed Action: The permitted use would continue as outlined in the Hailey Coulee AMP; 368 head of cattle, 1,491 AUMs, season of use 05/15-10/15. Public lands would be managed with private and state lands. Hailey Coulee is currently fenced into three pastures. The AMP recommends a north/south crossfence in the north pasture, thus creating 4 pastures. BLM and the permittee propose construction of this fence, and initiation of a 4 pasture rest rotation grazing system. Livestock water in pastures 1 and 2 (the north pastures) is currently inadequate. BLM proposes developing the Solar well project and extending pipelines and stocktanks into this allotment (Map M2). Placement of the proposed stocktanks in conjunction with existing stock water sources would help evenly distribute upland grazing and successfully implement the proposed four pasture rest rotation grazing system. Proposed stocktank locations are included on map M2.

The following table represents the four pasture rest rotation grazing system. The indicated dates of use for each pasture are flexible because all pastures are not equal in forage production. Livestock are moved when standards are met or AUMs have been consumed.

Year 1

	May 15	June	July	Aug	Sept	Oct 15
P.1	graze	graze				
P.2			graze	graze		
P.3					graze	graze
P.4	◄	—	rest	—	—	►

Year 2

	May 15	June	July	Aug	Sept	Oct 15
P.1			graze	graze		
P.2					graze	graze
P.3	◄	———	rest	———	———	►
P.4	graze	graze				

Year 3

	May 15	June	July	Aug	Sept	Oct 15
P.1					graze	graze
P.2	◄	———	rest	———	———	►
P.3	graze	graze				
P.4			graze	graze		

Year 4

	May 15	June	July	Aug	Sept	Oct 15
P.1	◄	———	rest	———	———	►
P.2	graze	graze				
P.3			graze	graze		
P.4					graze	graze

Range Improvements: The BLM and permittee propose building a crossfence in the north pasture creating two pastures. The fence would be a permanent 4 wire barbed wire fence beginning at a point intersecting with the NW/SE crossfence located in T. 16 N., R. 29 E., sec. 14, SW¼SE¼, extending northerly up a ridge in sec. 14, through the corner of sec. 11, 12, 13, 14, continuing northeasterly through sec. 12 to a point intersecting with a proposed watersaver in sec. 12, SW¼NW¼. The fence would split the stocktank at the watersaver, and extend northerly to a point intersecting the northern allotment boundary in sec. 1, NW¼SE¼ (Map M2). BLM would enter into a range improvement cooperative agreement for this project; BLM would provide fence materials and construction specifications and the permittee would provide labor to construct the fence and assume all maintenance responsibilities

The BLM and permittee propose constructing a watersaver in section 12. An existing watersaver in section 1 immediately north of the proposed watersaver is in poor repair. The butyl rubber apron and storage bag were originally constructed in 1971; the material has deteriorated and must be replaced. BLM and the permittee have chosen a new location for the proposed watersaver; sec. 12, SW¼NW¼. BLM would enter into a range improvement cooperative agreement for this project; BLM would provide new material for a 155' x 65' apron and a 70,000 gal. storage bag (Map M2). The permittee would provide labor and equipment to install the new watersaver, and assume all maintenance responsibilities. The present stocktank would be used for this project.

If the Solar well project is developed, it would service this allotment with a pipeline and series of stocktanks (Map M2). BLM would enter into a range improvement cooperative agreement with each permittee for the applicable portion of the stockwater system. BLM would provide pipeline material for the portion of the project located on BLM land. The permittee would provide pipeline material for the private land portion of the project in addition to the stocktanks and all installation costs.

BLM would also propose the potential use of prescribed burning within and adjacent to this allotment to reduce hazardous fuels and pine encroachment and improve rangeland/forest health. Improving forage for livestock and wildlife would also be an objective. Use of prescribed fire would be considered on approximately 10,757 acres of public and private land within and adjacent to this allotment. Mechanical thinning to reduce encroachment and prepare burn units for implementation may also occur within the proposed prescribed burning area (Map M6).

Thomas, Ben & Claudia
Fail Place, Allotment 04846
Public acres – 282

AUMs - 45
Public land – 100%
Livestock No. – 4 cattle
Season of Use – 03/01 – 02/28
Existing AMP - No

Upland Objectives:
- Maintain vegetation in late seral stage (ecological site index 50 or better).
- Maintain upland range health

Meeting Upland Standard
- Yes

Riparian Objectives
- Eliminate hot season grazing on public lands on the Musselshell River

Meeting Riparian Health Standard
- 1.3 miles of public lands on the Musselshell River is in an upward trend.

Proposed Action: This is a custodial allotment. The current permitted use would continue; 4 head of cattle, 45 AUMs, season of use – 03/01-02/28. No grazing changes are proposed.

Range Improvements: No range improvements are proposed.

2.2.2 Weeds

Alternative 2 would implement an aggressive, integrated weed control effort. BLM would incorporate cooperative weed control agreements into the terms and conditions of new grazing permits for allotments with noxious weed infestations. Weeds would be categorized by priority based on presence, threat to resources and potential for spread.

Category 1 noxious weeds indicated below are currently established and generally widespread throughout the watershed area. Management actions would include containment and suppression of existing infestations and prevention of new infestations.

- Russian Knapweed
- Field Bindweed
- Canada Thistle

Category 2 noxious weeds indicated below have recently been introduced into the watershed or are rapidly spreading from their current infestation areas. Management actions would include containment of known infestations and eradication where possible.

- Spotted Knapweed
- Leafy Spurge
- Whitetop (Hoary Cress)
- Black Henbane
- Salt Cedar
- Houndstongue

Category 3 noxious weeds indicated below have not been detected in the watershed area or may be found only in small, scattered, localized infestations. Management includes early detection and immediate action to eradicate infestations.

- Purple Loosestrife
- Poison Hemlock
- Perennial Pepperweed
- Dalmation Toadflax
- Baby's Breath

Noxious weed inventory and monitoring within the watershed would be a continual, dynamic workload accomplished by permanent and seasonal BLM employees, private landowners and cooperating agency personnel. Inventory and monitoring data would be compiled by the LFO weed specialist and used to analyze the effectiveness of weed control efforts, project infestation trend patterns and provide guidance for future weed control planning and implementation.

The chemical component of the integrated weed control program would be closely monitored by the LFO weed specialist. All herbicide applications would utilize BLM approved herbicides (BLM annually revises an approved herbicide formulation list) by experienced, licensed applicators; all applications would comply with label restrictions and guidelines. BLM would utilize permanent and seasonal employees to implement site-specific herbicide prescriptions which would be identified.

Biological control efforts would continue through release, dissemination and monitoring of newly available and established biocontrol agents. BLM would continue a cooperative relationship with the Agricultural Research Service (ARS) by providing suitable experimental and research sites and assisting with associated biocontrol projects. Biological control would continue to be the primary tool for control of Category 1 weeds (effective biocontrol of Russian knapweed is being researched, but is not available at the time this document was written).

Noxious weeds have been identified on uplands within the watershed and continued inventory and monitoring would provide upland infestation trend data. BLM would incorporate cooperative weed control agreements into the terms and conditions of new grazing permits for allotments with noxious weed infestations. BLM would also incorporate cooperative weed control agreements into the terms and conditions of grazing permits which may become infested during the tenure of the permit. Under these agreements, the BLM would provide the proper type and amount of herbicide and the permittee would apply the herbicide. Application would be made by the properly licensed permittee or contracted to a licensed applicator at the permittee's cost.

Noxious weed control measures would apply to all prescribed burning treatment areas. Pre-and post-burn inventories / assessments would indicate if weed pretreatment and/or continued post-burn weed treatment is needed. Noxious weed infestations would be treated by BLM before prescribed burning. During the livestock grazing rest period, BLM would continue weed treatment as necessary. After the livestock grazing rest period, BLM would work with permitees in accordance with the cooperative weed control agreements discussed above.

2.2.3 OHVs

Under Alternative 2, an OHV travel plan would be developed and the BLM OHV guidelines would be implemented.

With this alternative, eventual route designations or restrictions would apply only to BLM administered public land and would be identified by maps, information signs, and route markers as specified in this document. The proposed BLM travel plan/route is included on map M4.

The travel management plan tiers to both the JVP/RMP and BLM Tri-State OHV EIS/ROD, as well as the Tread Lightly Program, and identifies these specific action items:

- Maps: Produce an official travel management map to document travel route designations.
- Signs and Markers: Identify the designated routes on-the-ground in a clear and consistent manner to facilitate compliance and enforcement of the route designations.
- Education and Enforcement: Provide clear and consistent information related to the route designations and the implementation process that will help ensure public understanding and compliance with designations.

- Barriers: Use physical barriers if necessary to discourage use and allow rehabilitation of closed routes.
- Rehabilitation: Apply rehabilitation techniques to closed routes where necessary to speed the healing process, discourage use of closed routes, and minimize the impact on visual resources.
- Monitoring: Identify specific actions, including timeframes, methods, and anticipated resource needs for environmental monitoring.
- Maintenance: Document maintenance standards and needs using BLM's FIMMS/FAMMS database and route identification numbering system.
- Implementation: Implement action items specified in this plan in a consistent and timely manner.

2.2.4 Summary of Proposed Projects

Regardless of funding and range improvement projects, permittees must ensure that livestock are managed according to the standards and guidelines (Appendices A & B). This would ensure that allotments not meeting standards would begin to make significant progress towards meeting standards by the start of the 2006 grazing season. Maintenance for all existing and proposed projects would be the responsibility of the permittees. A two-year livestock grazing rest period may be required after prescribed burning. The actual rest period would depend on the recovery rates of each site as determined through monitoring. Range improvement projects would not be limited to the list provided in 2.2.2; additional projects could be completed to improve management and meet rangeland health standards. Cultural surveys would be conducted prior to implementation of range improvement projects, including prescribed burning projects and vegetation treatments. The LFO weed specialist would conduct a risk assessment prior to initiating prescribed burning treatments. Monitoring of noxious weeds would be conducted for two years following any surface disturbance.

Visual resource clearances would also be obtained prior to implementation of projects. Any surface disturbance (including prescribed burning) that permanently removes existing vegetation from an area larger than ¼ of an acre would be reseeded and native vegetation reestablished.

2.3 Alternative 3 - No Livestock Grazing

This alternative would remove livestock grazing from the public lands in the planning area. As current grazing permits expire, they would not be reissued.

2.3.1 Vegetation Management (Riparian Health, Upland Health)

Livestock grazing permits and leases would not be renewed and grazing would cease as permits/leases expire. Fences and other range improvements would be allowed to deteriorate.

2.3.2 Noxious Weeds

Implementation of Alternative 3 would eliminate much of the current BLM weed control program since the vast majority of herbicide control is completed by grazing permitees. Biocontrol would continue to expand through new and existing releases.

2.3.3 OHVs

Impacts would be the same as Alternative 2.

2.4 Management Common to All Alternatives

The following guidance would continue regardless of which alternative is selected. All alternatives would be required to comply with applicable BLM laws, rules, regulations, and policy. Standards for healthy rangelands would be achieved.

2.4.1 Adaptive Management

Adaptive management would be used to alter the course of management if the proposed action is failing to achieve goals and objectives or if changing circumstances or direction dictate the need to make adjustments to management.

Adaptive management is a management approach that recognizes in advance that no amount of planning will be able to cover every possible combination of events, contingencies, or foresee the degree of impact from unplanned events or new management direction. The adaptive management approach recognizes the need for flexibility to cope with changes and sets up mechanisms to allow corrective actions and adjustments to occur based on monitoring results. Achieving goals and objectives outlined in this plan would be the driving factor for change.

Under adaptive management, various actions could be considered to address problematic livestock grazing issues, including but not limited to:

- increasing length of rest periods between grazing periods
- changing season of use
- alter livestock turnout location
- change grazing intensity
- change grazing duration
- improving livestock distribution

Improved livestock distribution could be achieved by constructing water developments and fences, selective salt and/or mineral placement and changes to livestock turnout location and season of use. In some cases exclosure fencing would be used to protect riparian areas.

If stubble height standards are not met, more conservative standards may be implemented the following year (the 4 inch standard stubble height limit would be changed to a 6 inch limit).

If stubble height standards are not met for two consecutive years, partial rest from grazing may be required (limited numbers or shortened grazing season) along with a 6 inch stubble height limit (Appendix G).

When range or riparian stubble height standards are not met for three consecutive years, a health assessment would be completed. If standards for rangeland health are not met or fail to make significant progress because of livestock management practices, additional actions may be taken pursuant to BLM's grazing regulations.

Alternative options for allotments with complex management and sensitive resource issues have been preplanned and analyzed so that changes can be made immediately if progress toward meeting standards is not occurring or allotments meeting standards begin to show a measurable downward trend. These actions are listed under individual allotment proposals in this chapter. All changes would be reviewed by an interdisciplinary team in consultation with the affected permittee and any parties expressing concern about specific resource conditions before a decision is made to alter a course of action.
If monitoring indicates that pastures/allotments are not meeting standards and are not making significant progress toward proper functioning condition, corrective actions would be

imposed. These corrective actions are described in Appendix G. Under these standards for rangeland health, soils should be stable and provide for capture, storage and safe release of water appropriate to soil type, climate and land form. The amount and distribution of ground cover for identified ecological sites or soil-plant associations should be appropriate for soil stability. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface scaling and compaction layers below the soil surface should be minimal. Ecological processes including hydrological cycle, nutrient cycle and energy flow should be maintained and support healthy biological populations. Plants should be vigorous, biomass production should be near potential and there should be a diversity of species characteristic and appropriate to the site.

2.4.2 Wildland and Prescribed Fire Management

Fire suppression would be in accordance with the Fire/Fuels Management Plan Environmental Assessment/Plan Amendment For Montana and the Dakotas (July 2003) and the Central Montana Fire Zone, LFO Fire Management Plan (draft July 2004).

This planning area is in the Breaks Fire Management Zone, Category C. The C designation identifies areas where fire is a desired ecosystem management tool. Fire could be a positive influence in much of this area and restoration of natural fire regimes would be encouraged where practical. However, each fire occurrence would have special consideration. Obvious concerns focus around structural developments, croplands, livestock and livestock forage needs. Social and political considerations would dictate management of each fire occurrence. Appropriate fire suppression based on current fire danger, resource availability and predicted weather would be used to ensure safety of fire suppression personnel, reduce cost of fire suppression and provide an opportunity to return fire to its natural place in the ecology of the area.

2.4.3 Black Tailed Prairie Dogs

The JVP RMP directs that the BLM will maintain or manage prairie dog towns on BLM lands based on the values or problems encountered. Current BLM policy states that loss of prairie dog habitat on private land may be compensated for by developing additional habitat on BLM land in the vicinity of the habitat loss. Prairie dog towns are indicated on Map M 5.

2.4.4 Bald Eagles and Mountain Plovers

Bald eagle habitat on the Musselshell River and potential mountain plover habitat throughout the watershed is subject to guidance from the JVP RMP. The emphasis for habitat maintenance and development would be on present and potential habitat for sensitive, threatened and/or endangered species. No action would be initiated on BLM land which would jeopardize any candidate or federally listed threatened endangered plant or animal. Further emphasis is provided to mountain plover habitat in black tailed prairie dog towns as described in section (2.4.3) above.

3.0 Affected Environment

This chapter describes the environmental resources that are related to the issues in Chapters 1 and 2. The resources include the physical, biological, and socio-economic conditions that could be affected by the implementation of one of the alternatives.

The information in this chapter is organized into the following headings:

3.1 Rangelands
3.2 Upland Range Health
3.3 Riparian Health
3.4 Noxious Weeds
3.5 Coniferous Forest
3.6 Livestock Grazing
3.7 Recreation
3.8 Visual Resource Management (VRM)
3.9 OHVs
3.10 Wildlife
3.11 Wildland Fire
3.12 Cultural Resources
3.13 Surface Water
3.14 Ground Water
3.15 Soils
3.16 Air Quality
3.17 Economics
3.18 Sociology

3.1 Rangelands

Rangeland vegetation consists of sagebrush grasslands, grasslands, and lightly vegetated badlands. Mixed shrub communities are common in coulees draws and flats throughout all of these vegetation types. Common grasses and grasslike species include bluebunch wheatgrass, green needlegrass, needle and thread, western wheatgrass, prairie junegrass, blue grama, prairie sandreed, Sandberg bluegrass, and threadleaf sedge. Introduced grasses are found in some areas, either in pure stands or intermingled with native species. Crested wheatgrass is the most prevalent introduced perennial grass in the watershed, with numerous pure or nearly pure stands in several allotments. Introduced annual grasses include cheatgrass and Japanese brome. Common shrubs include big sagebrush, silver sagebrush, saltbrush, greasewood, rubber rabbitbrush and prickly pear cactus. There are no known occurrences of threatened, endangered, or sensitive plants in the watershed. Appendix H lists common plants in the planning area.

3.2 Upland Range Health

Allotments were assessed for upland range health during the summer of 2002. Additional health assessments were completed on some allotments in the summer of 2004. Rangeland health is defined as the degree to which the integrity of the soil, vegetation, water and air as well as the ecological process of the rangeland system are balanced and maintained (BLM Tech. Ref. 1734-6).

Upland health was determined using existing permanent study plots. These study plots were evaluated for ecological site index, upland range health indicators, and soil surface factors. Uplands on 35 of the 38 allotments are meeting standards. Three allotments are not meeting the upland standards; livestock grazing is a significant factor on these allotments. Appendix D displays a list of study results by allotment.

Drought has influenced the condition of vegetation in some areas. During the 2002 growing season, moisture was below average. To separate the impacts of drought from livestock use, the evaluation team looked at fence line contrasts and similar sites under different management to discern the amount of impact caused by livestock management versus impacts of drought. Precipitation records from a nearby weather station were also reviewed.

3.2.1 Status of Upland Range Health

89,375 acres of public land (92% of the watershed) are meeting the upland health standard (Appendix M).

7,520 acres of public land (8% of the watershed) are not meeting the upland health standard (Appendix M).

Seral stages and ecological site index scores were determined on upland sites

using the NRCS ecological site index technical guides for each ecological site. This method assesses the seral stage of an ecological site and provides a scoring system. The higher the score, the higher the plant successional stage (seral stage). Changes in plant communities (known as plant succession) are characterized by different types of plant communities replacing other types of plant communities. A plant community reaches climax or Potential Natural Community (PNC) when it reaches a point that the community maintains itself and is relatively stable. Different stages of succession are called seral stages. The amount and type of disturbance, the site, and the amount of rest following disturbance often dictate the seral stage of the plant community. In prairie grassland ecosystems, areas that have prolonged disturbance with little rest have a high abundance of annual forbs and weeds, some annual grasses, and shallow rooted perennial grasses of short stature. These conditions would be termed low seral conditions. With the NRCS ecological site index system, the higher the score, the higher the seral stage.

Areas without recent disturbance or light disturbance followed by periods of rest usually reflect late seral or potential natural community. This stage is characterized by tall, deep rooted grasses, fewer forbs and weeds, and in some cases a shrub overstory. Prairie ecosystems evolved with periodic disturbance in the form of fire, grazing, hail, and drought followed by periods of favorable growing conditions. In some cases a lack of some type of disturbance over a period of decades can cause succession to move backwards towards lower or early seral conditions. Conversely, prolonged disturbance without adequate rest for plant recovery can also lead to early seral conditions. The means to achieving the upland standard for range health center around managing grazing to allow some disturbance followed by periods of rest during the growing season.

On a site-specific scale, late seral or PNC conditions are associated with healthy rangelands and early (low) seral conditions are often associated with unhealthy rangelands. However on a larger scale it is important to have a mix of seral stages present to provide diverse habitat. The means to achieving the upland range health standard involves maintaining a high percentage of the plant community in late seral or PNC conditions, however it is acceptable for a small percentage of the total acreage to be in early seral conditions such as livestock watering points, prairie dog towns, etc. Seral stages are shown by allotment and transect site in appendix D.

Erosion condition class determinations (soil surface factors) were also completed to assess erosion conditions on rangelands. The method uses seven factors to assess the condition of the soil surface. Factors such as the amount of bare ground, amount of rilling, gulling or other forms of erosion are assessed and scored. These criteria are indicative of the amount of erosion that is occurring. The majority of the acreage in the planning area (95%) rated in the stable or slight erosion class category.

The BLM also uses rangeland health indicators along with other methods to assess and communicate problems with rangeland health. These indicators consider the structure and function of the ecosystem rather than just one component such as plant species composition or soil surface factors. The indicators provide no scores, and taken alone are not a sole indication of rangeland health. When viewed with other information, the indicators provide clues to the site's health. Rangeland health indicators are an important means of communicating problems or successes to permittees and the public.

The indicators used are related to the amount or type of:

Biotic

- plant community diversity
- plant community structure
- photosynthesis activity
- plant status
- presence of exotic plants (weeds)
- seed production
- nutrient cycling

Physical

- flow patterns
- soil movement by wind or water
- soil crusting and surface sealing
- soil compaction
- rills
- gullies
- amount of ground cover
- cover distribution

A determination was made based on the indicators and a review of the results of the other studies. Grazing allotments were placed in one of three categories: meeting the standard, not meeting the standard but making significant progress, and not meeting the standard. Significant progress is determined when an allotment with degraded conditions is showing a strong upward trend. Summaries of rangeland health determinations are displayed in Appendix M.

3.3 Riparian Health

Riparian areas are defined as the green zones associated with lakes, reservoirs, estuaries, potholes, springs, bogs, wet meadows, and streams (ephemeral, intermittent, or perennial). Greasewood and silver sagebrush are common in alluvial flats in or near riparian areas. Snowberry, chokecherry, hawthorne, rose, buffaloberry, and gooseberry are commonly found in coulees and woody draws. The riparian zone occurs between the upland zone and the aquatic zone. Riparian areas are characterized by water tables at or near the soil surface, and by vegetation requiring high water tables. A universally accepted definition satisfactory to all users has not yet been developed because the definition depends on the objectives and the field of interest. However, scientists generally agree that riparian areas are characterized by one or more of the following features: 1) *wetland hydrology*, the driving force creating all riparian areas, 2) *hydric soils*, an indicator of the absence of oxygen, and 3) *hydrophytic vegetation*, an indicator reflecting riparian site conditions.

Generally, riparian areas are among the most resilient ecosystems. Depending on condition and potential, they usually respond more quickly than drier upland ranges to changes in management (USDI, 1997).

Livestock grazing management in riparian areas is one of the most pervasive issues facing rangeland managers. In this watershed a typical pasture has as its water source one of the major streams listed in the Surface Water section below. The riparian area associated with these streams occupies less than 10% of the total area in the pasture but because of a lack of other water sources, provides a disproportionate amount of the forage consumed (Marlow 1985).

Riparian area management is also one of the most complex issues for rangeland managers because:

- Most riparian acreage is privately controlled or intermingled with other ownerships
- Riparian areas are often the primary, and sometimes the only, watering place for livestock
- Public use of riparian areas is increasing

- Other resource values are concentrated in and dependent on those areas
- Grazing affects a number of resources and uses, both on-site and off-site
- The value of properly functioning riparian systems is not widely understood
- Traditional management practices are often inadequate and difficult to change

Because of these complexities, the involvement and cooperation of private landowners, ranchers, recreationists, other watershed users, and many different disciplines is critical to the success of riparian area management programs.

Most of the riparian areas in the planning area were assessed for health. The health score was then used to determine if changes were needed in the existing grazing systems. Riparian health ratings consist of three categories; proper functioning (PFC), functioning at risk (FAR), and non-functioning (NF). PFC is described as functioning properly when:

- Adequate vegetation, landform, or woody debris is present to dissipate stream energy
- Vegetation captures sediment thereby improving water quality
- Vegetation captures sediment aiding in floodplain development
- Improves flood-water retention and ground water recharge
- Develops root masses that stabilize streambanks against cutting actions
- Develops diverse ponding and channel characteristics to provide fish habitat, waterfowl breeding, and other uses
- Supports greater biodiversity

FAR are areas that are functional but an existing soil, water, or vegetation attribute makes them susceptible to degradation. NF are riparian areas that clearly are not providing vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, etc., as listed above. The absence of certain physical attributes such as a floodplain where one should be are indicators of non-functioning conditions.

The health of streams tributary to the Missouri river were assessed using the Montana Riparian and Wetland Association (MRWA) Lotic Health Assessment (stand alone, Apr 28, 1998). A total of 60.7 miles were assessed, 7.0 miles scored PFC, 5.2 miles scored FAR but all were in an upward trend (considered to be meeting the riparian standard), 24.9 miles were in FAR due to livestock grazing and requiring corrective actions, 13.0 miles were in FAR due to weed infestations, 3.3 miles were in FAR due to natural erosion, 2.8 miles were in NF but were making significant progress toward PFC and thereby meeting the riparian standard, 3.8 miles were NF due to livestock grazing and requiring corrective actions, and 0.7 miles were in NF due to natural erosion.

Stubble height of key riparian graminoid species (western wheatgrass, prairie cord grass, rushes and sedges) and utilization on woody species (cottonwoods and willows) is a good measure to indicate if a riparian area is progressing toward or remaining in PFC. Several studies have indicated a need for a 4 inch stubble height on the key riparian graminoid species at the end of the grazing season or growing season, whichever occurs last (Montana Watershed Coordination Council 1999, Mosley, Cook, Griffis, and O'Laughlin 1997, Ehrhart and Hansen 1998, Clary and others 1996, Clary and Leininger, 2000).

3.4 Noxious Weeds

Noxious weed infestations on public land are present throughout the watershed, with higher concentrations along the major drainages and their tributaries, including Blood Creek, Cat Creek, Cottonwood Creek, and the Musselshell River. Several weed species have been identified within the planning area; the largest areas of infestation are occupied by:

- Russian knapweed
- Canada thistle
- Field bindweed

The BLM has been actively involved in an integrated weed control program within the planning area for several years. Weed infestations have grown appreciably during the past two decades. Biological control of leafy spurge shows promise on large, dense stands which have proven very difficult to control using chemical alone. Established insect populations are monitored, collected, and dispersed by BLM personnel. Effective biological control agents are currently not available for Russian knapweed.

Noxious weed species of concern which have recently been identified within the watershed are:

- Salt Cedar
- Whitetop (Hoary Cress)
- Houndstongue
- Black Henbane

Salt cedar is an extremely invasive noxious weed which is presently expanding along the Musselshell River. Dense stands of salt cedar can deplete groundwater aquifers and dewater perennial watercourses. A mature salt cedar plant can transpire up to 300 gallons of water during a hot summer day.

3.5 Coniferous Forest

Forested vegetation types include ponderosa pine and ponderosa pine/Douglas-fir. Both vegetation types are common in the Musselshell Breaks watershed. Ponderosa pine is common on south slopes and ridges and the ponderosa pine/Douglas fir type is common on steep north facing slopes. Forested areas are generally patchy and disconnected because of the broken topography.

Conifer densities have been increasing in many forested areas. Pine seedlings and saplings are expanding into rangeland areas on forest margins. Heavy stand densities cause competition among conifers, with associated declines in forest health and decreased productivity of understory vegetation such as grasses, forbs, and shrubs. Drought has exacerbated the condition. Understory conifers contribute to fuel loadings that create a continuous fuel bed from the ground to the canopy. Wildland fire can be severe in these areas.

The encroachment of ponderosa pine into open parks reduces biodiversity, crowds out sagebrush/grassland habitat and creates an increased threat of severe fires due to an increase in the continuity of fuels.

3.6 Livestock Grazing

Forty (40) grazing allotments permitted to twenty (20) permittees are included in the watershed. All permits authorize cattle grazing only. Total permitted use in the planning area is 17,504 AUMs. Allotment Management Plans (AMPs) have been written on 15 allotments. Appendix K displays the allotments, type of use, season of use, AUMs and other information. Appendix I displays the current Allotment Management Plans and management plan status.

3.7 Recreation

The Musselshell Breaks watershed is located within the Judith Recreation Management Area (RMA MT060-07).

This extensive recreation management area (RMA) allows for dispersed and unstructured recreational activities on public land in the planning area. Recreation opportunities include hunting, wildlife photography, wildlife viewing, sightseeing, and some pleasure driving where public land access is available. The majority of use occurs during the summer and the fall hunting season.

Hunting opportunities and access for the general public in the planning area are very good. Outfitters provide deer and elk hunting trips to clientele from their ranch headquarters on a day-use basis in the planning area.

Currently, the BLM authorizes four Special Recreation Permits (SRPs) for commercial outfitting operations on public land in the planning area. SRPs are issued to outfitters with a valid State of Montana outfitter license and are authorized at the discretion of the LFO manager. Overnight camping on BLM land is authorized for one of the four outfitters; this SRP is scheduled for renewal in 2005. The camping authorization would be reviewed at that time.

Additionally, there are a number of dispersed campsites along the travel routes used by hunters. These campsites are used most weekends, and sometimes for several weeks by different parties of hunters from September through November. A fee is not required for the general public, but camping is limited to 14 days. Camps must be moved at least five miles following the 14 day limit.

Outfitters pay an annual fee of 3% of their adjusted gross revenue (minimum $80) for the privilege of utilizing the public land in their commercial hunting business. They are required to pay an additional $160 if they are approved for a camp on public land.

3.8 Visual Resource Management (VRM)

Public land within the planning area has been assigned a Visual Resource Management (VRM) class based on a process that utilizes scenic quality and sensitivity to changes in the landscape based upon the distance zone from which a project or proposal would be seen by the casual observer. This is accomplished by incorporating the four primary elements found in the environment: form, line, color, and texture, into a proposed project. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The four VRM classes are numbered I to IV (Visual Resource Management Program, Bureau of Land Management, 1980). The lower the number of the class, the more sensitive and scenic the area. Each class has a management objective that prescribes the level of acceptable change in the landscape. The planning area is primarily within the last two of the four classes (JVP-RMP, 1992).

Of the public lands in the Musselshell Breaks watershed, approximately 80%, (77,516 acres) have a Class IV VRM rating, and 20% (19,379 acres) have a Class III rating. The Class III rating allows for moderate contrasts to the environment, but they should be subordinate to the existing landscape.

The level of contrast to the landscape from projects authorized on characteristic Class

IV lands would be evident, but should be moderated by using the basic elements of form, line, texture, and color.

3.9 OHVs

All lands in the planning areas have a designation of limited year-around OHV travel, which is in accordance with newly implemented OHV EIS and Plan Amendment for Montana, North and South Dakota 2001. The direction outlined in the OHV Plan Amendment prohibits cross-county vehicle travel except for administrative purposes. Previous management direction in the JVP RMP was amended by the OHV EIS/Plan Amendment.

The following are exceptions to the cross-country vehicle travel prohibition:

- Travel for military needs, fire suppression, search and rescue or law enforcement emergency vehicles.
- BLM permittees may travel cross-country for administration of their permit.
- Snowmobiles are not impacted by this direction.
- BLM public land users may travel 300 feet from existing roads and trails after locating their campsite in a non-motorized fashion.
- This policy does not apply to areas designated as intensive use areas (none in this planning area).

As noted above, permit/lease holders are allowed to travel cross-county for administration of their permit/lease. Administration of a grazing permit includes travel to repair range improvements and other tasks directly related to management of a grazing allotment such as monitoring of livestock and forage conditions, placing salt, moving cattle, etc. The BLM may allow the state to travel cross-country for administrative purposes in cases where no roads are available to access state lands. Off road vehicle use for game retrieval would be allowed on specifically designated routes between the hours of 10:00 a.m. and 2:00 p.m. to minimize conflicts with other hunters in the area.

Brochures explaining specific details of the BLM off-highway vehicle policy are available at BLM offices.

3.10 Wildlife Resources

The variety of upland and riparian vegetation within the watershed provides habitat for a diverse wildlife population. In a relatively small area the habitat may include everything from deciduous tree stands with other associated riparian species, mixed coniferous forest, sagebrush steppe and agricultural land. Over 50 mammals, 200 species of birds and 20 species of amphibians and reptiles inhabit these areas. The Musselshell river is periodically home to a few fish on good snow and rain years when the water is flowing this far downstream in the drainage.

3.10.1 Mammals

Probably the most significant of the mammals are elk, mule deer, and the special status black tailed prairie dog. Several water obligate species are also very common on or near the Musselshell River; beaver have become very common on portions of the river particularly since the value of furs dropped over the last couple of decades. Mountain lions and coyotes appear to be doing very well in the breaks. Smaller predators such as foxes, skunks, and raccoons are relatively abundant in

some areas of the watershed. The hoary bat, big brown bat, little brown bat, long eared bat, long-legged bat, and Townsend's big eared bat may occur in the watershed.

The black tailed prairie dog was ruled to be warranted for listing but precluded by the USFWS in February of 2000. After a thorough review of the species they were removed from the candidate list in August 2004. The known prairie dog towns in the planning area have been mapped for reference purposes (Map M 5). There are approximately 125 acres of active prairie dogs on BLM land within the watershed that have been documented on all or portions of four different towns (Map M5).

Each of the four prairie dog towns on BLM land have potential for expansion but there is no recent evidence that they are expanding. Because of the limited size of the dog towns in the planning area, the opportunity for black footed ferret occupation is minimal. These dog towns provide opportunity for species such as burrowing owls, ferruginous hawks, and mountain plovers that are known to be associated with dog towns. Prairie dog towns provide an island of unique habitat that attracts a large number of predator species, particularly coyotes and badgers.

The Musselshell Breaks mule deer population is currently at an appropriate level. A seven year population increase has followed a very low 1996 mule deer count. Several factors have contributed to this recent population increase. The mule deer population drop in the mid 1990's was primarily caused by poor production of forbs and browse on consecutive years (1994 and 1995) as a result of low rain fall during the growing season. Cold temperatures and deep snow in 1996 and corresponding high predator numbers also affected the population drop. Preferred browse species in some areas of the watershed are either decedent or being over used by wildlife or livestock. During the winter of 2003 and 2004, a severe weather period after Christmas caused a varied amount of mule deer mortality in various locations along the Blood Creek drainage. Habitat characteristics of broken topography, cover, and browse availability make the watershed a very productive mule deer area. The entire Musselshell Breaks watershed planning area is considered valuable mule deer habitat.

Elk numbers have increased following the initial introduction into the Missouri Breaks in the 1950s. Local landowners and permittees believe elk numbers are too high and discourage an increase in elk population within the watershed. MT FWP conducted a thorough elk count in the spring of 2004, concluding that the elk population in hunting district 410 has grown to over 3,600. The Musselshell Breaks Watershed lies entirely within hunting district 410. MT FWP's herd objective for unit 410 was previously set at 2,300 animals. Eight hundred additional antlerless elk tags were issued for the 2004 hunting season in an attempt to reduce elk numbers closer to objective levels. BLM's objectives are to provide suitable habitat for the appropriate number of elk identified for hunting district 410. Elk habitation is not exclusive to BLM land within the watershed. Abundant winter forage in the Swanson Coulee, Hailey Coulee, and Cottonwood Creek drainages and the open benches on both sides of Blood Creek are critical to the elk herd in the watershed.

Whitetail deer and pronghorn antelope are minor components of the wildlife community within the planning area. Some whitetail inhabit the riparian area along the Musselshell River, and antelope habitat is present in the allotments along the southwest portion of the watershed.

3.10.2 Birds

The bald eagle is currently on the threatened species list; the mountain plover was proposed for listing as threatened in 1999 but withdrawn from proposal in 2003 and the peregrine falcon was removed from the endangered list in 1999. Both the mountain plover and peregrine falcon are currently considered special status species. Birds that occur on BLM's sensitive species list include Bairds sparrow, burrowing owl, ferruginous hawk, Swainson's hawk, and sage grouse.

Tree nesting raptors such as Swainson's hawk, red-tailed hawk, and great-horned owl are known to be present in the cottonwood stands and isolated conifers. There are also ground nesting raptors such as ferruginous hawks, burrowing owls and northern harriers present in the planning area. Burrowing owls and ferruginous hawks have been documented taking advantage of the prey opportunities provided at prairie dog towns.

Four species of upland game birds are present in the planning area; Hungarian partridge, sharp-tail grouse, sage grouse, and Merriam's turkey. Partridge are commonly associated with private cropland, sharp-tails are primarily located in the heads of brushy coulees and grasslands. Sharp-tail numbers have dropped over the last few dry growing seasons.

Merriam's turkeys have become established in the ponderosa pine habitat in the Tin Can Hill area and the breaks and river habitat associated with the Musselshell River. The turkeys appear to be relying on the close proximity of the cropland to the forest cover on Tin Can Hill. Recently, turkeys have expanded to the west in the ponderosa stands between Blood Creek and the Tin Can Hill road. Turkey numbers have grown to a viable population and there is interest and opportunity to supplement this population with transplants to further expand the occupied habitat.

A majority of the BLM land within this planning area is not sage grouse habitat because it is forested or breaks habitat with vegetation other than sagebrush. The sage grouse habitat in the area is all in the southwest portion of the watershed. There is one active historical sage grouse strutting ground (lek) within the boundaries of the planning area and one inactive lek. Within a two mile area of the watershed boundary there are five other historical sage grouse leks; one of unknown activity status, two active and two inactive. Of the three inactive leks all were known to have displayed bird attendance prior to 1996. Two of these leks on BLM were active as recently as the spring of 2000 and 2002. Several land management factors could be contributing to diminishing lek attendance in the area. A majority of the intermixed private land has been cultivated over the years; additional private native rangeland was newly cultivated in the summer of 2004. Several parcels of BLM land contain predominant or continuous stands of crested wheatgrass persisting from the Bankhead-Jones Land Utilization era. These crested wheatgrass dominated lands exhibit little reinvasion of the native sagebrush community and comprise a monoculture with limited wildlife value. The Windmill West and Brush Creek/Gavel allotments have a previous history of heavy livestock grazing use and the current vegetation does not provide adequate sage grouse nesting cover.

The cottonwood, box elder, and ash habitats along the Musselshell River provide nesting and brooding habitat for dozens of neo-tropical migrant species during the summer. Mourning doves are very abundant in the tree stands along the river. The deciduous trees along the rivers edge are uncommon in this area of otherwise prairie and coniferous forested coulees making them very valuable for most bird

species on the river. This public land habitat type is very minimal within the watershed because only five small parcels of BLM border the Musselshell River.

Opportunity for bald eagle and peregrine falcon occurrence in the watershed is limited and likely to be seasonal during migration. There are no known active eagle nests on this portion of the Musselshell River. Mature cottonwood nest trees are limited and many of these trees are dying due to several years of limited water in the lower Musselshell River. Fish availability for eagle foraging has also been very limited in recent years. Potential cliff nest sites for peregrine falcons are not available in the planning area. Peregrine forage opportunity is limited to a few small areas of waterfowl production on the larger stock reservoirs.

The home range of the mountain plover includes the short grass prairie from northern Montana to southern New Mexico. Breeding pairs have been documented on prairie dog towns 10 to 15 miles north of the planning area. No mountain plovers have been documented in the planning area to date but potential habitat does exist for the species. The mountain plover may be considered a disturbed-prairie species that prefers arid flats with very short grass and high proportion of bare ground. Prairie dog towns and a few acres of short grass dominated sites within the watershed provide potential habitat for the mountain plover.

3.10.3 Fish

Dry Blood and South Fork of Dry Blood Reservoirs have contained largemouth bass in years past. Recently, water levels have been too low to sustain a fishery in either reservoir. The BLM plans to rebuild Dry Blood Reservoir with a greater holding capacity; fish restocking would be completed when the reservoir fills.

The lower Musselshell River was known to have a substantial fishery in the past. Recently the lower portion of the river is dry throughout much of the year. Generally a few pools remain large enough to sustain catfish, carp and some minnows. Historically, sauger and a few walleye would run up the river from Fort Peck Reservoir during periods of flowing water. In the past few years the reservoir has been so low that the fish can not negotiate the Musselshell delta even when the river is flowing. Sauger was identified as a Montana Species of Special Concern in 2000. No other sensitive species have been identified in this portion of the Musselshell River. Opportunity for the BLM to do significant fisheries management on the Musselshell River is extremely limited due to the small amount of public land adjacent to this section of the river and the unreliable water flow.

3.10.4 Amphibians and Reptiles

The tiger salamander is the only salamander occurring in the planning area. The woodhouse toad, western chorus frog, and possibly the northern leopard frog all occur in the area. There is concern for the populations of northern leopard frog which appear to be in a sharp decline. Snakes found in the area include the western rattlesnake, racer, bull snake, and two species of garter snake. The short-horned lizard is also known to be present in the planning area.

3.11 Wildland Fire

The wildland fire history in the planning area, from 1980 to 2003, indicates Federal agencies have responded to 51 fires which burned an estimated 2,916 acres. The average number of fires per year was 2.5 and the average fire size was 57 acres.

Lightning is the primary cause of wildland fires accounting for approximately 98% of all fire starts within the project area. Other historical causes of fire starts include agricultural equipment, debris burning and recreation (hunting).

3.12 Cultural Resources

The BLM broadly defines cultural resources as any traditional lifeway belief or cultural property. Cultural properties are defined as distinct evidence in areas of past human occupation, activity, and use. Traditional lifeway beliefs are defined as traditional value systems of religious beliefs, cultural practices, or social exchange that are not closely and tangibly defined or identified with definite locations (JVP, 1992).

Early peoples in the study area were mobile hunters and gatherers throughout and up until the historic period. There have been changes through time however. The following brief overview explains changes through time viewed through the archaeological record and summarized by other archaeologists (Frison 1978; Ruebelmann 1983).

The Early Prehistoric period (roughly 10000 – 5700 B.C.) is characterized by a tool assemblage consisting of large, lanceolate and/or fluted spear points, and multipurpose tools made of stone or ivory. Subsistence strategies specialized in hunting megafauna but smaller game and plant foods were utilized as well. Typical site types include kill and butchering sites, open air camp sites, and limited activity sites.

The Middle Prehistoric period (roughly 5000 B.C. – A.D. 400), is characterized by a shift in tools types from thrusting spears with lanceolate spear heads to spear throwers and darts with diagnostic spear points. Groundstone tools also begin to show up in the assemblages. Subsistence strategies shift from more specialized hunting of megafauna to a more broad spectrum strategy which becomes focused on bison by the end of this period. Plant procurement and use also occurs. Evidence of storage in the form of storage pits begin to show up during this period as do large cooking pits. Site types typical of this period include kill and butcher sites, camp sites, and rockshelters. Stone circle sites are rare in this area.

The Late Prehistoric period (roughly A.D. 500 – 1800), is characterized by a technological shift from spear throwers and darts to bow and arrows. Tool assemblages consist of small side, corner, or tri-notched points. Some ceramics become evident in the record in limited number on the Northwest Plains at this time. Grooved mauls, bone fleshers, and shell beads are common. Subsistence strategies continue to focus on bison procurement. Large communal bison kill/jump sites, rock shelters, wind breaks, and caves are the site types typically found in this area. Stone circle sites are more rare compared to northern areas.

Of the sites recorded on BLM land within the watershed, one (1) site was identified through point type as an Early Prehistoric site, three (3) sites were identified through point types as Middle Prehistoric sites, and three (3) sites were identified as Late Prehistoric sites. The rest of the prehistoric sites recorded had no identifiable time marker.

During the historic period, settlers by the thousands came into the area to live on homesteads. Germans and Scandinavians came from the Midwest, as did eastern European immigrants like Bohemians and Yugoslavs (JVP, 1992).

Cultural sites can be considered to be significant for several reasons. Some sites can be considered to be significant because of information about the past that can be learned from them through methodical

study. Others sites can communicate a sense of a particular time period that they represent in history. Finally, sites can be considered to be important because of the current use or values associated with the location.

An important consideration for management actions in this area is preserving the values of the cultural properties contained within. In order to preserve the integrity of a cultural property, it is sometimes necessary to preserve the location in which the cultural property is found. This is an important consideration when the management actions have the potential to affect the location of a cultural property, thus affecting the overall integrity of the cultural property.

The cultural resource site database maintained by the Montana State Historic Preservation Office was reviewed on March 15, 2004. A printout from the database was compared to the BLM Musselshell Breaks Watershed study area, which shows land status. There are a total of nine (9) historic sites, one (1) site with both historic and prehistoric components, and thirty two (32) prehistoric sites.

The historic sites relate to homesteading, early agriculture, and mining. The sites consist of four (4) homestead/farmsteads (24PT71, 24PT72, 24PT342, and 24PT472), one (1) log structure (24PT235), one (1) trash/can dump (24PT77), one (1) irrigation system (24PT285), one (1) historic mining feature (24PT210), and one (1) sheepherder camp (24PT79).

The prehistoric sites include twenty four (24) lithic scatter sites (24PT52, 24PT59, 24PT60, 24PT61, 24PT62, 24PT64, 24PT65, 24PT78, 24PT80, 24PT82, 24PT88, 24PT91, 24PT96, 24PT95, 24PT97, 24PT157, 24PT162, 24PT164, 24PT165, 24PT187, 24PT202, 24PT203, 24PT204, 24PT205, 24PT227, 24PT348), one (1) lithic scatter site with a hearth/roasting pit (24PT0334), one (1) stone cairn site (24PT51), three (3) hearth/roasting pit sites (24PT94, 24PT66, 24PT163), and one (1) tipi ring site (24PT46).

In addition to the prehistoric and historic sites, there was also one (1) recorded site with both prehistoric and historic components (24PT158).

There are no known sites on BLM surface within the study area that have been determined to be eligible for the National Register of Historic places.

3.13 Surface Water

The Musselshell River is the major river in the planning area. Intermittent tributaries are Blood Creek, Cottonwood Creek, and Cat Creek. All other water courses in the watershed are ephemeral, flowing only in response to snow melt or intense summer storms. None of the streams in the watershed are potable without treatment but all are suitable for livestock and wildlife.

The Montana Department of Environmental Quality (MT DEQ, 1998) lists the Musselshell River and Blood Creek as impaired streams. The Musselshell River supports aquatic life, warm water fish and swimming. Probable causes of impairment are elevated metals, habitat alterations, and riparian degradation. Probable sources of impairment are agricultural and grazing practices and unknown sources.

3.14 Ground Water

Shallow ground water, less than 500 feet below the surface, is scarce in the planning area due to the presence of the Cat Creek Dome and associated fractures and faults. Where shallow ground water does occur, it is generally potable without treatment although it may be high in iron or sodium, which may cause a bad taste.

Yields are normally less than 10 gpm. Developing and transporting water from shallow wells is generally not an economically feasible option to solve the shortage of reliable water sources on public lands for livestock/wildlife in the planning area.

Deeper ground water, greater than 500 feet below the surface, is prevalent in the watershed primarily due to past oil drilling activities. Deep wells are often artesian and suitable for livestock use.

3.15 Soils

The planning area is located in the western sedimentary plains. This area is categorized as a Major Land Resource Area (MLRA) by the Natural Resources Conservation Service. The western sedimentary plains MLRA was not glaciated during the last glaciation period. Badland, thinbreaks, and clayey range sites are common in this area.

For a more detailed list of soils consult the Petroleum County soil survey. This survey is available at the Lewistown Field Office or the NRCS office in Lewistown, MT.

3.16 Air Quality

Air quality in the Musselshell Breaks Watershed is generally considered good to excellent most of the year, meeting air quality standards set forth by the National Clean Air Act (U.S. Congress, 1967, amended 1972, 1977). All of the lands within and adjacent to the planning area are in a Class II airshed as designated by the 1977 Clean Air Act.

The high and low pressure weather systems that move through central MT strongly influence local climates and occasionally affect air quality within the planning area. These weather patterns may affect the air quality by moving suspended pollutants into the local airshed. During the summer and winter months, atmospheric conditions tend to be more stable, reducing particulate dispersal which may negatively affect air quality. Spring and fall typically have atmospheric conditions that favor smoke/particulate dispersal.

Major air pollutants include dust generated by naturally dry, windy conditions, smoke from wildland fires, and smoke and dust created by agricultural operations. Minor pollutants could include farm machinery exhaust, crop harvest dust, recreational vehicle and equipment exhaust, and road maintenance operations.

Topography within the watershed consists of flat to rolling uplands broken with steep drainages characteristic of breaks along tributaries to the Musselshell River. Inversions may develop and trap suspended particulate matter for longer durations within these drainages.

3.17 Economics

The planning area is situated within Petroleum County in central Montana. Agriculture is the major industry. Recreation and associated services are also major contributors to the overall economy in the region.

The public land portion of the planning area (96,895 acres) represents about nine percent of the total land area in the county (1,058,560 acres).

The 20 permittees in the planning area represent approximately 15% of the total number of farmers and ranchers in Petroleum County. All of the permittees have cow-calf operations and many of the permittees also have farming operations. The 20 permittees hold a total of 17,504 BLM AUMs and are permitted to graze 4,208 cow-calf pairs for at least some

portion of the year on BLM-administered land.

3.18 Sociology

Petroleum County is a sparsely settled county located in central Montana adjacent to the Musselshell and Missouri Rivers. The 2000 population of Petroleum County was 493, which was a decrease of 5% since 1990. (US Bureau of Census). The population density was .3 persons per square mile. Winnett is the county seat and main population center with approximately 183 residents.

Local residents and other public land users exhibit attitudes and values typical of a rural farm/ranch oriented society in the western United States. Residents value the rural character of the area, wide-open spaces, naturalness and solitude. Positive aspects of the area include the independence and industriousness of the local people, lack of urban problems, relaxed pace and personal freedom. Residents have a strong sense of heritage. These people have grown with the area, have seen changes occur and are extremely concerned about any management decisions that would potentially disrupt their lifestyles.

There are 20 farm/ranch operations in the study area with BLM grazing permits. These are predominately family operations with a long history in the area. Many of these ranches have grazing leases on state lands that are intermingled with private and public land. Changes currently affecting these ranches include increasing recreation in the area and implementation of standards and guidelines by BLM.

4.0 Environmental Consequences

This chapter is the scientific and analytic basis for the comparison of the alternatives outlined in Chapter 2. The potential environmental impacts of each alternative in relation to the issues and concerns identified in Chapter 1 are described.

The information in this chapter is organized into the following headings:

4.1 Alternative 1, Continuation of Current Management
4.2 Alternative 2, Proposed Action
4.3 Alternative 3, No Livestock Grazing

The following critical elements of the human environment were considered. However, none of these elements would be affected by the proposed action or any of the alternatives and will not be discussed further.

- Areas of Critical Environmental Concern
- Environmental Justice
- Farmlands (Prime or Unique)
- Native American Religious Concerns
- Wastes (Hazardous/Solid)
- National Energy Policy (Executive Order 13212)
- Wilderness (none present in the planning area)
- Wild & Scenic Rivers (none present in the planning area)

4.1 Impacts Under Alternative 1, <u>Continuation of Current Management:</u>

This section discusses the impacts of renewing grazing permits with current terms and conditions to environmental elements in the planning area.

4.1.1 Rangelands

If current grazing management continues, rangelands within the watershed would be affected in accordance with the current upland and riparian condition and trend discussed in sections 4.1.2 and 4.1.3 below.

4.1.2 Upland Range Health

Under current grazing management, upland sites that are meeting standards would slowly improve or remain stable. All available information indicates a static or slight upward trend on upland sites meeting standards.

Upland sites not meeting standards as a result of livestock grazing would continue to decline in productivity and upland range health (Appendices D, M). Without periodic rest from grazing during the growing season, perennial grasses in these degraded areas would continue to have low vigor and low density with limited reproduction of desirable grasses occurring. Annual grasses, shallow rooted perennial grasses, forbs, cactus and fringed sagewort would continue to be abundant.

Under current management, some allotments are not meeting the upland standard due to:

- Poor livestock distribution
- Unfenced farmland
- Lack of grazing rotation schedule
- Continual season long grazing
- Large acreages of nonnative species, including crested wheatgrass

Plants on these allotments are not vigorous and lack sufficient root reserves and root mass to adequately cope with drought. These allotments are at high risk of continued deterioration and may eventually drop into an early seral category, with lower plant diversity, severe loss of topsoil and productivity.

4.1.3 Riparian Health

Livestock grazing is a major factor in six allotments (Blood Creek/Marty, Hailey Coulee, Idhe Ranch, Lower Blood Creek, River Pasture, and Brush Creek/Gavel) which are not meeting the riparian standard (less than PFC) as determined by BLM inventories (Appendix E). These areas would remain static or continue in a downward trend since no changes in livestock grazing would occur.

4.1.4 Noxious Weeds

Under current management, noxious weed control within the planning area is somewhat inconsistent. Some permittees have signed cooperative weed control agreements and are actively involved in weed control on their allotments; others have no agreements and are not involved in weed control. The present level of weed control could lead to an increase in noxious weeds in the planning area, especially on grazing allotments lacking cooperative weed control agreements.

4.1.5 Coniferous Forest

Maintaining current management of livestock grazing would not impact coniferous forests. This alternative would not initiate prescribed fire or mechanical treatments. Forest densities would increase in some portions of the Tin Can Hill, Hailey Coulee, Raundal Coulee and Dunn Ridge causing competition among conifers and mortality from drought and insects. A dense forest understory would increase the risk of high severity wildland fires, therefore decreasing livestock and wildlife habitat.

Pine encroachment into rangeland areas would continue to expand in the areas mentioned above. In densely forested areas, productivity of understory species such as shrubs, forbs and grasses may decline causing reduced forage for wildlife and livestock and changes in the water cycle. Wildland fire in dense forests could be severe, but may not expand to large size due to the broken topography and the patchy nature of the coniferous forests.

4.1.6 Livestock Grazing

Implementation of Alternative 1 would not impact livestock grazing because no changes to current operations would be proposed.

4.1.7 Recreation

There would be no other impacts to recreation under this alternative.

4.1.8 VRM

There would be no impacts (direct or cumulative) to the visual resource under this alternative.

4.1.9 OHV

Under Alternative 1, a travel plan would not be developed and the BLM OHV guidelines would not be implemented. There would be no direct or cumulative impacts to Off-Highway Vehicle use from this alternative.

4.1.10 Wildlife Resources

Under current management, the riparian health, upland health and noxious weed infestation issues that have been identified would not improve. Upland sites not meeting standards as a result of livestock grazing would continue to decline in productivity and upland range health. Browse availability for mule deer would continue to decline. Forage and cover for birds and other small mammals would also deteriorate. Over time, the reduction in wildlife forage and increased levels of noxious weeds would cause a cumulative loss in the value of these isolated unhealthy areas as wildlife habitat. No improvement of upland range condition would occur on the Brush Creek/Gavel and Windmill West allotments. Sage grouse nesting opportunity would remain poor and grouse numbers in the area would likely continue to decline. Important elk winter foraging areas in Swanson Coulee, Hailey Coulee, Cottonwood Creek and on the benches along Blood Creek would remain static or possibly even degrade to the point that adequate winter forage was not available.

Improvement of non-functioning riparian areas would not occur and the trends would remain static or continue to degrade. Unhealthy riparian areas would create a negative impact to most wildlife species. Vegetative diversity and structure that are associated with healthy riparian areas would not be available for cover, foraging and nesting areas for many species. Proper functioning riparian systems along Blood Creek, Cottonwood Creek and Cat Creek should continue to regenerate cottonwood, green ash and box elder stands and provide quality habitat for a wide variety of wildlife species.

Healthy cottonwood stands with diverse herbaceous understory would continue to be a benefit to the neotropical birds. Noxious weeds would continue to spread because the present weed control program has not kept pace with infestation growth. The diversity of native plant species, particularly along the smaller riparian systems, would eventually decline to the point that the habitat would be of minimal value for cover and forage to wildlife.

4.1.11 Wildland and Prescribed Fire Management

Regardless of the alternative chosen, wildland fire suppression would be in accordance with the Fire/Fuels Management Plan Environmental Assessment/Plan Amendment For Montana and the Dakotas (September 2003), and the Central Montana Fire Zone Fire Management Plan for the LFO (draft July 2004).

This planning area is in the "Breaks" Fire Management Unit (FMU). This designation identifies areas where fire is a desired ecosystem management tool. Fire could be a positive influence in much of this area and restoration of natural fire regimes would be encouraged where practical. However, each fire occurrence would have special consideration. Concerns would focus around structural developments, croplands, livestock and livestock forage needs. Social and political considerations would dictate how each wildland fire would be managed. Appropriate fire suppression would be based on current fire danger, resource availability and predicted weather. These would also be used to ensure safety of fire suppression personnel, reduce cost of fire suppression and provide an opportunity to return fire to its natural place in the ecology of the area.

No prescribed fire would be proposed under Alternative 1.

4.1.12 Cultural Resources

Under current management, cultural sites would remain static to slightly deteriorating. Direct impacts to specific sites from BLM approved actions would be reduced or eliminated where possible. Visual impacts from BLM actions would be mitigated or eliminated where setting contributes to significance. Less specific impacts such as the gradual loss or deterioration through erosion or weathering would continue. Loss and damage would also continue to occur as a result of unauthorized and unlawful collection and/or vandalism.

Significant cultural sites would be identified for stabilization or mitigation of deterioration as time and funding allow.

4.1.13 Surface Water

This alternative would not address the current surface water impairment or comply with the total maximum daily load (TMDL) process since no improvements would be made to upland or riparian vegetation. Those public lands in the planning area that are in less than proper functioning condition (both uplands and riparian areas) would continue to contribute sediment and nutrients to the water quality impaired streams.

4.1.14 Ground Water

This alternative would cause no direct or cumulative impacts to ground water quality or quantity.

4.1.15 Soils

This alternative would generate the highest level of soil loss from wind and water erosion. In some cases accelerated erosion is occurring on allotments not meeting the upland standard. If no management changes are made, soils in these allotments would continue to lack sufficient ground cover and root density to resist erosion and would continue to erode at levels higher than expected for the site. Infiltration of precipitation into soils of these sites would be reduced by soil compaction, lack of plant and ground cover to intercept overland flow and lack of organic matter near the soil

surface. Accelerated erosion would not occur on allotments that are meeting the upland standard as plant cover and type on these allotments would remain adequate to resist erosion.

4.1.16 Air Quality

Continuation of current management would not impact air quality.

4.1.17 Economics

Continuation of current management could create negative economic impacts to permittees with allotments not meeting health standards and in a downward trend. Continued degradation of public rangelands could eventually lead to lower carrying capacities and reduced livestock numbers. Allotments meeting health standards would not be impacted by this alternative.

4.1.18 Sociology

Under current management there would be no effects to permittees or the local community in the planning area.

4.2 Impacts Under Alternative 2, <u>Proposed Action:</u>

4.2.1 Rangelands

The proposed action would improve conditions on allotments not meeting standards through various types of rotational grazing systems or limited season of use. Water developments, salting, mineral placement and changes in season of use would better distribute livestock and improve overall rangeland conditions. If monitoring indicates significant progress toward meeting standards is not occurring, management adjustments/corrective actions would be initiated as described in the adaptive management section (section 2.4.1 & Appendix G). Rangeland Health ratings are listed by allotment in Appendix D.

4.2.2 Upland Range Health

Rangeland conditions on the allotments listed in Table 4.1 would continue to meet standards for upland rangeland health. Trends on these allotments are static or improving; no major management changes would be required and no range improvements would be proposed. Implementation of Alternative 2 would not impact these allotments.

Allotment Name	Allotment No.
Bohn Exc. Pasture	04866
Deep Coulee	02540
Dry Blood	05057
Gardner Ind. CFHI	05113
Gardner-Solf Area	04860
North Forty	15135
Gillett Ind. F Cust.	15015
River Pasture	04882
Ind. B	02560
West Blood Creek	04963
Vontver-Dobson	04838
Anderson Ind.	04861
Windmill East	15011
Shaw Place	04851
Idhe B	15110
Fail Place	04846
Winter Pasture	01518
Upper Cat Creek	15019

Table 4.1

Rangeland conditions on the allotments listed below would continue to meet standards for rangeland health. Trends on these allotments are static or improving. The following management changes and/or

range improvements have been proposed by the BLM and the permittees to improve grazing operation productivity. Impacts to rangelands are discussed for each allotment.

4.2.2.1 Cat Creek, Allotment No. 04844

This allotment is meeting upland health standards. A five pasture deferred-rotation grazing system is working well. The permittee has proposed constructing a pipeline extension and placing two stockwater tanks within the allotment. The pipeline would cross BLM; the stocktanks would be placed on private and state land. This project would aid in distribution of the current permitted livestock numbers, thereby improving upland range health and benefiting soils.

The BLM and permittee also propose renovating approximately 160 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This project would improve upland range health by creating more available forage within the allotment without increasing permitted AUMs.

4.2.2.2 Twin Buttes, Allotment No. 15063

This allotment utilizes a five pasture rest rotation grazing system which works well. Approximately 240 aces of crested wheatgrass are included in one of the pastures. Depending upon the rotation schedule, the crested is generally not utilized by cattle. The permittee proposes fencing the crested into a separate pasture which could be utilized for early spring grazing (or fall grazing if timely rains allow fall green-up). A reservoir within the new crested wheatgrass pasture would be fenced to facilitate livestock use from both the crested pasture and the adjacent pasture to the east. This project would improve upland range health by creating additional forage for the current permitted AUMs, thereby reducing grazing pressure on native rangeland.

The permittee also proposes drilling a well on private land and extending a pipeline north approximately 1½ miles into BLM land. A total of six stockwater tanks in five different pastures would be proposed on private, state and BLM land. This project would aid in distribution of the current permitted livestock numbers, thereby improving upland range health.

4.2.2.3 Tin Can, Allotment No. 15082

Prescribed fire would be proposed to improve forest and rangeland health and to protect the intermix community from wildland fire. Mechanical treatment would also be proposed using chainsaws and/or low impact mechanical methods of removal such as a rubber tire/tracked feller-buncher (tree harvester). This proposed treatment would decrease the risk of fire reaching the forest canopy and change the fuel arrangement to increase safety to fire personnel during prescribed burning. The effects of fire on vegetation and wildlife are discussed in section 4.2.11 below.

4.2.2.4 River Ranch, Allotment No. 15115

A short extension of an existing water pipeline would be proposed. The pipeline and one stockwater tank would be located on BLM land. This stockwater would better distribute cattle in one of the pastures in this rest rotation grazing system. Upland range health would benefit from the more evenly dispersed livestock grazing.

Prescribed fire would be proposed to improve forest and rangeland health and to protect the intermix community from wildland fire. Mechanical treatment would also be proposed using chainsaws and/or low impact mechanical methods of removal such as a rubber tire/tracked feller-buncher (tree harvester). This proposed treatment would decrease the risk of fire reaching the forest canopy and change the fuel arrangement to increase safety to fire personnel during prescribed burning. The effects of fire on vegetation and wildlife are discussed in section 4.2.11 below.

4.2.2.5 Long Coulee, Allotment No. 04839

The BLM and permittee have proposed installing a water pipeline and stock tank to better distribute cattle in this allotment. The pipeline would originate at an existing stocktank on private land within the allotment located in T. 15 N., R. 29 E., sec. 1, SW¼NW¼. The line would extend south and then easterly approximately 2 miles to a point in T. 15 N., R. 29 E., sec. 7, NW¼NW¼, which splits pastures A and C. A 1,000 gallon fiberglass stocktank with float and shut-off valve would be installed at this BLM location along the fenceline allowing livestock use from either pasture. The additional water source would improve livestock distribution. A benefit to upland vegetation, soils, and wildlife habitat would result due to more uniform rangeland utilization.

An alternative to the above proposal could include a pipeline into the allotment from an existing water well in the Cat Creek townsite. The pipeline would extend easterly approximately 1¼ miles to section 13, NE¼NE¼. A stocktank would be installed at this BLM location in Pasture A. The benefits of this proposal would be the same as the livestock water project discussed above.

4.2.2.6 Gardner Ind. E, Allotment No. 15058

This allotment is currently meeting upland health standards. The permittee proposes a short extension from an existing private water pipeline into BLM. Approximately ¼ mile of pipeline and one stockwater tank would be located on BLM. This stockwater would help distribute livestock throughout the allotment, benefiting upland vegetation, soils and wildlife habitat.

The BLM and permittee also propose renovating approximately 80 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This project would improve upland range health by creating more available forage within the allotment without increasing permitted AUMs.

4.2.2.7 Chimney Rock AMP, Allotment No. 05017

The permittee proposes extending a water pipeline from a private well into this allotment. The pipeline and stocktanks would provide water to four pastures in the current five pasture rest rotation grazing system. The additional water would improve livestock distribution - a benefit to upland vegetation, soils and wildlife habitat.

The BLM and permittee also propose renovating 160 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This

project would improve upland range health by creating more available forage within the allotment without increasing permitted AUMs.

The BLM and permittee propose rehabilitating an existing stockwater reservoir. The additional capacity would improve livestock distribution - a benefit to upland vegetation, soils and wildlife.

4.2.2.8 Upper Cat Creek 2, Allotment No. 02537

This allotment is currently meeting upland health standards, but contains approximately 280 acres of crested wheatgrass which is underutilized due to the July 1 turnout date. The permittees and the BLM propose changes which would more efficiently utilize the crested wheatgrass. If a permanent water source could be developed, the crested would be permanently fenced into a separate pasture and used for early spring and fall grazing. If the water source cannot be developed, the permittees propose renovation of the crested wheatgrass with a farming/re-seeding operation. Prescribed burning could be utilized to remove decadent vegetation prior to farming. The separate pasture option would benefit upland vegetation by distributing some of the current grazing pressure onto unutilized forage within the allotment. The renovation option would benefit both upland vegetation and wildlife habitat by increasing available livestock forage and eliminating the crested wheatgrass monoculture which is devoid of wildlife value.

This allotment contains the Solar well which the BLM proposes developing into a community livestock water project. The Solar well project would have a positive impact on this and other affected allotments due to improved livestock distribution and resultant improved upland forage utilization.

4.2.2.9 CK Cattle, Allotment No. 15081

A proposed boundary fence between this allotment and Lower Blood Creek, Allotment No. 04870 would benefit upland vegetation by eliminating livestock drift from the Lower Blood Creek allotment. The fence would effectively reduce the number of cattle grazing in the CK Cattle allotment and reflect the accurate number of AUMs.

4.2.2.10 Blood Creek, Allotment No. 04896

The permittee proposes extending an existing water pipeline into BLM with the addition of two stockwater tanks. The new stocktank locations would be chosen to draw livestock into underutilized upland areas and away from the Blood Creek riparian zone. Upland vegetation would minimally benefit from this project through improved livestock distribution. The primary benefit would be to riparian vegetation and soils, discussed in section 4.2.3 below.

4.2.2.11 Sage Creek, Allotment No. 04856

This allotment currently utilizes a three pasture deferred rotation grazing system which works well. The permittee proposes conversion of 280 acres of private cropland fenced within the allotment to a perennial grass pasture. The pasture would be incorporated into the current grazing system, BLM AUMs would remain the same. To facilitate this proposal, the permittee also proposes extending a water pipeline from an existing private well into the new pasture and installing one stocktank. The pipeline would cross BLM; the stocktank would be placed on private. These proposals would greatly benefit upland vegetation by providing abundant new forage within the allotment, thereby reducing grazing pressure on the native uplands.

4.2.2.12 Cottonwood Creek, Allotment No. 04840

This allotment is currently meeting upland health standards utilizing a six pasture rest rotation grazing system. The Cottonwood Creek AMP written in 1992 proposed a shallow well and pipeline for this allotment, providing additional stockwater for improved livestock distribution. The proposed well has not been drilled. The proposed Solar well project would benefit this allotment by extending a pipeline and stocktanks into the south end of the allotment, providing reliable livestock water to three pastures. In addition, the permittees propose extending a pipeline from an existing private well into the west side of the allotment. These proposals would benefit upland vegetation through improved livestock distribution.

The permittees propose construction of a new cross fence to more equitably utilize available livestock forage within the allotment. The cross fence would split one of the current pastures, creating a seven pasture rest rotation grazing system. The fence would benefit upland vegetation by providing increased distribution of livestock use.

The permittees also propose renovating approximately 80 acres of dense clubmoss dominated public rangeland with a one-pass twisted shank chisel plow treatment. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This project would improve upland range health by creating more available forage within the allotment without increasing permitted AUMs.

4.2.2.13 Manuel Place, Allotment No. 04842

One pasture in this allotment contains both crested wheatgrass and native uplands. The crested wheatgrass is BLM and the native is private. The pasture is fenced; it is used for early spring and late fall grazing. Livestock water in this pasture is provided by a pipeline and stocktank on the crested wheatgrass. Due to the topography and distance from water, the private native rangeland receives very little use. The permittee proposes extending a pipeline from the Solar well project into the private native uplands with the installation of one stocktank. The upland vegetation is private, therefore this proposal would not impact BLM uplands.

4.2.2.14 Breaks, Allotment No. 15016

This allotment utilizes a three pasture deferred rotation grazing system and is meeting the upland health standard. The permittee proposes three livestock water improvements within the allotment; one improvement would be a reservoir spillway rehabilitation and the second would be construction of a new reservoir. Both of these proposals would benefit upland vegetation by providing improved livestock distribution throughout the allotment. If the Solar well project is developed and extended into the adjacent Blood Creek-Marty allotment, the permittee proposes installation of a pipeline and stocktanks in the Breaks allotment. Implementation of the Solar well project in this allotment would preclude construction of the new reservoir. The new livestock water would aid in cattle distribution and a more equitable use of the available upland forage.

4.2.2.15 Blood Creek – Marty, Allotment No. 04849

This allotment is currently utilized as one large pasture; it is meeting the upland health standard. Several range

improvements are proposed in this allotment, primarily aimed at improving riparian health. Development of cross fences and livestock water throughout the uplands would increase livestock use of the uplands through distribution. This increased use would not be a detriment to the uplands; allocated AUMs would be more equitably utilized.

Prescribed fire would be proposed to improve forest and rangeland health, reduce conifer encroachment into the rangelands and to reduce the created logging slash on private land.

The effects of fire on vegetation and wildlife are discussed in section 4.2.11.

4.2.2.16 Lower Blood Creek, Allotment No. 04870

This allotment is currently utilized as one large pasture; it is meeting the upland health standard. Several range improvements would be proposed in this allotment, primarily aimed at improving riparian health. Development of cross fences and livestock water throughout the uplands would increase livestock use of the uplands through distribution. This increased use would not be a detriment to the uplands; allocated AUMs would be more equitably utilized.

4.2.2.17 Dunn Ridge, Allotment No. 15089

This allotment is currently used as one large pasture; it is meeting the upland health standard. Four livestock water sources are available within the allotment. A proposed cross fence would split the allotment, providing two adequate water sources in each pasture. The watersaver in section 1 would be repaired. Upland vegetation would benefit through improved livestock distribution and a more equitable use of the available forage.

4.2.2.18 West Cat Creek, Allotment No. 15054

This allotment is meeting the upland health standard. BLM proposes extension of a pipeline and stocktank from the Solar well to sec. 21, NW¼NW¼ (Map M2). The new livestock water would benefit upland vegetation by improving livestock distribution throughout the allotment.

4.2.2.19 Hailey Coulee, Allotment No. 04841

Hailey Coulee operates under an existing AMP which has not been fully implemented. The uplands are currently meeting the health standard. The majority of this large allotment is watered by reservoirs which are nearing the end of their useful lives. The permittee proposes cleaning the sediment out of several reservoirs. If the proposed Solar well is developed, a pipeline and stocktanks would be extended into this allotment augmenting the existing livestock water sources. An additional cross fence is also proposed; the cross fence would create four pastures which would be incorporated into a four pasture rest rotation grazing system. The BLM and permittee propose constructing a watersaver in section 12. The proposed projects would provide a benefit to the upland vegetation by spreading the allocated grazing use throughout the allotment.

Prescribed fire would be proposed to improve forest and rangeland health and to reduce conifer encroachment onto the rangelands.

The effects of fire on vegetation and wildlife are discussed in section 4.2.11.

Rangeland conditions on the allotments listed below are not meeting the upland standards for rangeland health. Trends on these allotments are down. The following management changes and/or range improvements have been proposed by the BLM and the permittees to improve grazing operation productivity. The proposed changes would lead to significant progress toward meeting the upland standards for rangeland health. Impacts to rangelands are discussed for each allotment.

4.2.2.20 Brush Creek/Gavel, Allotment No. 15022

Uplands in this allotment are currently not meeting the health standard. Current range condition is primarily attributed to recent heavy livestock utilization by the previous permittee. This allotment changed ownership three years ago; the current permittee utilizes the allotment as a calving pasture; primary use occurs Feb. 1 – April 30. All livestock grazing would occur during the dormant or very early spring growing segments of the vegetative lifecycle. Desirable upland species would not be disturbed during the critical periods of active vegetative growth and root reserve storage. This grazing schedule should allow the upland vegetation to positively respond and gradually shift toward an upward trend.

4.2.2.21 Windmill West, Allotment No. 25006

This allotment is currently utilized for spring and fall/winter grazing; it is not meeting the upland health standard. The allotment contains a large amount of crested wheatgrass or crested wheatgrass dominated vegetative stands; the crested wheatgrass is not fenced separately from the native rangeland.

The proposed 1,160 acre separately fenced crested wheatgrass pasture with a winterized stocktank would benefit upland vegetation by allowing the permittee to confine cattle to the crested wheatgrass during the most beneficial grazing periods. This would relieve pressure from the native uplands, allowing them to enter into an upward trend toward meeting the health standard.

4.2.2.22 Idhe Ranch, Allotment No. 04852

This allotment is currently not meeting the upland health standard. The allotment has an AMP which has not been fully implemented. The BLM and permittees propose two cross fences and development of reliable livestock water allowing this allotment to begin an upward trend toward meeting the upland health standard. The cross fences would initiate a three pasture deferred/rest rotation grazing system which would equitably distribute livestock use throughout the allotment. In addition, if the proposed Solar well is developed, a pipeline and stocktanks would be extended into the west and south pastures and an existing reservoir would be repaired to augment livestock distribution within the pastures

4.2.3 Riparian Health

Rangeland conditions on the allotments listed in Table 4.2:

- meet standards for riparian health
- do not meet riparian health standards but livestock grazing is not a significant factor
- do not contain riparian areas

Trends on these allotments are static or improving and no major management changes would be required. Implementation of Alternative 2 would not impact these allotments.

Allotment Name	Allotment No.
Cat Creek	04844
Bohn Exc. Pasture	04866
Twin Buttes	15063
Tin Can	15082
River Ranch	15115
Long Coulee	04839
Deep Coulee	02540
Dry Blood	05057
Gardner Ind. CFHI	05113
Gardner Ind. E	15058
Gardner-Solf Area	04860
North Forty	15135
Chimney Rock AMP	05017
Gillett Ind. F Cust.	15015
Upper Cat Creek 2	02537
CK Cattle	15081
Ind. B	02560
Blood Creek	04896
West Blood Creek	04963
Sage Creek	04856
Cottonwood Creek	04840
Manuel Place	04842
Vontver-Dobson	04838
Breaks	15016
Anderson Ind.	04861
Windmill East	15011
Windmill West	25006
Shaw Place	04851
Dunn Ridge	15089
Idhe B	15110
West Cat Creek	15054
Winter Pasture	01518
Upper Cat Creek	15019

Table 4.2

Rangeland conditions on the allotments listed below currently are not meeting standards for riparian health. Trends on these allotments are static or degrading. The following management changes and/or range improvements have been proposed by the BLM and the permittees to improve grazing operation productivity. Riparian areas would benefit from the proposed changes by significantly progressing toward PFC.

4.2.3.1 Hailey Coulee, Allotment No. 04841

A four pasture rest rotation grazing system would be implemented on this allotment. At least one stockwater tank supplied by a well would be added to each pasture. A new watersaver would be constructed.

4.2.3.2 Blood Creek/Marty, Allotment No. 04849

A four or five pasture deferred/rest-rotation grazing system would be implemented for this allotment. Stockwater tanks supplied by a well would be placed in each pasture to attract livestock away from the riparian areas. If the deferred/rest-rotation grazing system is not implemented, the riparian areas on public land along Blood Creek (1.3 miles) would be fenced to exclude livestock grazing. If the riparian areas recover sufficiently to allow resumption of grazing, no hot season use would be allowed.

4.2.3.3 Idhe Ranch, Allotment No. 04852

The allotment would be fenced to implement a three pasture deferred/rest-rotation grazing system. Water tanks supplied by a well would be added to each pasture to attract livestock away from the riparian areas.

4.2.3.4 Lower Blood Creek, Allotment No. 04870

The 3.5 miles of public land riparian habitat on Blood Creek would be fenced to exclude livestock grazing.

4.2.3.5 River Pasture, Allotment No. 04882

The season of use would be changed to exclude hot season grazing. The pasture would be grazed by the permitted numbers of livestock not to exceed the allotted AUMs.

4.2.3.6 Brush Creek/Gavel, Allotment No. 15022

The allotment would be grazed as a separate pasture not to exceed permitted numbers of livestock and AUMs.

4.2.4 Noxious Weeds

Implementation of Alternative 2 would initiate a comprehensive, cooperative weed control effort to systematically treat noxious weeds in the planning area. Priorities would be established utilizing the weed categories outlined in Chapter 2, and the site-specific weed control prescriptions. Infested acres of noxious weeds would decrease through an aggressive, concentrated effort involving all facets of an integrated weed management program.

Prescribed fire treatments could lead to a temporary increase in post-burn noxious weed infestations. Canada thistle and houndstongue are particularly problematic noxious weeds following a fire event.

Variable conditions influencing noxious weeds include:

- burn severity
- survival of desired plants
- pre-burn noxious weed cover
- survival of weeds
- reproductive capability of noxious weed species
- pre-burn and post-burn soil moisture
- revegetation

BLM would complete pre-burn noxious weed inventories; identified infestations would be treated with herbicides prior to initiation of burn activities. During the grazing rest period, BLM would continue an integrated weed management program as necessary. After the livestock grazing rest period, BLM would work with permitees in accordance with the cooperative weed control agreements.

Existing infestations of Category 1 noxious weeds would be contained and suppressed utilizing herbicides and biological control. Biological control of leafy spurge has produced very favorable results within the watershed; continual monitoring, dissemination, and new releases of biocontrol agents in addition to continued herbicide control would perpetuate a steady downward trend in leafy spurge acreage. Russian knapweed would be controlled solely with herbicides until an effective bioagent is approved and released. Assertive monitoring would assist in the prevention of new infestations of Category 1 weeds through early detection and control.

Existing infestations of Category 2 noxious weeds would be contained and suppressed or eradicated utilizing herbicides and biological control. Small, relatively new infestations would be eradicated with herbicides. Established, larger infestations of Category 2 weeds would be contained and suppressed with herbicides and applicable biocontrol agents. Assertive monitoring and public awareness/outreach would assist in the prevention of new infestations of Category 2 weeds through early detection and eradication.

Category 3 noxious weeds have not been detected in the watershed area or may be found only in small, scattered, localized infestations. Assertive monitoring and public awareness/outreach would assist in the prevention of new infestations of

Category 3 weeds through early detection and eradication.

4.2.5 Coniferous Forest

This alternative would not cause any negative impacts (direct or cumulative) to coniferous forests.

Mechanical thinning in the forested areas would be proposed in the Tin Can and River Ranch allotments using chainsaws and/or low impact mechanized equipment. The purpose of this treatment would be to reduce forest encroachment onto range lands, reduce competition between conifer trees, maintain larger trees for wildlife, and increase overall forest health and vigor.

Prescribed burning in and adjacent to the forested areas in Tin Can, River Ranch, Hailey Coulee and Blood Creek-Marty would be proposed. Broadcast burning would affect the forested areas by moving the conifer, grass and shrub communities towards its reference condition.

4.2.6 Livestock Grazing

Alternative 2 could minimally impact livestock grazing in the watershed area. Allotments that are currently meeting upland and riparian health standards and have no grazing management changes proposed would not be impacted. Allotments not meeting health standards could be impacted to varying degrees by proposed grazing management changes discussed in 4.2.2 and 4.2.3 above. If proposed changes result in allotments making significant progress toward meeting rangeland health standards, impacts would positively benefit the permittees, the rangeland and all associated resources.

4.2.7 Recreation

Public camping would continue along travel routes under the current BLM policy of 14 day length of stay, and 100 yards off the road or trail. The dispersed campsites presently located along inventoried travel routes have been found to be in good condition, but monitoring them would ensure that impacts from soil compaction, vegetation damage, and trash accumulation does not occur.

BLM could implement restrictions on the number and acreage size of the camps, as well as number of vehicles and/or horse trailers to prevent resource impacts. BLM would close campsites if soil and vegetation resources are damaged or destroyed. This would be applicable to both private and commercial hunting groups.

4.2.8 VRM

Impacts to the visual resource under this alternative would include livestock developments such as wells, reservoirs, water savers, stock tanks and fences. Haphazard placement of signs and boundary markers along travel routes could impact the visual resource as well. The LFO Sign Plan directs proper location and installation of all approved signs.

Livestock developments would be located away from hilltops and ridges, and preferably where vegetation could screen the structures. Stock tanks located in highly visible areas would be painted using approved BLM earth tone colors.

4.2.9 OHVs

Implementation of Alternative 2 would identify authorized use of roads and trails within the planning area in accordance with the MT/Dakotas TriState OHV EIS. Impacts would include seasonal restrictions (hunting

season) on some roads and trails.

Game retrieval would be allowed from 10:00 a.m. to 2:00 p.m. on all public roads and trails in the planning area except roads closed year round due to resource concerns (identified on map M 4). Tread Lightly brochures, signing, and monitoring during the fall hunting season would be necessary to maintain seasonal road closures and game retrieval guidelines.

4.2.10 Wildlife Resources

Under the proposed action all livestock permittees would be required to meet standards for rangeland health. Several different approaches to meeting standards have been described in this alternative, each designed to address the issues identified in the allotment while accommodating the needs of the individual ranching operation.

Grazing management proposals would include one or more of the following:

- BLM development of new upland water sources
- BLM and permittees collaborating on new grazing systems to provide for the needs of vegetation, wildlife and the individual ranching operation
- new fence construction
- reseeding degraded rangeland with desirable native vegetation
- prescribed burning for improved upland/forest health and reduction of encroaching conifers.

Each of these methods would have a positive effect on wildlife in the planning area. Project implementation would be designed specifically to minimize impacts to the various species of birds, mammals, fish, amphibians and reptiles known to inhabit the planning area. Special emphasis would be placed on avoiding identified crucial winter habitats and parturition areas.

The proposed action would not negatively affect any Threatened and Endangered (T&E) species or their associated habitat. Impacts to sage grouse would be minimal in all allotments except Brush Creek/Gavel and Windmill West. The proposals to revegetate degraded habitat, establish sagebrush in crested wheatgrass stands and control livestock numbers and grazing longevity on these allotments would benefit sage grouse and provide some nesting habitat. Black tailed prairie dogs are present in four small towns in the planning area but opportunities to improve their habitat are limited. Current policy that allows for expansion of the prairie dog towns onto public land would be continued. The prairie dog towns would provide mountain plover habitat. The chance of dog town expansion in the planning area would be minimal (Map M5).

The clubmoss treatments could be temporarily disruptive to mountain plovers. Each treatment would have a ground nesting bird inventory. If nests were found, the treatment would be buffered or delayed until the young have fledged.

The proposed action includes a plan to develop additional livestock water in several allotments within the watershed. The proposed livestock waters are designed to relieve some livestock grazing pressure on riparian areas and distribute livestock use to some of the lightly grazed uplands. New water would be proposed for a number of trough locations through a series of pipelines from a centrally located deep artesian well. This water would be more dependable than seasonal runoff in Blood and Cottonwood Creeks and present stock ponds. Five allotments proposed to benefit from new livestock water are:

- Cottonwood Creek
- Blood Creek-Marty

- Lower Blood Creek
- Idhe Ranch
- Hailey Coulee

These allotments include some of the most significant elk habitat in the planning area. In order to continue providing adequate upland elk forage in these allotments, rest rotation grazing management would be incorporated into these five allotments. At least one pasture in each of these allotments would be rested every year. Periodic rest would increase the health of the upland vegetation and provide ungrazed herbaceous vegetation for elk winter forage. New pasture fences would be necessary to accommodate the proposed rest rotation grazing; the fences would be in place before the new upland waters are supplied to livestock.

This planning document implements an adaptive management approach to insure goals and objectives outlined in section 1.4 are achieved. If certain actions outlined in the proposed action do not move resource conditions towards these goals and objectives, changes would be made to correct the course of action. Adaptive management changes would be implemented under the review of a biologist and an interdisciplinary team. Before changes are implemented, a review of potential impacts to other resources would be conducted. Management adjustments that could adversely affect T&E species would not be implemented. Adaptive management actions that allow for adjustments such as shortening the length of the grazing period, fencing, water developments, exclosures, and alternating the rotation patterns would not negatively affect wildlife (direct or cumulatively) because they would be selected with the needs and requirements of wildlife in mind.

No major changes are proposed on the allotments listed in Table 4.3; there would be no impacts to wildlife (direct or cumulative) on these allotments:

Allotment Name	Allotment No.
Bohn Exc. Pasture	04866
Deep Coulee	02540
Dry Blood	05057
Gardner Ind. CFHI	05113
Gardner-Solf Area	04860
North Forty	15135
River Pasture	04882
Ind. B	02560
West Blood Creek	04963
Vontver-Dobson	04838
Anderson Ind.	04861
Windmill East	15011
Shaw Place	04851
Idhe B	15110
Fail Place	04846
Winter Pasture	01518
Upper Cat Creek	15019

Table 4.3

Implementation of Alternative 2 would create impacts to wildlife resources associated with the following grazing allotments:

4.2.10.1 Cat Creek, Allotment No. 04844

The proposals in this allotment to supply additional livestock water to private and state land and to chisel plow clubmoss would benefit wildlife by better distributing livestock within this system. The existing three pasture rest rotation grazing system is already meeting upland standards. These additional range improvements would further improve the range health and supply more residual forage for big game and cover for ground nesting birds. Nest inventories or off season treatment would minimize impacts of chisel plowing to ground nesting birds.

4.2.10.2 Twin Buttes, Allotment No. 15063

The proposal to separately fence and graze crested wheatgrass more intensively would benefit health of the native vegetation and provide more elk forage on the native and crested wheatgrass pastures. The proposal to supply additional livestock water through a pipeline and series of stockwater tanks would encourage a more complete use of the vegetation. This proposal would be detrimental to sage grouse nesting if the native pastures are used too heavily in a given year. This allotment is adjacent to a substantial area of sagebrush and sage grouse nesting habitat and one historic grouse lek of unknown status that was recently plowed up on private land. Sagebrush habitat and associated native understory would be monitored very closely in this allotment to ensure it is meeting the needs of nesting grouse following implementation of the proposed projects.

4.2.10.3 Tin Can, Allotment No. 15082

Prescribed fires proposed in this allotment would be beneficial to wildlife. Elk and turkey are the primary wildlife using this portion of the watershed; fire would rejuvenate forage conditions for both species.

4.2.10.4 River Ranch, Allotment No. 15115

Prescribed fire and one proposed additional livestock water development would improve upland vegetative health within this rest rotation grazing system. Elk and turkey would both benefit from the proposed action.

4.2.10.5 Long Coulee, Allotment No. 04839

Additional livestock water proposed for this allotment would improve livestock distribution and benefit upland range health. Wildlife habitat in this allotment is presently in good condition; the proposed action would cause no specific impacts to wildlife.

4.2.10.6 Gardner Ind. E, Allotment No. 15058

Additional livestock water and clubmoss chiseling in this allotment would benefit upland range health. The current pasture rotation provides valuable upland forage for winter elk use; the proposed action would enhance the winter habitat. Nest inventories or off season treatment would minimize impacts of chisel plowing to ground nesting birds. Removing clubmoss would improve the opportunity for sagebrush establishment and provide some potential sage grouse habitat. This allotment is on the fringe of existing grouse habitat.

4.2.10.7 Chimney Rock AMP, Allotment No. 05017

Livestock water developments and clubmoss treatment in this allotment would benefit wildlife habitat. The rest rotation grazing currently in place in this allotment provides some of the most dependable elk winter forage in the watershed. The proposed treatments would further enhance the benefits of the current grazing system. Removing clubmoss would improve the opportunity for sagebrush establishment and provide some potential sage grouse habitat in the area. There is current evidence of sage grouse winter use in the allotment and more sagebrush establishment would increase the opportunity for grouse winter use.

Ponderosa pine stands around the upper Dry Blood Creek basin would provide cover and roosting sites for Merriam's turkey proposed for introduction on the Gillett Ranch. Turkeys in upper Dry Blood Creek would likely unite with birds from the Tin Can Hill population and expand the current occupied area.

4.2.10.8 Gillett Ind. F, Cust. Allotment No. 15015

Ponderosa pine stands around the upper Dry Blood Creek basin would provide cover and roosting sites for Merriam's turkey proposed for introduction on the Gillett Ranch. Turkeys in upper Dry Blood Creek would likely unite with birds from the Tin Can Hill population and expand the current occupied area.

4.2.10.9 Upper Cat Creek 2, Allotment No. 02537

The proposal to graze crested wheatgrass separately from the native vegetation in the allotment would reduce utilization on the native vegetation and benefit wildlife habitat. Reseeding crested wheatgrass to native species would be more beneficial to wildlife than the grazing separately option. This allotment is on the edge of the sagebrush habitat in the watershed, therefore sagebrush would likely establish and provide additional sage grouse habitat.

4.2.10.10 CK Cattle, Allotment No. 15081

The proposed allotment boundary fence on the south side of this allotment would eliminate livestock use coming from the adjacent allotment and provide additional forage for elk in the Dunn Ridge area.

4.2.10.11 Blood Creek, Allotment No. 04896

The proposed pipeline extension and improved water distribution would improve wildlife habitat in the riparian area along Blood Creek. The existing rest rotation grazing system would continue to provide one ungrazed pasture of available elk winter forage.

4.2.10.12 Sage Creek, Allotment No. 04856

The proposal to add an additional pasture and water on private land to the grazing system would reduce grazing pressure on native rangeland. Elk currently inhabiting the area would benefit from this proposal, and turkeys from the Gillett reintroduction would likely use the ponderosa stands in this allotment.

4.2.10.13 Cottonwood Creek, Allotment No. 04840

Additional livestock water in the allotment would enhance the benefits of the current 9 pasture rest rotation system. Rest rotation is crucial to wildlife habitat within this allotment. Clubmoss chiseling would be beneficial due to the increase in available upland forage. Elk and mule deer would benefit from the increased vegetation. Ground nesting birds would not likely be a concern in this forested habitat.

4.2.10.14 Manuel Place, Allotment No. 04842

The proposal to extend a pipeline and provide additional livestock water to a private portion of this allotment would not impact BLM rangeland. The proposal would possibly decrease livestock use on public land and provide additional forage for elk and antelope.

4.2.10.15 Breaks, Allotment No. 15016

One additional livestock reservoir would not impact wildlife habitat in this allotment under the current deferred grazing system. If additional livestock waters are to be added at a later date, rest rotation grazing would be implemented before the water would be provided.

4.2.10.16 Blood Creek–Marty, Allotment No. 04849

The proposed action could have a very significant impact on wildlife habitat. Currently livestock water is poorly distributed over a large allotment; upland vegetation is very available for winter elk forage. The proposal to develop an artesian well and provide pipelines and stockwater tanks would drastically reduce the available forage for elk if rest rotation grazing is not implemented. Excluding livestock use on 1.3 miles of Blood Creek riparian habitat would benefit all wildlife in the area, particularly elk, mule deer and migratory birds. Ungrazed upland forage would be available on one fourth of the allotment each year. Elk would benefit accordingly if the proposed water development, new fences and four pasture rest rotation system are completed.

4.2.10.17 Lower Blood Creek, Allotment No. 04870

The proposed riparian pasture on Blood Creek would be beneficial to all wildlife in the area, particularly elk, mule deer and migratory birds. Currently there is abundant forage available on the uplands south of Blood Creek. The additional upland water developments proposed would reduce the forage availability proportional to the number of waters developed. The proposals to develop spring water and the artesian well would be detrimental to elk habitat if fences are not constructed and rest rotation grazing is not implemented.

4.2.10.18 Brush Creek Gavel, Allotment No. 15022

The proposals to reseed large areas of this allotment and limit grazing to a short time period would promote improved herbaceous cover for sage grouse nesting in the native range portion of the allotment. Planting bare root and containerized sagebrush stock into the crested wheatgrass stand would eventually provide sage grouse habitat in the previously farmed area. The native range would benefit from total livestock rest or other adaptive management measures if this proposal does not begin to provide sage grouse nesting habitat.

4.2.10.19 Windmill West, Allotment No. 25006

The proposal to fence and separately graze the large crested wheatgrass stand would benefit native vegetation. Minimizing livestock use on the native portion of the allotment would also improve the herbaceous understory for sage grouse nesting. Planting bare root and containerized sagebrush stock into the crested wheatgrass stands would eventually provide sage grouse habitat in the previously farmed areas. The native range in this allotment would benefit from total livestock rest or other adaptive management measures if this proposal does not begin to provide sage grouse nesting habitat.

4.2.10.20 Idhe Ranch, Allotment No. 04852

The three pasture rest rotation system proposed for this allotment would be beneficial to wildlife habitat. Primarily, riparian enhancement would provide cover

and forage for elk, mule deer, turkeys and migratory birds. The proposal to provide additional livestock water in this allotment would be detrimental if rest rotation grazing is not implemented.

4.2.10.21 Dunn Ridge, Allotment No. 15089

The proposed cross fence and subsequent deferred rotation system would improve wildlife habitat in the allotment. Swanson Coulee is particularly valuable for elk winter use and this deferment would further enhance the vegetation available for elk forage. Current distribution of livestock waters promotes abundant residual elk forage.

4.2.10.22 West Cat Creek, Allotment No. 15054

The pipeline and stocktank proposed for this allotment would better distribute livestock and benefit upland vegetation and wildlife habitat. At current use levels this allotment would provide abundant forage for elk, mule deer and antelope. Herbaceous cover for sage grouse nesting would also be sufficient, though sagebrush density in this area is very low.

4.2.10.23 Hailey Coulee, Allotment No. 04841

Repairing the existing water sources in this allotment would promote better livestock distribution and subsequently improve the vegetative health and benefit wildlife. Currently livestock water is poorly distributed over a large portion of the allotment; upland vegetation is very available for winter elk forage. The proposal to develop an artesian well and provide pipelines and stockwater tanks would drastically reduce the available forage for elk if rest rotation grazing is not implemented. Ungrazed upland forage would be available on one fourth of the allotment each year. Elk would benefit accordingly if the proposed water development, new fences and four pasture rest rotation system are completed.

4.2.11 Wildland and Prescribed Fire Management

Implementation of Alternative 2 would initiate a prescribed fire program of work that would include burning for increased wildlife forage, range improvement, forest health, and protection of the scattered intermix communities. Prescribed burning in the Blood Creek/Marty, Hailey Coulee, Tin Can and River Ranch allotments would reduce conifer densities in forested areas and pine encroachment into rangeland areas.

Prescribed burning would be implemented under specific conditions that create surface fires with occasional crown runs in the tree canopy. In some areas, the majority of understory vegetation would be burned, with partial removal of the tree canopy. In other areas, only understory vegetation would be burned with no removal of the tree canopy. Certain stands of large ponderosa pine would be maintained for turkey roost trees. In some places vegetation would remain unburned.

The initial disturbance caused by prescribed burning would be offset by the long-term benefits. Reductions in forest canopy densities would promote deciduous shrubs and herbaceous plants to resprout and increase in coverage. The diversity of forbs, shrubs, and grasses could also increase. Forest health would improve as competition among conifers is reduced. Fuel loadings would be reduced, with lower risk of high severity wildland fires. Although initial soil erosion rates may increase immediately after burning, herbaceous vegetative cover would increase within a few years and soil

erosion would be reduced below or to pre-burn levels. Rest from livestock grazing would enhance this recovery. Reduced forest canopy densities and increased herbaceous coverage may improve water infiltration into the soil. Associated riparian communities could benefit from the possible increase in shallow water tables.

Prescribed burning in crested wheatgrass dominated pastures could increase the success of converting the crested wheat pastures into native forage and browse.

Crested wheatgrass responds differently between a fall burn and spring burn. Burning the grass when it is dormant would allow the grass to recover rapidly the next growing season. Thus burning crested wheatgrass when it is actively growing would reduce the growth for 2 or more seasons after the prescribed burn (Zlatnik 1999). Therefore spring is the optimal time to burn these pastures to move the areas back to native forage and browse.

Potential prescribed fire treatment areas are identified on Map M6. The areas shown on the map represent general areas where treatments may be done; specific units would be identified within those areas.

4.2.12 Cultural Resources

The impacts from this alternative would be similar to Alternative 1, except some minor beneficial impacts could result from management actions that reduce erosion. Proposed surface disturbing activities could create negative impacts; a file search and/or Class III cultural resource inventory would be conducted prior to all surface disturbance actions proposed in this watershed plan. Possible benefits could include identification of additional resources during inventories.

4.2.13 Surface Water

Surface water would not be impacted by the implementation of Alternative 2.

4.2.14 Ground Water

A deep artesian well would be proposed under this alternative. If the well is successful, the ground water aquifer would be utilized to supply livestock water to six grazing allotments in the watershed. The well would have a flow control device, eliminating unnecessary extraction of groundwater. Impacts to the aquifer would be minimal due to the relatively small amount of water utilized for livestock purposes.

4.2.15 Soils

Grazing management changes which result in allotments making significant progress toward meeting rangeland health standards would create a positive impact to soils in the planning area. Rangelands meeting or exceeding health standards exhibit a higher percentage of increaser forage species, fewer annual grasses and forbs, increased plant vigor and root mass, a decrease in the percentage of bare ground, and an increase in available water holding capacity and infiltration. These characteristics greatly benefit rangeland soils.

4.2.16 Air Quality

Alternative 2 would not impact air quality.

4.2.17 Economics

Alternative 2 would create a short-term economic impact on permittees with allotments not meeting rangeland health standards. BLM would require grazing management changes or range

improvements to meet upland and/or riparian health standards. Permittees would be responsible for a portion of proposed projects. In the long term, however, proposed changes would lead to healthy rangelands and sustainable livestock grazing. There would be no impacts to permittees whose allotments are meeting rangeland health standards.

4.2.18 Sociology

The management actions and range improvements included in Alternative 2 would generally improve the efficiency of livestock grazing on BLM lands and the condition of those lands. Some of the proposed actions and improvements may increase the value of the base property without expanding government involvement with private property. These are generally viewed as positive changes by permittees, local communities and the larger national audience concerned about livestock grazing on BLM lands.
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4.3 Impacts Under Alternative 3, No Livestock Grazing:

4.3.1 Rangelands

Under this alternative, livestock grazing would cease as existing permits and leases expire. Impacts to rangelands would be variable depending on range condition at time of livestock removal and traditional livestock use patterns. Impacts to upland and riparian vegetation are discussed below.

4.3.2 Upland Range Health

In the short term (5-10 years), upland areas meeting standards would continue to meet standards and upland areas not meeting standards would gradually improve and meet standards. Those areas not meeting standards as a result of non-native plants would continue to lose biodiversity and would not meet standards. In the long-term, some of the uplands in this watershed may be negatively affected by lack of grazing.

Grazing serves as an important mechanism for the cycling of carbon (plant material) in uplands. If domestic grazing activity ceased, an excess build up of litter and mulch in the more productive upland areas would, in the absence of fire, result in a poorly functioning carbon cycle after a period of 10-15 years. On some sites, mulch buildup would reach a point that sunlight would not be able to reach growing points and leaves of grasses. This would cause a decrease in vigor of perennial grasses, especially perennial bunch grasses. In these cases, vegetation composition could shift from high seral to mid or early seral species due to the lack of grazing. Grazing by wildlife populations would not be sufficient to offset this condition. Increased use of prescribed fire could be needed to stimulate vigor.

4.3.3 Riparian Health

As current grazing permits expire they would not be renewed. Grazing on public lands in the planning area would cease within 10 years. Public lands would experience increased plant density, diversity, and vigor as livestock grazing is removed, especially on the riparian areas where livestock is the major factor affecting riparian health. These riparian areas would experience rapid improvement if livestock grazing is eliminated.

4.3.4 Noxious Weeds

Implementation of Alternative 3 would eliminate the cooperative weed control

agreements between the BLM and grazing permittees. Weed infestations on uplands could increase due to the loss of permittee involvement. Conversely, the absence of domestic livestock and ranch related vehicular traffic on uplands could decrease the risk of noxious weed spread. Livestock can promote the spread of noxious weeds through the physical movement of reproductive vegetation and seeds, and through the digestive tract.

4.3.5 Coniferous Forest

The impacts would be the same as Alternative 1.

4.3.6 Livestock Grazing

Implementation of Alternative 3 would eliminate livestock grazing on public land. Impacts would be negative due to the large number of public AUMs within the watershed, resultant mandatory herd reductions, and the logistical problem of intermingled, unfenced public and private land within most of the grazing allotments.

4.3.7 Recreation

Recreation opportunities would not be impacted under this alternative.

4.3.8 VRM

Alternative 3 would maintain visual quality within the watershed by eliminating the need for range improvements and administrative roads and trails.

4.3.9 OHVs

The impacts would be the same as Alternative 1 and the Proposed Action.

4.3.10 Wildlife Resources

As grazing permits expire, the range health on degraded allotments would return to functioning condition. The renewed vigor of upland and riparian vegetation in previously unhealthy areas would provide additional vegetative diversity, structure, ground cover and forage for wildlife and overall landscape health.

4.3.11 Wildland and Prescribed Fire Management

An increased potential for the spread of wildfires would occur under this alternative as a result of the build up of fine fuels. Under these conditions, the fires that occur would spread faster and burn more intensely. Rapid spread and high intensity fires would make control more difficult and increase the potential for the fire to escape initial attack and become large and destructive.

Under this alternative, there is potential for fine fuels such as grass to increase and create continuous fuel beds in rangeland areas. This could contribute to large and swift-moving wildland fires.

Regardless of the alternative chosen, wildland fire suppression would be in accordance with the Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas (July 2003); the State Director's Interim Guidance for Managing the Upper Missouri River Breaks National Monument (June 2001); and the Central Montana Fire Zone Fire Management Plan for Lewistown and Malta Field Offices (draft Feb 2001).

4.3.12 Cultural Resources

The impacts would be similar to Alternative 1, except some minor beneficial impacts could result from management actions that reduce erosion.

4.3.13 Surface Water

Vegetation in the riparian areas would improve rapidly as a result of livestock removal. Stubble height would increase as would ground cover, trapping more sediment, building and protecting stream banks and reducing erosion. The amount of non-point source pollution (mainly sediment) from public lands reaching the Missouri River would be reduced thereby complying with the TMDL process.

4.3.14 Ground Water

Ground water resources would not be directly or cumulatively impacted by this alternative.

4.3.15 Soils

The lack of grazing would slow the rate of nutrient cycling from plant to soil because livestock would not be present to consume plants and cycle nutrients back into the soil; however, soils would remain stable and erosion levels minimal during the 10 year life of this plan.

4.3.16 Air Quality

The impacts would be the same as Alternative 1.

4.3.17 Econimics

Under the no grazing alternative, a gradual decline in livestock production on public lands would occur as permits and leases expire. All permittees would be adversely impacted (directly and cumulatively) - especially those with a high dependence on public land forage. Alternative 3 would result in a decrease of 17,504 AUMs available for 4,208 cow/calf pairs in the watershed. To the regional economy, this represents an annual loss of approximately $420,800 in economic activity, not including associated employment figures. The total loss in economic activity may be greater if permittees cannot compensate for the loss of public land AUMs and must reduce their herd sizes.

Permittee dependence on public land for successful livestock operations varies within the watershed. Some operators have a relatively low dependence on public land grazing, and some incorporate farming into their operations. The higher the level of dependence on public land and the less diversity of operations permittees have, the greater the impact.

To avoid livestock trespass situations, operators would be required to fence their cattle off public land, creating an additional cost. The highly intermingled property status in this watershed would require hundreds of miles of fences to accomplish the separation. In addition, much of the terrain in the planning area is very steep; installing fences directly on property lines is difficult and in some cases impossible.

4.3.18 Sociology

Loss of BLM forage could result in declines in the social well being of affected permittees and their families. Direct and cumulative sociological impacts would be negative. Small operations that are highly dependent on public grazing lands are more likely to be affected. More detailed potential effects are discussed in the Draft Prairie Potholes Vegetation Allocation EIS (page 122) (USDI; BLM, 1981), available for

review at the LFO.

APPENDICES

Contents

Maps

Appendix A - Guidelines for Grazing Management

Guideline #1: Salting and supplemental feeding

If salt and/or mineral are provided to livestock, they will be placed a minimum of 1/4 mile from riparian areas (including both reservoirs and creeks) and stock water tanks. Salt and/or mineral placement locations will be rotated periodically (once each grazing season at a minimum). Supplemental feeding will not be allowed except to accomplish resource objectives.

Guideline #2: Riparian stubble height

Adequate vegetative stubble heights will remain on plants identified as having deep binding root mass at the end of the grazing season to provide streambank stability, trap and filter sediment, improve water quality, and to facilitate meeting site-specific objectives. Average vegetative stubble heights will be four inches for grasses and shrubs. Utilization of trees and shrubs will not exceed 25% of the 2nd year and older available leaders. Plants with a deep binding root mass include trees (cottonwood, green ash, box elder, and peachleaf willow), shrubs (sandbar and yellow willow, dogwood, chokecherry, buffaloberry, golden and buffalo currents), forbs (cattail and American licorice), and grasses (western wheatgrass, slough grass, cord grasses, sedges and rushes).

Guideline #3: Utilization of upland grasses

Utilization on key grass species in upland areas will not exceed 50% by weight or 4 inch stubble height at the end of the grazing season. Sage grouse nesting areas have different site-specific objectives.

Guideline #4: Grazing systems

When practical, rotational or rest rotation type grazing systems will be used to maximize the amount of rest on the allotment during the growing season and/or break up the cycle of continuous hot season use on riparian areas. At a minimum, portions of an allotment under rotational grazing should receive periodic rest during the growing season and hot season grazing should not occur each year on any given pasture. Season-long or year-round grazing will be discontinued if standards for rangeland health are not met.

Guideline #5: Surface disturbance and seeding

Permittee must notify the BLM prior to conducting any surface disturbing activities on public land. Areas that are disturbed by fire or mechanical means will be rested two growing seasons. Native plant species will be used for reclamation of all disturbed areas. The only time non-native seed should be used is when there is a lack of native seed availability following large scale fires or the use of sterile non-native annual grasses is necessary to achieve rapid site stability and/or reduce the threat of noxious weeds.

Appendix A - Guidelines for Grazing Management

Guideline #6: Pasture moves

Pasture move dates as shown in this watershed plan are an estimate, actual move dates should be based on resource conditions and forage utilization. Any pasture moves exceeding five days past the scheduled move date will be made with concurrence of the BLM. Earlier or later move dates could be required or permitted based on resource or livestock conditions or if the guidelines for upland utilization or riparian stubble heights are exceeded or are yet to be reached.

Guideline #7: Changes in scheduled use

Any deviation from scheduled use must be applied for by the permittee and approved by the BLM manager prior to any changes taking place. The guidelines for upland utilization, riparian stubble heights and progress toward meeting site-specific objectives will be evaluated when reviewing requests for deviation from scheduled use. Requests to change use will not be granted unless it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems and site-specific objectives.

Guideline #8: Drought

During periods of drought, or at the earliest possible time when it becomes apparent that drought conditions are likely, the BLM and permittees will meet to discuss and arrange management changes needed to reduce resource impacts and continue progress toward meeting specific objectives (Refer to BLM Montana, North Dakota and South Dakota drought policy).

Guideline #9: Terms and conditions/management prescriptions

Management prescriptions are identified on a site-specific basis and will be implemented as terms and conditions of the grazing permit/lease. Permittees should provide periodic input to BLM on needed adjustments to grazing plans so that refinements can be made to improve resource conditions.

Guideline #10: Water developments

Locate facilities (water developments, etc) away from riparian-wetland areas. Water tanks must have an escape ramp, float valve and overflow pipe to eliminate over flow around tank.

Guideline #11: Weeds

Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical).

Appendix A - Guidelines for Grazing Management

Guideline #12: Water quality

Livestock management should utilize practices such as those referenced by the published Natural Resources Conservation Service (NRCS) prescribed grazing technical guide to maintain, restore or enhance water quality.

Guideline #13: Threatened, endangered and sensitive species

Grazing management should maintain or improve habitat for federally listed threatened or endangered species and any state listed sensitive species. BLM will keep permittees informed of changes in listing status of any species known to exist on their allotment.

Guideline #14: Native plants

Grazing management should maintain or promote the physical and biological conditions to sustain native populations and communities.

Guideline #15: Control of livestock

Control of livestock is the permittee's responsibility. Monitoring should be conducted by permittee to insure livestock are in proper locations. Livestock that are allowed to freely roam to public lands on adjacent allotments will be treated as trespass livestock. Additional monitoring will be conducted by the BLM to insure this guideline is met.

Appendix B – Standards for Rangeland Health

Standards are statements of physical and biological condition or degree of function required for health sustainable rangelands. Achieving or making significant and measurable progress towards these functions and conditions is required of all uses of public rangelands. Historical data, when available, should be used when assessing progress towards these standards.

Standard #1: Uplands Are In Proper Functioning Condition

This means that soils are stable and provide for capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rock/gravel) for identified ecological site(s) or soil-plant associations are appropriate for soil stability.

Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface scaling and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Physical Environment

- erosional flow patterns
- surface litter
- soil movement by water and wind
- soil crusting and surface sealing
- compaction layer
- rills
- gullies

Biotic Environment

- cover distribution
- community richness
- community structure
- exotic plants
- plant status
- seed production
- recruitment
- nutrient cycle

Appendix B - Standards for Rangeland Health

Standard #2: Riparian And Wetland Areas Are In Proper Functioning Condition

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water and vegetation.

Riparian-wetland areas are functioning properly when adequate vegetation, landform or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood water retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for native fish production, waterfowl breeding, and other uses appropriate for the area that will support greater species richness.

The riparian-wetland vegetation is a mosaic of species richness and community structure serving to control erosion, shade water, provide thermal protection, filter sediment, aid floodplain development, dissipate energy, delay flood water, and increase recharge of groundwater where appropriate to landform.

The stream channels and flood plain dissipate energy of high water flows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform.

Soils support appropriate riparian-wetland vegetation, allowing water movement, filtering sediment, and slowing ground water movement for later release. Stream channels are not entrenching beyond natural climatic variations and water levels maintain appropriate riparian-wetland species.

Riparian areas are defined as land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

Hydrologic

- floodplain inundated in relatively frequent events (1-3 years)
- amount of altered streambanks
- sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region); and upland watershed not contributing to riparian degradation.

Erosion/Deposition

- plain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy
- point bars are being created and older point bars are being vegetated
- lateral stream movement is associated with natural sinuosity
- system is vertically stable
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Vegetation

- reproductive and diverse age class of vegetation
- diverse composition of vegetation
- species present indicate maintenance of riparian soil moisture characteristics
- streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events
- utilization of trees and shrubs
- riparian plants exhibit high vigor
- adequate vegetative cover present to protect banks and dissipate energy during high flows
- where appropriate, plant communities in the riparian area are an adequate source of woody debris

Standard #3: Water Quality Meets Montana State Standards

This means that surface and ground water on public lands fully support designated beneficial uses described in the Montana Water Quality Standards. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- dissolved oxygen concentration
- pH
- turbidity
- temperature
- fecal coliform
- sediment
- color
- toxins
- others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

Appendix B - Standards for Rangeland Health

Standard #4: Air Quality Meets Montana State Standards

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or non-point sources.

The BLM management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class area.

As indicated by:

Section 176(c) Clean Air Act which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:

- cause or contribute to any violations of ambient air quality standards
- increase the frequency of any existing violations
- impede the State's progress in meeting their air quality goals

Standard #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management)

This means that native plant and animal communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant lifeforms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for indigenous vegetation and animals is a priority. Ecological processes including hydrologic cycle, and energy flow, and plant succession are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential, and there is a diversity of plant and animal species characteristic of and appropriate to the site. The environment contains components necessary to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species. Assessing proper functioning conditions will consider use of historical data.

As indicated by:

- plants and animals are diverse, vigorous and reproducing satisfactorily noxious weeds are absent or insignificant in the overall plant community
- spatial distribution of species is suitable to ensure reproductive capability and recovery
- a variety of age classes are present
- connectivity of habitat or presence of corridors prevents habitat fragmentation
- species richness (including plants, animals, insects and microbes) are represented
- plant communities in a variety of successional stages are represented across the landscape.

Appendix C – Monitoring & Evaluation

Key areas would be established for upland and riparian utilization. Existing upland study sites would continue to be used and additional sites may need to be established. Additional riparian study sites would need to be established. There should be a minimum of one upland and one riparian study site per pasture unless no significant riparian habitat exists in the pasture.

Monitoring would be collected by permittees and the BLM. Permittees would be responsible to constantly monitor livestock distribution, utilization levels, and stubble heights on their allotments to ensure that livestock grazing is consistent with established guidelines. Monitoring would be conducted according to the Monitoring for Success guidebook (DNRC, August, 1999). Permittees would be responsible to send data and photos of each monitoring site yearly to BLM. The photos would be taken following grazing use. Photos would be reviewed and if there is concern about the site then the BLM would plan to monitor the site the next year.

Monitoring would be conducted utilizing the key species dominant at each study site. In most cases, key upland species would be western wheat grass, green needle and blue bunch wheat grass.

Upland study plots are marked by a steel witness post set at approximately 100 feet south of marker disc. Permittees would take one general landscape photo taken from the marker disc facing away from witness post. Another photo would be taken directly at ground near angle iron or rebar stakes which are six feet from steel disc. Photos for riparian monitoring sites would be taken from the upstream end of the study reach looking downstream.
BLM would monitor sites (riparian and upland) according to their present condition rating:

- Proper Functioning Condition sites: every 5 years
- Functioning At Risk sites: every 2-3 years
- Non-Functioning sites: yearly

Appendices D & F list the upland and riparian monitoring schedules by study plot.

BLM personnel will be available to provide monitoring training for permittees.

First order fire effects would be monitored following the prescribed burns.

Evaluation of monitoring data would occur yearly. A watershed evaluation would need to be completed within 10 years for permit renewal. The BLM may require permit/lease holders to monitor conditions on allotments in the future.

The monitoring schedule was established based on current resource conditions and the need to assess impacts of proposed changes. Random visits will also be taken to the allotments listed above to assess overall conditions. The schedule shown above does not include monitoring of restoration or prescribed fire projects.

Allotment Name	Allot. No. & Transect No.	Permittee	Ecol. Site Index Score/seral stage	Trend	Range Health Indicators (departured from expected for the site)	Soil Surface Factor	Monitoring Schedule and Comments
Cat Creek	04844 T-1	Ahlgren, Larry	55 - late	0 - static	moderate	n/a	5 years
Cat Creek	04844 T-2	Ahlgren, Larry	74 - late	6 - up	slight/moderate	15	5 years
Cat Creek	04844 T-3	Ahlgren, Larry	77 - late	6 - up	none/slight	15	5 years
Bohn Ex. Pasture	04866	Brady, Evert	custodial	n/a	n/a	n/a	5 years
Twin Buttes	15063 T-1	Brady, Evert	77 - late	5 - up	none/slight	7	5 years
Twin Buttes	15063 T-2	Brady, Evert	25 - mid	2 - up	none/slight	12	5 years
Tin Can	15082 T-1	Browning Brothers	non-native	n/a	none/slight	15	5 years
Tin Can	15082 T-2	Browning Brothers	52 - late	7 - up	none/slight	9	5 years
Winter Pasture	01518	Browning Brothers	custodial	n/a	n/a	n/a	5 years
River Ranch	15115 T-1	Browning, Tom	42 - mid	1 - down	slight/moderate	10	T-1 near water; 5 years
River Ranch	15115 T-2	Browning, Tom	46 - mid	2 - up	none/slight	8	5 years
River Ranch	15115 T-3	Browning, Tom	50 - late	5 - up	none/slight	5	5 years
River Ranch	15115 T-4	Browning, Tom	16 - early	5 - up	none/slight	16	5 years
Long Coulee	04839 T-1	Cat Creek CC; Dutton	75 - late	7 - up	none/slight	9	5 years
Long Coulee	04839 T-2	Cat Creek CC; Dutton	70 - late	9 - up	none/slight	6	5 years
Deep Coulee	02540	Chamberlin, Lyle	custodial	n/a	n/a	n/a	5 years
Dry Blood	05057 T-1	Gardner, Richard	65 - late	5 - up	none/slight	26	5 years
Gardner Ind. CFHI	05113	Gardner, Richard	custodial	n/a	n/a	n/a	5 years
Gardner Ind. E	15058 T-2	Gardner, Richard	42 - mid	1 - up	none/slight	14	5 years
Gardner-Solf Area	04860	Gardner,Solf	custodial	n/a	n/a	n/a	5 years
North Forty	15135	Gardner, Richard	custodial	n/a	n/a	n/a	5 years
Chimney Rock AMP	05017 T-1	Gillett, Fred	55 - late	6 - up	none/slight	5	5 years
Chimney Rock AMP	05017 T-2	Gillett, Fred	n/a	0 - static	slight/moderate	44	T-2 on fenceline; 5 years
Chimney Rock AMP	05017 T-3	Gillett, Fred	35 - mid	6 - up	slight/moderate	0	5 years
Chimney Rock AMP	05017 T-4	Gillett, Fred	33 - mid	6 - up	slight/moderate	24	5 years
Gillett Ind. F Cust.	15015	Gillett, Fred	custodial	n/a	n/a	n/a	5 years
Upper Cat Creek 2	02537 T-1	Hale, Ray & Steve	66 - late	3 - up	slight/moderate	21	5 years
River Pasture	04882 T-1	Harris, Bill	43 - mid	3 - up	none/slight	5	5 years
CK Cattle	15081 T-1	Harris, Bill	65 - late	7 - up	none/slight	7	5 years
CK Cattle	15081 T-2	Harris, Bill	72 - late	9 - up	none/slight	4	5 years
IND B	02560 T-1	Iverson, Daniel	36 - mid	5 - up	none/slight	17	5-years
Blood Creek	04896 T-1	Iverson, Daniel	40 - mid	4 - up	slight/moderate	25	5 years
Blood Creek	04896 T-2	Iverson, Daniel	35 - mid	5 - up	slight/moderate	7	5 years
West Blood Creek	04963 T-1	Iverson, Daniel	60 - late	0 - static	moderate	30	5 years
West Blood Creek	04963 T-2	Iverson, Daniel	20 - early	5 - down	p-dog town	13	5 years
Sage Creek	04856 T-1	Jensen, Jack	35 - mid	4 - up	slight/moderate	9	5 years
Sage Creek	04856 T-2	Jensen, Jack	37 - mid	2 - up	none/slight	15	5 years
Cottonwood Creek	04840 T-1	Koenig Ranch	34 - mid	1 - down	slight/moderate	2	5 years
Cottonwood Creek	04840 T-2	Koenig Ranch	28 - mid	7 - up	slight/moderate	12	5 years
Manuel Place	04842 T-1	Manuel Ranch, Walt	non-native	static	none/slight	6	5 years
Manuel Place	04842 T-2	Manuel Ranch, Walt	65 - late	4 - up	slight/moderate	7	5 years
Manuel Place	04842 T-3	Manuel Ranch, Walt	40 - mid	2 - up	none/slight	10	5 years
Vontver-Dobson	04838	Manuel/Ahlgren Com.	custodial	n/a	n/a	n/a	5 years
Breaks	15016 T-1	Marks, Hans	49 - mid	3 - up	none/slight	13	5 years
Breaks	15016 T-2	Marks, Hans	36 - mid	6 - down	slight/moderate	24	5 years
Blood Creek-Marty	04849 T-1	Murnion, Vince	30 - mid	4 - up	none/slight	2	2 years
Blood Creek-Marty	04849 T-2	Murnion, Vince	72 - late	7 - up	none/slight	2	2 years
Blood Creek-Marty	04849 T-3	Murnion, Vince	35 - mid	7 - down	slight/moderate	29	2 years
Upper Cat Creek	15019	Murnion, Vince	custodial	n/a	n/a	n/a	5 years
Anderson Ind.	04861 T-1	Murnion, Vince	41 - mid	1 - down	slight/moderate	38	5 years
Windmill East	15011	Murnion, Vince	custodial	n/a	n/a	n/a	5 years
Brush Creek Gavel	15022 T-1	Murnion, Vince	29 - mid	5 - down	slight/moderate	5	2 years
Brush Creek Gavel	15022 T-2	Murnion, Vince	40 - mid	10-down	moderate	16	2 years
Windmill West	25006 T-1	Murnion, Vince	15 - early	8 - down	slight/moderate	46	2 years
Lower Blood Creek	04870 T-1	Murnion, (Gibson)	51 - late	9 - up	slight/moderate	19	2 years
Shaw Place	04851	Shaw, Orval	custodial	n/a	n/a	n/a	5 years
Idhe Ranch	04852 T-1	Solf Brothers	36 - mid	5 - down	none/slight	11	2 years
Idhe Ranch	04852 T-2	Solf Brothers	40 - mid	7 - down	moderate	25	2 years
Dunn Ridge	15089 T-1	Solf Brothers	70 - late	3 - down	moderate	28	2 years
Dunn Ridge	15089 T-2	Solf Brothers	61 - late	2 - up	slight/moderate	33	2 years
Idhe B	15110	Solf Brothers	custodial	n/a	n/a	n/a	5 years
West Cat Creek	15054 T-1	Teigen L & L	77 - late	9 - up	none/slight	3	5 years
West Cat Creek	15054 T-2	Teigen L & L	non-native	static	slight/moderate	5	5 years
Hailey Coulee	04841 T-1	Thomas, Ben	60 - late	7 - up	none/slight	4	5 years
Hailey Coulee	04841 T-2	Thomas, Ben	60 - late	7 - up	none/slight	6	5 years
Hailey Coulee	04841 T-3	Thomas, Ben	55 - late	8 - up	none/slight	8	5 years
Hailey Coulee	04841 T-4	Thomas, Ben	65 - late	7 - up	none/slight	7	5 years
Fail Place	04846	Thomas, Ben	custodial	n/a	n/a	n/a	5 years

* The monitoring schedule was established based on current resource conditions and the need to assess impacts of proposed changes. The schedule does not include random visits or monitoring of restoration or prescribed burning projects.

Musselshell Breaks Watershed: Appendix E - Riparian Health Assessments

Allotment Name	Allotment No.	Permittee	Stream Name / Polygon No.	Health Rating	Distance (miles)	Meeting Standards?	Reason Not Meeting
Cat Creek	04844	Ahlgren, Larry	Cat Cr	71	0.6	Yes	
			Unnamed Trib to Musselshell River/1	76	1.2	Yes	
Bohn Ex. Pasture	04866	Brady, Evert	No Riparian				
Twin Buttes	15063	Brady, Evert	No Riparian				
Tin Can	15082	Browning Brothers	Biggett Coulee/1	62	0.6	Yes	
			Biggett coulee/2	76	1.9	Yes	
River Ranch	15115	Browning, Tom	No Riparian				
Long Coulee	04839	Cat Creek CC; Dutton	Musselshell River/11	62	0.6	Yes	
			Long Coulee/1	100	1.8	Yes	
Deep Coulee	02540	Chamberlin, Lyle	Cottonwood Creek/6	86	0.4	Yes	
Dry Blood	05057	Gardner, Richard	Blood Creek/3A	62	0.9	Yes	Weeds
			Blood Creek/3B	66	0.6	Yes	Weeds
			Dry Blood Creek/9	49	0.8	Yes	Improving
			Unnamed Trib to Dry Blood Creek/1	76	1.5	Yes	Improving
			South Fork Dry Blood/1	83	1	Yes	
Gardner Ind. CFHI	05113	Gardner, Richard	Blood Creek/2A	81	0.3	Yes	
			Blood Creek/2B	56	1.1	Yes	Improving
			Blood Creek/2C	51	0.9	Yes	Improving
Gardner Ind. E	15058	Gardner, Richard	Dry Blood Creek/6	64	0.5	Yes	Improving
Gardner-Solf Area	04860	Gardner/Solf	No Riparian				
North Forty	15135	Gardner, Richard	No Riparian				
Chimney Rock AMP	05017	Gillett, Fred	Dry Blood Creek/1B	86	0.4	Yes	
			Dry Blood Creek/2	90	0.6	Yes	
			Dry Blood Creek/2A	67	0.3	Yes	Improving
			Dry Blood Creek/3	64	0.3	Yes	Improving
			Dry Blood Creek/4	47	0.5	Yes	
Gillett Ind. F Cust.	15015	Gillett, Fred	Dry Blood Creek/5	64	0.8	Yes	Improving
Upper Cat Creek 2	02537	Hale, Ray & Steve	No Riparian				
River Pasture	04882	Harris, Bill	Musselshell River/4	44	0.7	No	Livestock
			Musselshell River/6	35	0.7	No	Livestock
CK Cattle	15081	Harris, Bill	Musselshell River		1.2	No	Nat Erosion
IND B	02560	Iverson, Daniel	No Riparian				
Blood Creek	04896	Iverson, Daniel	Blood Creek/5A	67	1	No	Weeds
			Blood Creek/5B	59	0.7	No	Nat Erosion
			Blood Creek/6	63	2	No	Weeds
			Blood Creek/7	70	1.1	No	Weeds
West Blood Creek	04963	Iverson, Daniel	No Riparian				
Sage Creek	04856	Jensen, Jack	Blood Creek/1A	75	0.6	Yes	Improving
			Blood Creek/1B	77	0.5	Yes	Improving
Cottonwood Creek	04840	Koenig Ranch	Cottonwood Creek/1	88	1	Yes	
Manuel Place	04842	Manuel Ranch, Walt	No Riparian				
Vontver-Dobson	04838	Manuel/Ahlgren Com.	No Riparian				
Breaks	15016	Marks, Hans	Dry Blood Creek/7	95	0.8	Yes	
Blood Creek-Marty	04849	Murnion, Vince	Blood Creek/8A	63	0.9	No	Livestock
			Blood Creek/8B	57	0.4	No	Livestock
			Unnamed Trib to Blood Creek/1	66	1	No	Livestock
Anderson Ind.	04861	Murnion, Vince	Unnamed Trib to Cottonwood Creek/1	88	0.9	Yes	
Windmill East	15011	Murnion, Vince	No Riparian				
Brush Creek Gavel	15022	Murnion, Vince	Brush Creek/1	76	1	No	Livestock
			Brush Creek/2	49	0.9	No	Livestock
Windmill West	25006	Murnion, Vince	No Riparian				
Lower Blood Creek	04870	Murnion, (Gibson)	Blood Creek/9	57	1.1	No	Livestock
			Blood Creek/10	69	1.6	No	Livestock
			Blood Creek/11A	48	0.4	No	Livestock
			Blood Creek/11B	61	0.4	No	Livestock
Shaw Place	04851	Shaw, Orval	No Riparian				
Idhe Ranch	04852	Solf Brothers	Cottonwood Creek/2	70	3.5	No	Livestock
			Cottonwood Creek/3	60	3.9	No	Livestock
Dunn Ridge	15089	Solf Brothers	No Riparian				
Idhe B	15110	Solf Brothers	No Riparian				
West Cat Creek	15054	Teigen L & L	No Riparian				
Hailey Coulee	04841	Thomas, Ben	Cottonwood Creek/4	60	4	No	Livestock
			Cottonwood Creek/5	66	3.3	No	Livestock
Fail Place	04846	Thomas, Ben	Musselshell River/9	63	0.8	Yes	
			Musselshell River/10	73	0.5	Yes	

Musselshell Breaks Watershed: Appendix F - Riparian Monitoring Schedule

Allotment Name	Allotment No.	Permittee	Polygon No.	Health Rating	BLM Monitoring Schedule
Cat Creek	04844	Ahlgren, Larry	26	71	2-3 years
Bohn Ex. Pasture	04866	Brady, Evert			
Twin Buttes	15063	Brady, Evert			
Tin Can	15082	Browning Brothers	17	76	2-3 years
Winter Pasture	01508	Browning Brothers			
River Ranch	15115	Browning, Tom			
Long Coulee	04839	Cat Creek CC; Dutton	31	100	5 years
Deep Coulee	02540	Chamberlin, Lyle	30	86	5 years
Dry Blood	05057	Gardner, Richard	3	66	2-3 years
			4	62	2-3 years
Gardner Ind. CFHI	05113	Gardner, Richard	2	56	2-3 years
Gardner Ind. E	15058	Gardner, Richard	14	64	2-3 years
Gardner-Solf Area	04860	Gardner/Solf			
North Forty	15135	Gardner, Richard			
Chimney Rock AMP	05017	Gillett, Fred	11	86	5 years
			12	67	2-3 years
			13	64	2-3 years
Gillett Ind. F Cust.	15015	Gillett, Fred			
Upper Cat Creek 2	02537	Hale, Ray & Steve			
River Pasture	04882	Harris, Bill	10	44	yearly
CK Cattle	15081	Harris, Bill	29	68	2-3 years
IND B	02560	Iverson, Daniel			
Blood Creek	04896	Iverson, Daniel	5	67	2-3 years
			6	59	2-3 years
West Blood Creek	04963	Iverson, Daniel			
Sage Creek	04856	Jensen, Jack	1	77	5 years
Cottonwood Creek	04840	Koenig Ranch	20	88	5 years
Manuel Place	04842	Manuel Ranch, Walt			
Vontver-Dobson	04838	Manuel/Ahlgren Com.			
Breaks	15016	Marks, Hans	16	95	5 years
Blood Creek-Marty	04849	Murnion, Vince	7	63	BLM will monitor yearly
			8	70	BLM will monitor yearly
Upper Cat Creek	15019	Murnion, Vince			
Anderson Ind.	04861	Murnion, Vince			
Windmill East	15011	Murnion, Vince			
Brush Creek Gavel	15022	Murnion, Vince	25	49	yearly
Windmill West	25006	Murnion, Vince			
Lower Blood Creek	04870	Murnion, (Gibson)	9	57	BLM will monitor yearly
Shaw Place	04851	Shaw, Orval			
Idhe Ranch	04852	Solf Brothers	21	70	2-3 years
			22	60	2-3 years
Dunn Ridge	15089	Solf Brothers			
Idhe B	15110	Solf Brothers			
West Cat Creek	15054	Teigen L & L			
Hailey Coulee	04841	Thomas, Ben	18	64	2-3 years
			19	51	yearly
Fail Place	04846	Thomas, Ben	27	73	2-3 years

APPENDIX G
Corrective Adjustments for Resource Protection

The guidelines described in Appendix A are considered best management practices necessary to achieve objectives identified in this plan and to maintain or improve rangeland resources. Livestock use that exceeds the guideline will reduce the ability to maintain proper range conditions. The success of these guidelines is dependent on active involvement by the livestock permittees in the day-to-day management of allotments.

If the guidelines are exceeded and overuse does occur, corrective actions should be implemented during the next grazing season to insure that such use does not occur again and prevent necessary vegetative recovery from occurring. In such instances, prior to the next grazing season, the permittee(s) and BLM manager should cooperatively develop these corrective adjustments. The recommended management adjustments identified below are a tool that can be used, modified, or added to, on a case by case basis. The BLM would prefer that the grazing permittee(s) suggest corrective actions needed to maintain vegetative health and vigor while still meeting livestock management needs. If however, a cooperatively developed corrective adjustment cannot be reached, the following adjustments will be applied:

Recommended Stubble Height for Riparian Species = 4 Inches

Actual Stubble Height (inches)	Corrective Adjustment
3 to 4 inches any one year	Discuss situation with permittee
3 to 4 inches two consecutive years	5 inch stubble height the next year
3 to 4 inches more than two consecutive years	6 inch stubble height the next year
2 to 3 inches any one year	5 inch stubble height the next year
2 to 3 inches two consecutive years	6 inch stubble height the next year
2 to 3 inches more than two consecutive years	Rest the pasture the following year
Less than 2 inches in any one year	Rest the pasture the following year

Recommended Riparian Tree and Shrub Utilization = Light to Moderate Browsing

Actual Browse Level (Light, Moderate, or Intense)	Corrective Adjustment
Light to Moderate	No adjustment necessary
Intense any one year	Discuss situation with permittee
Intense two consecutive years	Eliminate hot season (July, August and September) grazing either through change in season of use or some form of fencing

Recommended Upland Species Utilization Level = 50% by Weight

Actual Utilization Level (%)	Corrective Adjustment
Exceeds prescribed level by more than 10% but less than 25%	Discuss situation with permittee
Exceeds prescribed level by more than 25%	Discuss situation with permittee. Limit utilization to 40% the following year.

APPENDIX H
Upland and Riparian Plant List

Common Upland Plants:

Trees:
Ponderosa pine (Pinus ponderosa)
Douglass-fir (Pseudotsuga menziesii)

Shrubs:
Big sage brush (Artemisia tridenta)
Silver sage brush (Artemisia cana)
Greasewood (Sarcobatus vermiculatus)
Juniper (Juniperus sp.)
Prairie rose (Rosa woodsii)
Yucca (Yucca glauca)
Saltbrush (Atriplex confertifolia)
Winterfat (Ceratoides lanata)

Native Perennial Grasses:
Western wheatgrass (Pascopyrum smithii)
Bluebunch wheatgrass (Pseudoroegneria spicata)
Prairie junegrass (Koleria macrantha)
Sandberg bluegrass (Poa sandbergii)
Green needle grass (Stipa viridula)
Needle and thread (Stipa comata)
Blue grama (Butealoa gracilis)
Prairie sandreed (Calomovilfa longifolia)

Domestic Perennial Grasses:
Crested wheatgrass (Agropyron cristatum)
Intermediate wheatgrass (elytrigia intermedia)
Smooth brome (Bromus inermis)

Annual Grasses:
Japanese brome (Bromus japonicus)
Cheatgrass (Bromus tectorum)

Forbs:
Yellow sweet clover (Melilotus officinale)
Dandelion (Taraxcum officinale)
Phlox (Phlox hoodii)
Salisify (Trogopogon dubious)
Fringed sagewort (Artemisia filifolia)
Yarrow (Achillea millifolium)
American vetch (Vicea americanum)

Succulents
Prickly pair cactus (Opuntia polycantha)
Pin cushion (Coryphantha vivipara)

Common Riparian Plants:

Trees:
Boxelder (Acer negundo)
Cottonwood (Populus deltoids)
Green Ash (Fraxinus pennsylvanica)
Peachleaf Willow (Salix amygdaloides)

Shrubs:
Buffaloberry (Shepherdia argentea)
Buffalo Current (Ribes odoratum)
Chokecherry (Prunus virginiana)
Golden Current (Ribes aureum)
Red Osier Dogwood (Cornus stolonifera)
Sandbar Willow (Salix exigua)
Yellow Willow (Salix lutea)

Forbs:
American Licorice (Glycyrrhiza lepidota)
Cattail (Typha latifolia)
Cocklebur (Xanthium strumarium)
Curled Dock (Rumex crispus)
Horsetail (Equisetum arvense)
Mint (Mentha arvensis)
Sweetclover (Melilotus officinalis)
White Sweetclover (Melilotus alba)

Grasses:
Baltic Rush (Juncus balticus)
Barnyardgrass (Echinochloa muricata)
Bulrush (Scripus maritimus)
Creeping Spikesedge (Eleocharis palustris)
Foxtail Barley (Hordeum jubatum)
Hardstem Bulrush (Scripus acutus)
Inland Saltgrass (Distichlis spicata)
Kentucky Bluegrass (Poa pratensis)
Orchardgrass (Dactylis glomerata)
Prairie Cordgrass (Spartina pectinata)
Quackgrass (Agropyron repens)
Reed Canarygrass (Phalaris arundinacea)
Sloughgrass (Beckmannia syzigachne)
Smooth Brome (Bromus inermis)
Three-Square Bulrush (Scirpus pungens)
Western Wheatgrass (Agropyron smithii)

Musselshell Breaks Watershed: Appendix I - AMPs and Current Grazing Systems

Allotment Name	Allotment No.	Permittee	Allotment Management Plan	Current Grazing System
Cat Creek	04844	Ahlgren, Larry	yes	three pasture rest rotation
Bohn Ex. Pasture	04866	Brady, Evert	no	custodial
Twin Buttes	15063	Brady, Evert	proposed	five pasture rest rotation
Tin Can	15082	Browning Brothers	yes	rest rotation
Winter Pasture	01518	Browning Brothers	no	custodial
River Ranch	15115	Browning, Tom	yes	rest rotation
Long Coulee	04839	Cat Creek CC; Dutton	yes	four pasture deferred rotion
Deep Coulee	02540	Chamberlin, Lyle	no	custodial
Dry Blood	05057	Gardner, Richard	no	rest rotation
Gardner Ind. CFHI	05113	Gardner, Richard	no	rest rotation
Gardner Ind. E	15058	Gardner, Richard	no	rest rotation
Gardner-Solf Area	04860	Gardner/Solf	no	rest rotation
North Forty	15135	Gardner, Richard	no	rest rotation
Chimney Rock AMP	05017	Gillett, Fred	yes	five pasture rest rotation
Gillett Ind. F Cust.	15015	Gillett, Fred	yes	custodial
Upper Cat Creek 2	02537	Hale, Ray & Steve	no	season long
River Pasture	04882	Harris, Bill	no	custodial
CK Cattle	15081	Harris, Bill	no	season long
IND B	02560	Iverson, Daniel	no	custodial
Blood Creek	04896	Iverson, Daniel	yes	three pasture rest rotation
West Blood Creek	04963	Iverson, Daniel	yes	three pasture rest rotation
Sage Creek	04856	Jensen, Jack	yes	three pasture deferred rotation
Cottonwood Creek	04840	Koenig Ranch	yes	nine pasture rest rotation
Manuel Place	04842	Manuel Ranch, Walt	proposed	four pasture deferred rotion
Vontver-Dobson	04838	Manuel/Ahlgren Com.	no	custodial
Breaks	15016	Marks, Hans	yes	three pasture deferred rotation
Blood Creek-Marty	04849	Murnion, Vince	no	season long
Upper Cat Creek	15019	Murnion, Vince	no	winter grazing
Anderson Ind.	04861	Murnion, Vince	no	custodial
Windmill East	15011	Murnion, Vince	no	custodial
Brush Creek Gavel	15022	Murnion, Vince	no	spring calving season
Windmill West	25006	Murnion, Vince	no	winter grazing
Lower Blood Creek	04870	Murnion, (Gibson)	no	season long
Shaw Place	04851	Shaw, Orval	no	custodial
Idhe Ranch	04852	Solf Brothers	proposed	three pasture deferred rotation
Dunn Ridge	15089	Solf Brothers	no	season long
Idhe B	15110	Solf Brothers	no	custodial
West Cat Creek	15054	Teigen L & L	no	season long
Hailey Coulee	04841	Thomas, Ben	proposed	four pasture rest rotation
Fail Place	04846	Thomas, Ben	no	custodial

APPENDIX J
Montana Noxious Weed List

Canada thistle (Cirsium arvense)
Field bindweed (Convolvulus arvensis)
Whitetop or Hoary cress (Cardaria draba)
Leafy spurge (Euphorbia esula)
Russian knapweed (Centaurea repens)
Spotted knapweed (Centaurea maculosa)
Diffuse knapweed (Centaurea diffusa)
Dalmatian toadflax (Linaria dalmatica)
Sulfur (erect) cinquefoil (Potentilla recta)
Common tansy (Tanacetum vulgare)
Ox-eye daisy (Chrysanthemum leucanthemum L.)
Houndstongue (Cynoglossum officinale L.)
Dyers woad (Isatis tinctoria)
Purple loosestrife (Lythrum salicaria, L. virgatum, and any hybrid crosses thereof).
Tansy ragwort (Senecio jacobaea L.)
Meadow hawkweed complex (Hieracium pratense, H. floribundum, H. piloselloides)
Orange hawkweed (Hieracium aurantiacum L.)
Tall buttercup (Ranunculus acris L.)
Tamarisk [saltcedar] (Tamarix spp.)
Yellow starthistle (Centaurea solstitialis)
Common crupina (Crupina vulgaris)
Rush skeletonweed (Chondrilla juncea)
Perennial Pepperweed (Lepidium latifolium)
Black Henbane (Hyoscyamus niger)

The following are designated as watch list weeds:
White Bryony (*Bryonia alba*)
Flowering Rush (*Butomus umbellatus*)
Blueweed (*Echium vulgare*)
Hydrilla (*Hydrilla verticillata*)
Scentless Chamomile (*Matricaria martima*)

Allotment Name	Allot. No.	Permittee	Pub. Ac.	AUMs	% PL	Livestock No.	Season of Use	Comments
Cat Creek	04844	Ahlgren, Larry	3164	476	43	185 cattle	5/1-10/31	3 studies, T-1, T-2, T-3
Bohn Ex. Pasture	04866	Brady, Evert	160	44	100	3 cattle	3/1-2/28	No studies
Twin Buttes	15063	Brady, Evert	2958	759	88	143 cattle	5/1-10/31	2 studies, T-1, T-2
Winter Pasture	01518	Browning Brothers	1385	225	Var	57 cattle	5/1-11/30	No studies
Tin Can	15082	Browning Brothers	4290	824	Var	150 cattle	3/1-2/28-5/1-10/31	2 studies, T-1, T-2
River Ranch	15115	Browning, Tom	4766	683	Var	196 cattle	5/1-10/31	4 studies, T-1, T-2, T-3, T-4
Long Coulee	04839	Cat Creek Cattle Co.; Dutton	3911	591	63	124 cattle	5/1-11/30,3/1-2/28	2 studies, T-1, T-2
Deep Coulee	02540	Chamberlin, Lyle	463	65	100	12 cattle	4/1-9/13	No studies
Dry Blood	05057	Gardner, Richard	2718	600	71	70 cattle	3/1-2/28	2 studies, T-1, T-2
Gardner Ind. CFHI	05113	Gardner, Richard	1875	477	100	44 cattle	3/1-2/28	No studies
Gardner Ind. E	15058	Gardner, Richard	1200	274	43	80 cattle	5/1-12/31	No studies
Gardner-Solf Area	04860	Gardner, Richard	520	51	59	22 cattle	5/1-7/31,9/1-11/30	No studies
North Forty	15135	Gardner, Richard	40	8	100	1 cattle	3/1-2/28	No studies
Chimney Rock AMP	05017	Gillett, Fred	4169	1180	51	301 cattle	5/20-12/20	4 studies, T-1, T-2, T-3, T-4, 3 photo points
Gillett Ind. F Cust.	15015	Gillett, Fred	710	146	100	12 cattle	3/1-2/28	No studies
Upper Cat Creek 2	02537	Hale, Raymond & Steven	1399	321	61	104 cattle	7/1-11/30	No studies
River Pasture	04882	Harris, Bill	194	19	100	2 cattle	3/1-2/28	No studies
CK Cattle	15081	Harris, Bill	2603	242	77	39 cattle	5/1-12/31	No studies
IND B	02560	Iverson, Daniel	1368	266	100	22 cattle	3/1-2/28	No studies
Blood Creek	04896	Iverson, Daniel	4599	824	78	188 cattle	5/15-11/01	2 studies, T-1, T-2
West Blood Creek	04963	Iverson, Daniel	518	78	12	115 cattle	5/15-11/01	2 studies, T-1, T-2
Sage Creek	04856	Jensen, Jack	1986	327	Var	80 cattle	5/10-10/24	2 studies, T-1, T-2
Cottonwood Creek	04840	Koenig Ranch	1491	319	Var	85 cattle	5/1-10/31,3/1-2/28	2 studies, T-1, T-2
Manuel Place	04842	Manuel Ranch, Walt	1528	403	60	409 cattle	5/1-5/31,7/15-9/15	3/1-12/31; 3 studies, T-1, T-2, T-3
Vontver-Dobson	04838	Manuel/Ahlgren Common	205	31	Var	21 cattle	3/1-2/28,5/15-10/31	No studies. Ahlgren-29 aums, Manuel-2 aums
Breaks	15016	Marks, Hans	3463	686	80	171 cattle	5/15-10/15	2 studies, T-1, T-2
Blood Creek-Marty	04849	Murnion, Vince	11816	1622	59	547	5/1-9/30	3 studies, T-1, T-2, T-3
Upper Cat Creek	15019	Murnion, Vince	254	42	100	4 cattle	3/1-5/31	No studies
Anderson Ind.	04861	Murnion, Vince	1444	399	100	33 cattle	3/1-2/28	No studies
Brush Creek Gavel	15022	Murnion, Vince	2112	470	38	141 & 136 cattle	3/1-5/31,9/1-2/28	2 studies, T-1, T-2
Windmill West	25006	Murnion, Vince	2491	792	84	102 & 106 cattle	9/1-11/30,10/1-5/31	1 study, T-1
Lower Blood Creek	04870	Murnion, Vince (Gibson lease)	7826	892	79	140 cattle	5/1-12/31	2 studies, T-1, T-2
Windmill East	15011	Murnion, Vince (Greytak lease)	160	41	100	3 cattle	3/1-2/28	No studies
Shaw Place	04851	Shaw, Orval	215	36	100	3 cattle	3/1-2/28	No studies
Gardner-Solf Area	04860	Solf Brothers	520	128	100	32 cattle	5/1-7/31,9/1-11/30	No studies
Idhe Ranch	04852	Solf Brothers	2917	604	63	190 cattle	5/15-10/15	2 studies, T-1, T-2
Dunn Ridge	15089	Solf Brothers	2185	258	67	96 cattle	6/1-9/30	2 studies, T-1, T-2
Idhe B	15110	Solf Brothers	540	80	100	6 & 8 cattle	3/1-6/30-8/1-2/28	No studies
West Cat Creek	15054	Teigen L & L	2765	685	100	157 cattle	5/21-9/30	No studies
Hailey Coulee	04841	Thomas, Ben & Claudia	9685	1491	80	368 cattle	5/15-10/15	4 studies, T-1, T-2, T-3, T-4
Fail Place	04846	Thomas, Ben & Claudia	282	45	100	4 cattle	3/1-2/28	No studies
Totals			96895	17504				

APPENDIX L
Land Use Plan Guidance

- **Energy Mineral Resources:** No surface occupancy restrictions will be used to protect critical paleontology sites and archeology sites. Seasonal and distance restrictions will be included in oil and gas leases to mitigate impacts to wildlife habitat **(JVP)**.

- **Non-energy Mineral Resources:** Federal minerals are available for exploration and development unless withdrawn **(JVP)**.

- **Paleontology:** Major paleontological resources of scientific interest will be protected **(JVP)**

- **Soils:** Soil productivity will be maintained or improved by increasing vegetation cover and reducing erosion **(JVP, Standards and Guidelines)**.

- **Water Resource Management:** Surface and ground water quality will be maintained to meet or exceed state and federal water quality standards **(JVP, Standards and Guidelines)**.

- **Vegetation Management:** The ecological status will be improved or maintained to achieve a plant community of good (late seral) to excellent (potential natural community) on 80% of the public lands within 15 years of implementation of activity plans **(JVP)**.

  Public lands that are in satisfactory (good and excellent) ecological condition will be maintained. Public lands with unsatisfactory (poor and fair) ecological condition will be managed according to multiple use objectives based on ecological site potential for specific uses **(Standards and Guidelines)**.

  About 40% of the vegetation will continue to be allocated to livestock grazing and about 60% will continue to be allocated to watershed protection and wildlife forage and cover **(JVP)**.

  The quality and quantity of summer wildlife forage will be improved by improving the reproduction and availability of palatable forbs for deer and antelope. Deer and antelope winter range (especially woody species) will be maintained and/or improved. Existing sagebrush stands will be maintained at a canopy cover of 15 to 50% with an effective height over 12 inches **(JVP, Standards and Guidelines)**.

  The quality and quantity of nesting, brood rearing and winter habitat for upland game birds and waterfowl nesting habitat will be improved by providing residual upland grass and forb cover **(JVP, Standards and Guidelines)**.

  Land will be managed for succulent vegetation production, including a variety of forbs, and big and silver sagebrush will be maintained on sage grouse wintering and nesting areas with a canopy coverage of 15 to 50% and an effective height of 12 inches. Woody vegetation will be maintained or improved for sharp-tailed grouse cover **(JVP, Standards and Guidelines)**.

- **Riparian and Wetland Management:** Riparian-wetland areas will be maintained or improved based on proper functioning condition and desires plant community. Riparian-wetland objectives will be initially accomplished through livestock grazing methods at current stocking

levels. If grazing methods are not successful in meeting management objectives, necessary actions will be taken to meet those objectives **(JVP, Standards and Guidelines)**.

All manageable riparian areas will have management plans implemented to maintain, restore or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term benefits and values **(Standards and Guidelines)**.

- **Land Treatments:** Land treatments will be used to meet watershed, grazing management and wildlife objectives but will be applied only where grazing management alone will not accomplish the desired result **(JVP)**.

- **Noxious Plants:** Noxious plants will be controlled or eradicated through integrated pest management in order to maintain native rangelands **(JVP, Standards and Guidelines)**.

- **Wildlife and Fisheries Management:** Suitable habitat for all wildlife species will be maintained or enhanced. The emphasis for habitat maintenance and development will be on present and potential habitat for sensitive, threatened and/or endangered species, nesting waterfowl, crucial wildlife winter ranges, non-game habitat and fisheries **(JVP, Standards and Guidelines)**.

- **Prairie Dog Management:** Prairie dog towns will be maintained or managed based on the values or problems encountered **(JVP)**.

- **Elk and Bighorn Sheep Management:** Habitat will be provided for elk in the Musselshell Breaks consistent with the MT Dept of FWP Elk Management Plan. **(JVP)**.

- **Recreation:** The recreational quality of public land and resources will be maintained and/or enhanced to ensure enjoyable recreational experiences. Recreation emphasis will be to develop and maintain opportunities for dispersed recreational activities such as hunting, scenic and wildlife viewing and driving for pleasure.

- **Off-Highway Vehicle Use:** BLM will restrict OHV use on BLM land year-long or seasonally to designated roads and trails or close specific areas to protect resource values, i.e., protect vegetation and soils to maintain watersheds and water quality, reduce user conflicts, and reduce harassment of wildlife and provide habitat security. **(JVP)**.

- **Visual Resource Management:** Activities will be managed to comply with VRM policies **(JVP)**.

- **Cultural:** Cultural resources will be properly managed through a systematic program of identification and evaluation. The level of conflict between cultural resources and other land and resource uses will be reduced in compliance with existing laws/regulations **(JVP)**.

- **Fire Management:** Fire will managed in the manner most cost effective and responsive to resource management objectives **(JVP)**.

  Prescribed fire will be utilized only under specific conditions and may be administered on an individual basis in grassland, sagebrush and/or conifer types to improve wildlife habitat and vegetation production **(JVP)**.

APPENDIX L
Land Use Plan Guidance

Intensive suppression of wildfire will be applied to areas with high resource values, improvements, recreation sites, administrative sites, sagebrush and juniper, fire sensitive woody riparian species, and/or cultural values and may also be used to prevent fire from spreading to adjoining private property and structures **(JVP)**.

Conditional suppression will be applied to areas with low resource values or to areas not warranting intensive suppression actions and costs. Conditional suppression actions will be used in grass/shrub fuel types, Missouri Breaks fuel types and mountain timber fuel types **(JVP)**.

- **Forest Management:** Minor forest products may be harvested from the Breaks on a selected sustained yield basis with wildlife habitat objectives in mind **(JVP)**.

- **Lands:** Resource values will be protected or enhanced when considering applications or requests for Rights of Ways, leases and permits. Acquisitions will be pursued as opportunities arise through exchange or purchase with willing proponents and/or sellers. **(JVP)**

- **Access to BLM Land:** Access will be pursued to BLM land where no legal public access exists or where additional access to major blocks of BLM land is needed. **(JVP)**

- **Signing:** Appropriate signs and posters will be used to promote safety and convenience for visitors and users, define boundaries, identify management practices, provide information about geographic and historic features and protect vulnerable land areas and resources from misuse. **(JVP)**

Musselshell Breaks Watershed: Appendix M - Standards (Determinations by Allotment)

Allotment Name	Allotment No.	Permittee	Standard 1 (uplands)	Standard 2 (riparian)	Standard 3 (h2o qual)	Standard 5 (biodiv.)	Cause
Cat Creek	04844	Ahlgren, Larry	meeting	meeting	meeting	meeting	
Bohn Ex. Pasture	04866	Brady, Evert	meeting	n/a	meeting	meeting	
Twin Buttes	15063	Brady, Evert	meeting	n/a	meeting	meeting	
Tin Can	15082	Browning Brothers	meeting		meeting	meeting	
Winter Pasture	01518	Browning Brothers	meeting	n/a	meeting	meeting	
River Ranch	15115	Browning, Tom	meeting		meeting	meeting	
Long Coulee	04839	Cat Creek CC; Dutton	meeting	meeting	meeting	meeting	
Deep Coulee	02540	Chamberlin, Lyle	meeting	meeting	meeting	meeting	
Dry Blood	05057	Gardner, Richard	meeting	n/a	meeting	meeting	
Gardner Ind. CFHI	05113	Gardner, Richard	meeting	n/a	meeting	meeting	
Gardner Ind. E	15058	Gardner, Richard	meeting	n/a	meeting	meeting	
Gardner-Solf Area	04860	Gardner,Solf	meeting	n/a	meeting	meeting	
North Forty	15135	Gardner, Richard	meeting	n/a	meeting	meeting	
Chimney Rock AMP	05017	Gillett, Fred	meeting	meeting	meeting	meeting	
Gillett Ind. F Cust.	15015	Gillett, Fred	meeting	meeting	meeting	meeting	
Upper Cat Creek 2	02537	Hale, Ray & Steve	meeting	n/a	meeting	meeting	
River Pasture	04882	Harris, Bill	meeting	not meeting	meeting	meeting	livestock
CK Cattle	15081	Harris, Bill	meeting	not meeting	meeting	meeting	natural erosior
IND B	02560	Iverson, Daniel	meeting	n/a	meeting	meeting	
Blood Creek	04896	Iverson, Daniel	meeting	not meeting	meeting	meeting	erosion, weeds
West Blood Creek	04963	Iverson, Daniel	meeting	n/a	meeting	meeting	
Sage Creek	04856	Jensen, Jack	meeting	meeting	meeting	meeting	
Cottonwood Creek	04840	Koenig Ranch	meeting	meeting	meeting	meeting	
Manuel Place	04842	Manuel Ranch, Walt	meeting	n/a	meeting	meeting	
Vontver-Dobson	04838	Manuel/Ahlgren Com.	meeting	n/a	meeting	meeting	
Breaks	15016	Marks, Hans	meeting	meeting	meeting	meeting	
Blood Creek-Marty	04849	Murnion, Vince	meeting	not meeting		meeting	livestock
Upper Cat Creek	15019	Murnion, Vince	meeting	n/a	meeting	meeting	
Anderson Ind.	04861	Murnion, Vince	meeting	meeting	meeting	meeting	
Windmill East	15011	Murnion, Vince	meeting	n/a	meeting	meeting	
Brush Creek Gavel	15022	Murnion, Vince	not meeting	not meeting	not meeting	not meeting	livestock
Windmill West	25006	Murnion, Vince	not meeting	n/a	not meeting	not meeting	livestock
Lower Blood Creek	04870	Murnion, (Gibson)	meeting	not meeting	meeting	meeting	livestock
Shaw Place	04851	Shaw, Orval	meeting	meeting	meeting	meeting	
Idhe Ranch	04852	Solf Brothers	not meeting	not meeting	not meeting	meeting	livestock
Dunn Ridge	15089	Solf Brothers	meeting	n/a	meeting	meeting	
Idhe B	15110	Solf Brothers	meeting	meeting	meeting	meeting	
West Cat Creek	15054	Teigen L & L	meeting	n/a	meeting	meeting	
Hailey Coulee	04841	Thomas, Ben	meeting	not meeting	meeting	meeting	livestock
Fail Place	04846	Thomas, Ben	meeting	meeting	meeting	meeting	

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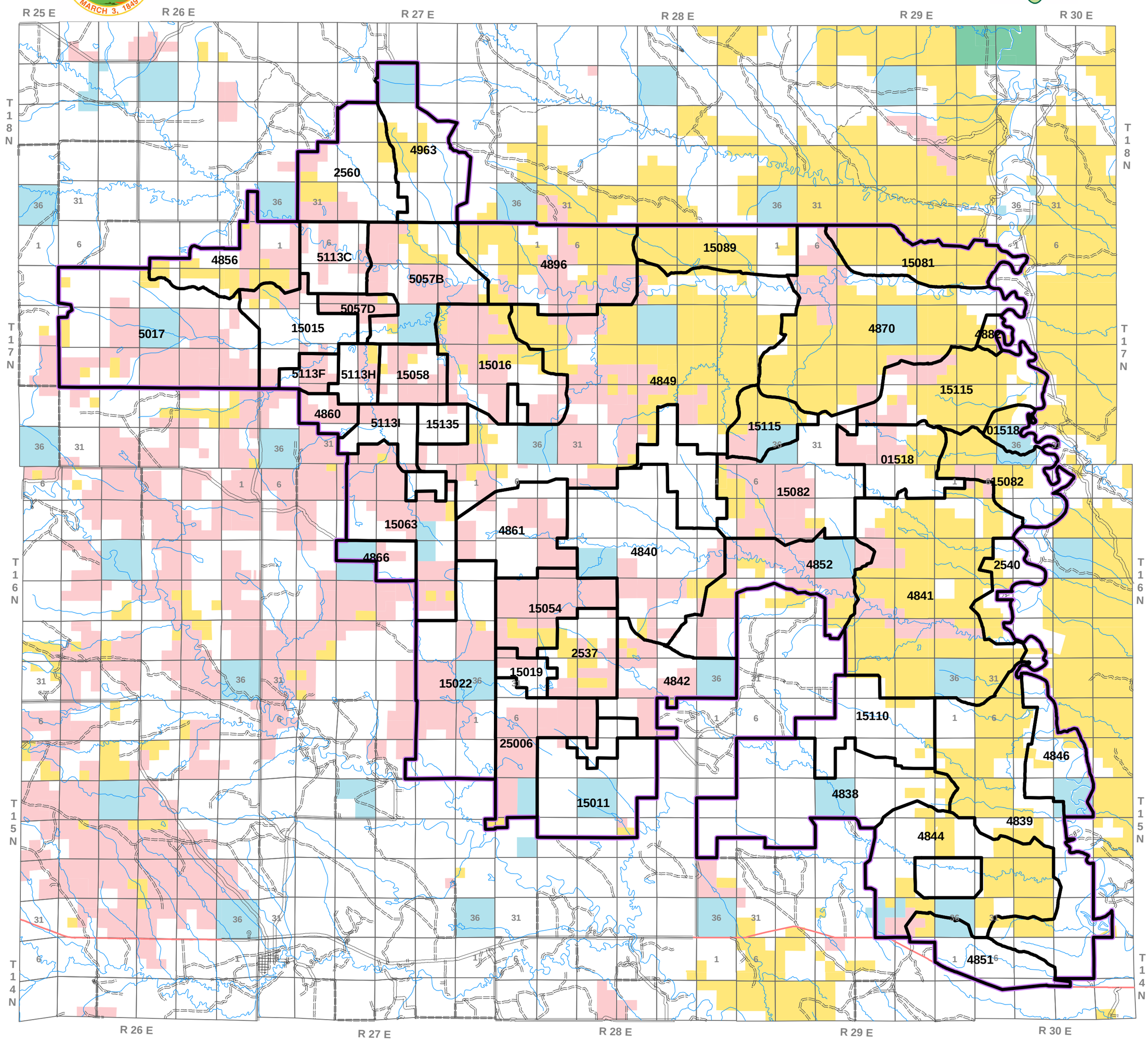
Musselshell Breaks Watershed

M1 Watershed and Grazing Allotments



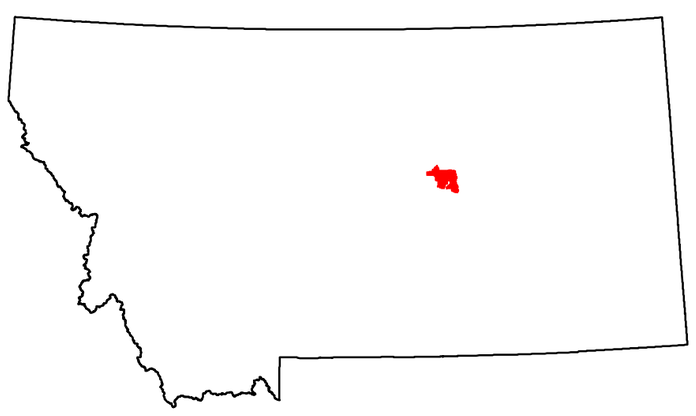
Legend

- Grazing Allotments
- Watershed Boundary
- Bankhead-Jones (BLM) Lands
- BLM Lands
- Corps of Engineers
- USF&W National Wildlife Refuge
- Private Lands
- State Lands

0 0.5 1 2 3 4 Miles

N W E S

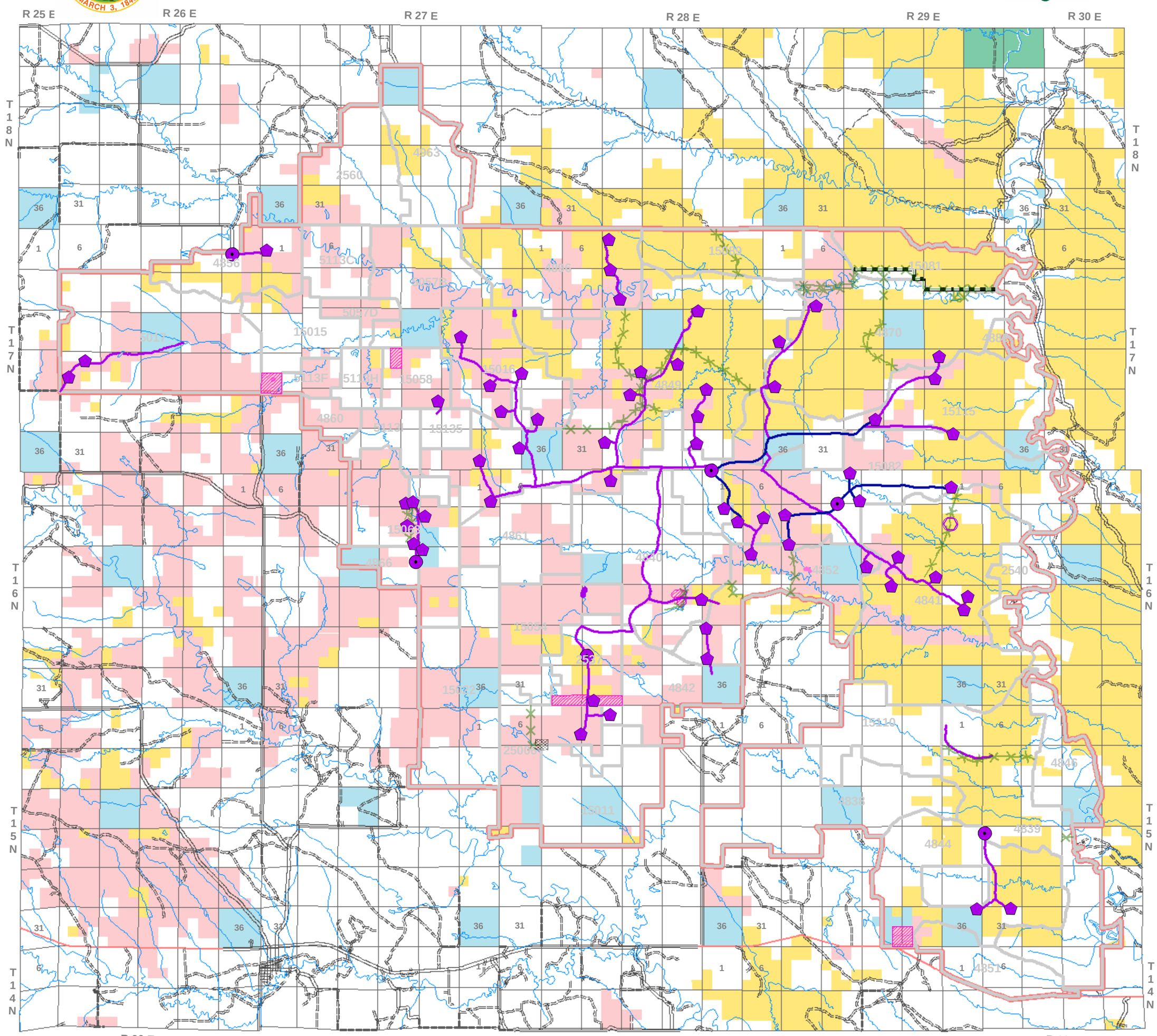
Location Map



NO WARRANTY IS MADE BY THE BLM FOR THE USE OF THE DATA DISPLAYED FOR PURPOSES NOT INTENDED BY BLM.

Musselshell Breaks Watershed

M2 Range Allotments/Range Improvements



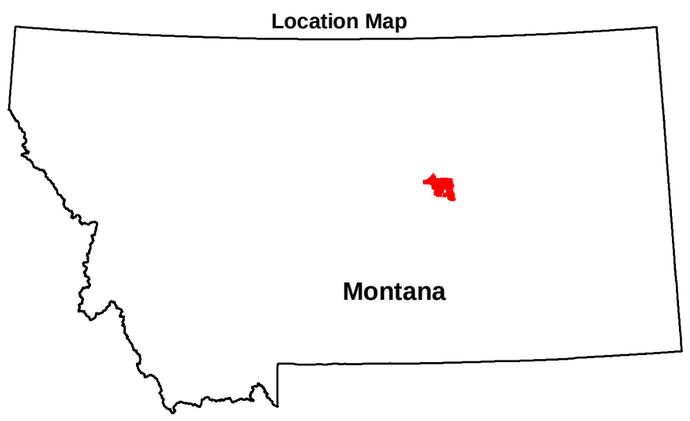
Legend

- Stock Tank
- Cattle Guard
- Well
- Water Saver
- Proposed Fences
- Existing Pipeline
- Proposed Pipelines
- Proposed Grazing Allotment Change
- Proposed Reservoir
- Proposed Clubmoss Chiseling
- Proposed Reservoir Maintanance
- Grazing Allotments
- Watershed Boundary
- Bankhead-Jones (BLM) Lands
- BLM Lands
- Corps of Engineers
- USF&W National Wildlife Refuge
- State Lands
- Private Lands

N W E S

0 0.5 1 2 3 4 Miles

Location Map



Musselshell Breaks Watershed

M3 Noxious Weeds

R 25 E R 26 E R 27 E R 28 E R 29 E R 30 E

T 18 N T 17 N T 16 N T 15 N T 14 N

4963 2560 4856 5113C 4896 15089 15081 5057B 5057D 5017 15015 4870 4882 15016 5113F 5113H 15058 4849 4860 5113I 15135 15115 15082 15063 4861 4866 4840 4852 2540 4841 15054 2537 15022 4842 15110 25006 4846 15011 4838 4839 4844 4851

SPECIES

- Spotted Knapweed
- Russian Knapweed
- Black Henbane
- Salt Cedar

SPECIES

- Russian Knapweed
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SPECIES

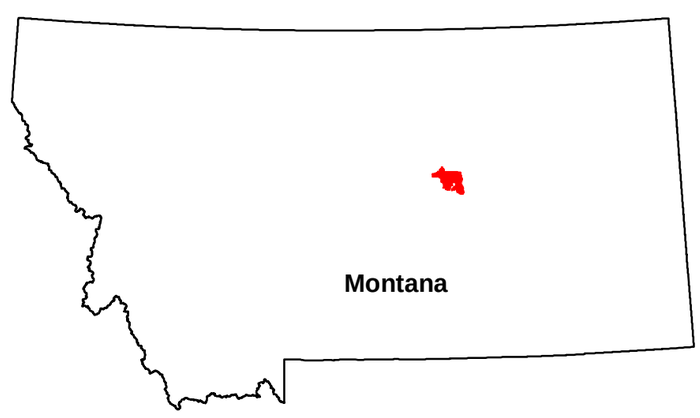
- Spotted Knapweed
- Russian Knapweed
- Salt Cedar

- Bankhead-Jones (BLM) Lands
- BLM Lands
- Corps of Engineers
- USF&W National Wildlife Refuge
- Private Lands
- State Lands

N W E S

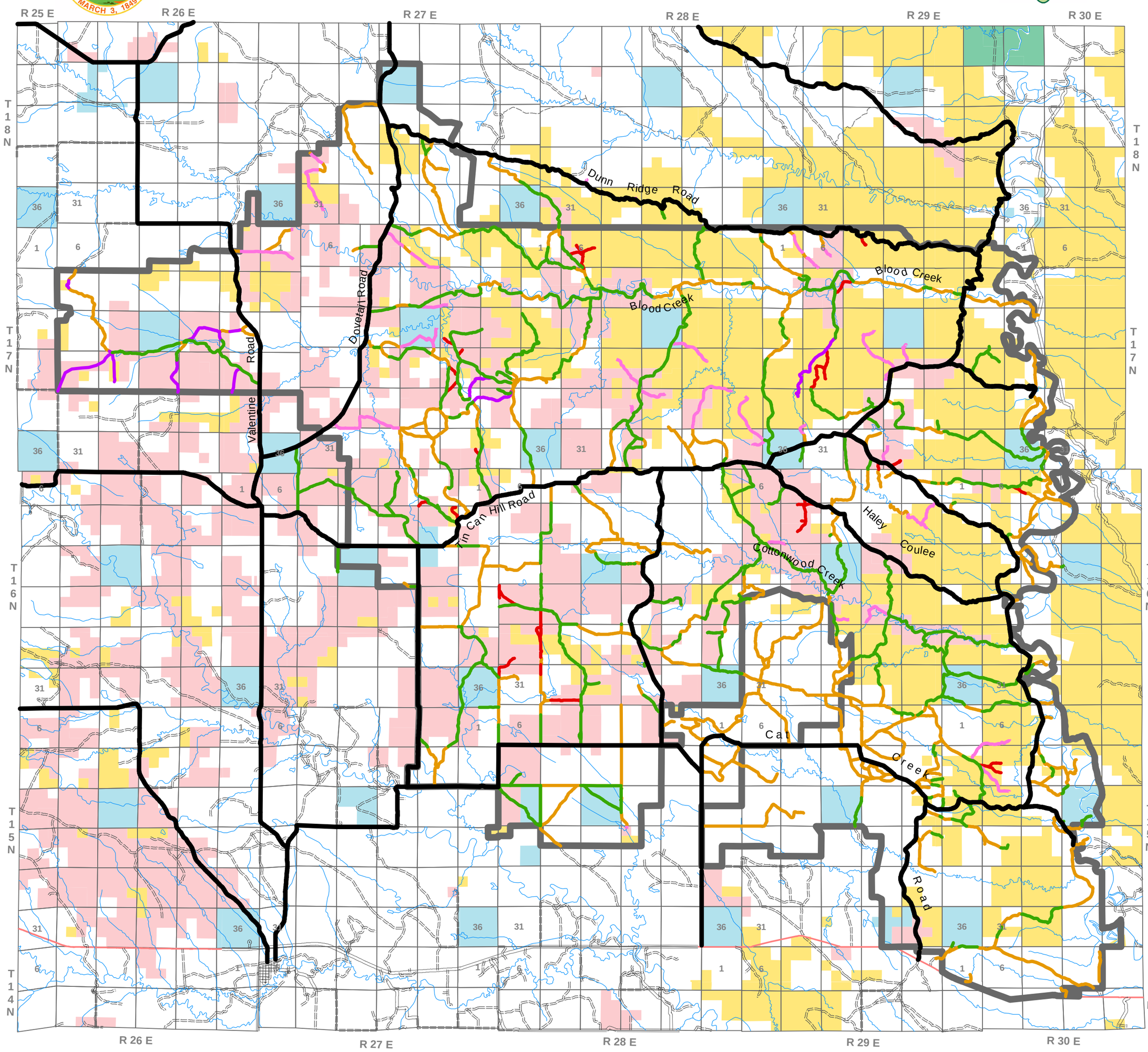
0 0.5 1 2 3 4 Miles

Location Map



Musselshell Breaks Watershed

M4 Travel Plan



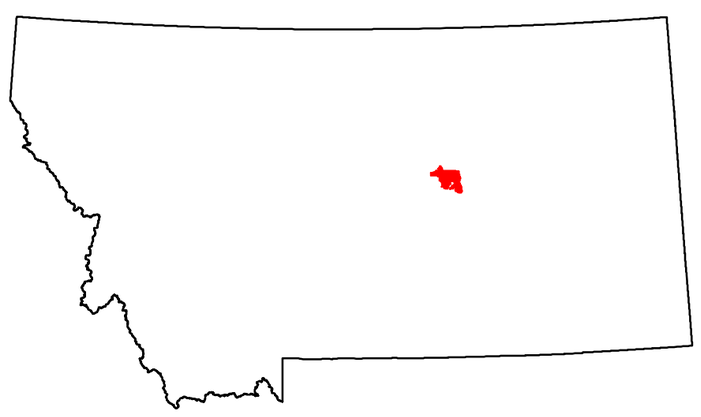
Legend

- Major Access Roads
- Open Roads
- Restricted Access Sept.1-Dec.1
- Roads Closed Sept.1-Dec.1
- Closed All Year
- Private Roads*
- Watershed Boundary
- Bankhead-Jones (BLM) Lands
- BLM Lands
- USF&W National Wildlife Refuge
- Private Lands
- State Lands

N W E S

0 0.5 1 2 3 4 Miles

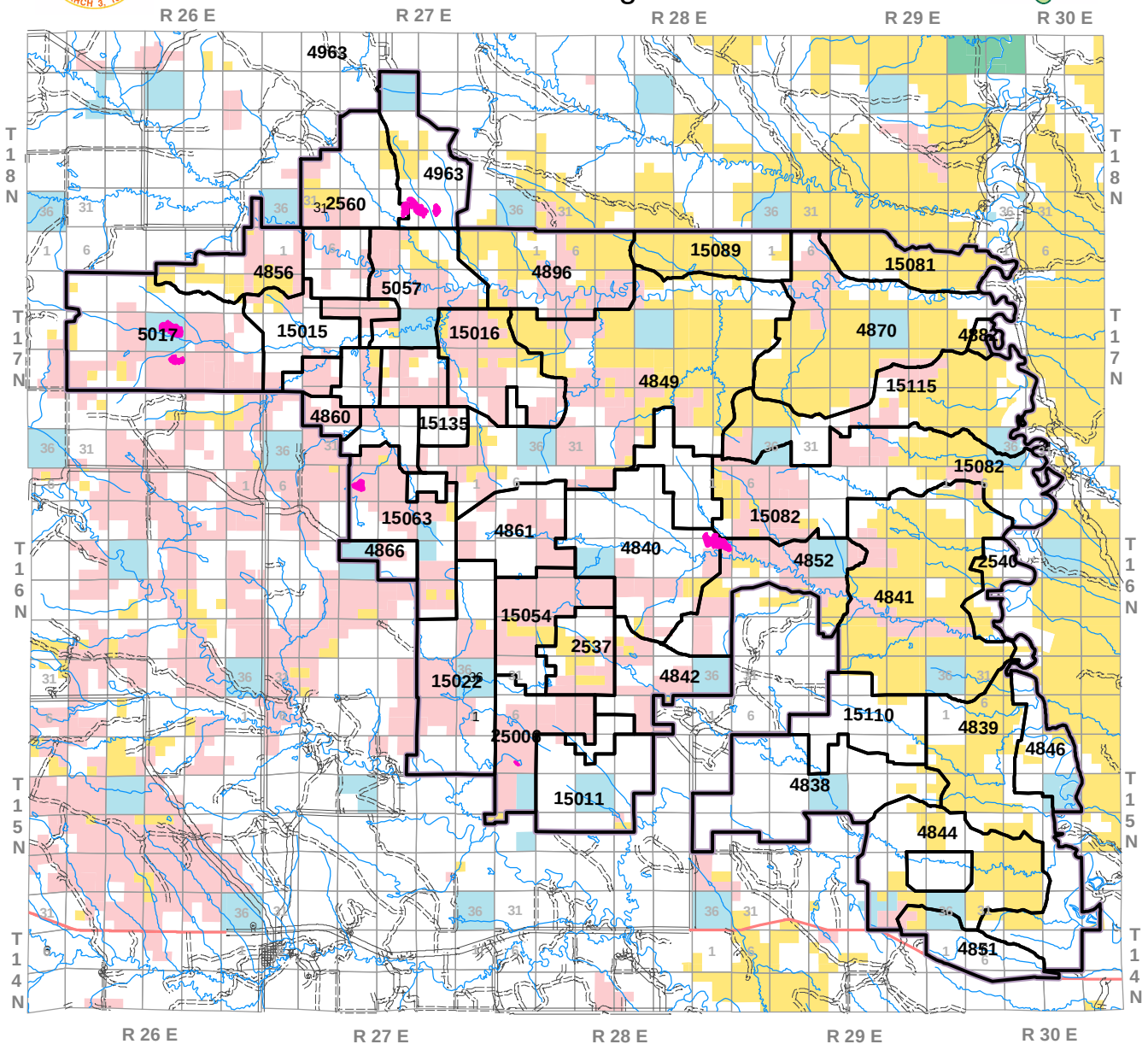
Location Map



*** Private roads depicted are not necessarily open and may require landowner permission.**

Musselshell Breaks Watershed

M5 Prairie Dog Towns



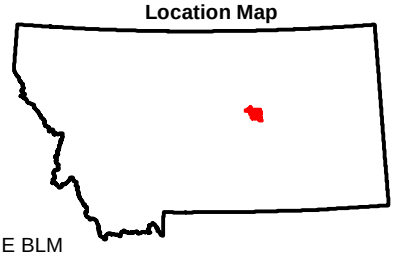
Legend

- Prairie Dog Towns
- Bankhead-Jones Lands (BLM)
- BLM Lands
- USF&W National Refuge Lands
- Private Lands
- State Lands

N
W E
S

Miles
10.50 1 2 3 4

Location Map



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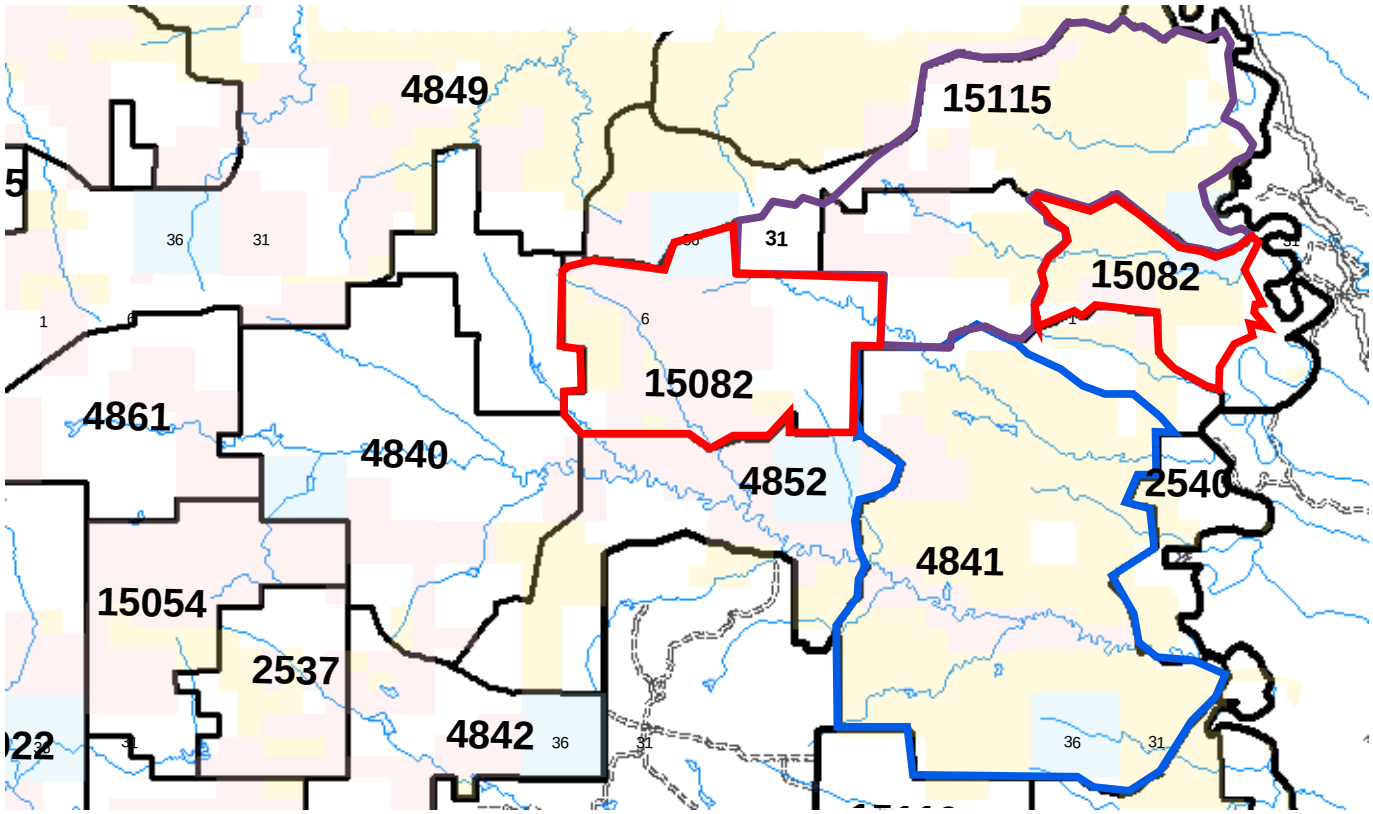
Musselshell Breaks Watershed



Legend

- Tin Can
- River Ranch
- Hailey Coulee
- BLM
- Bankhead-Jones
- State
- Water
- Private
- Highway
- Improved Road
- Unimproved Road
- 4 Wheel Drive Track
- Landing Strip

0.90.45 0 0.9 1.8 2.7 Miles

N
W E
S

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of this data for individual use or aggregate use with other data.