



**Environmental Assessment for Livestock Management Alternatives,
Belmont Grazing Allotment, Middle Ruby River Watershed**

DOI-BLM-MT-B050-2015-0009-EA

Dillon Field Office

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Belmont North Pasture; September, 2013

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Chapter 1

1.0 Purpose of and Need for the Proposed Action

1.1 Introduction and Background

This Environmental Assessment (EA) analyzes two additional grazing alternatives for the Belmont allotment that were not included in the Middle Ruby River Watershed (MRRW) EA. It is tiered-referred-to the more comprehensive MRRW EA (DOI-BLM-MT-B050-2014-0005-EA) and all the information within the MRRW EA is incorporated by reference into this document. The three grazing management alternatives analyzed in the MRRW EA for the Belmont allotment, Alternative A (No Action), Alternative B and Alternative C, are included in this document for ease of comparison. The predicted effects of those three original alternatives were analyzed previously so no additional analysis is required. Some pertinent sections of the MRRW EA have been brought into this document, i.e., Alternatives Considered but Eliminated from Further Review, Features Common to All Alternatives Including the No Action and Feature Common to All Action Alternatives, because they contain information that is relevant to livestock management on all grazing allotments in the watershed including the Belmont.

In the summer of 2014, the lessee of the Belmont allotment (proponent) hired a natural resource consultant to develop a comprehensive grazing plan for his entire ranch. To provide additional time to assess resource conditions and work on a grazing strategy and an alternative, encompassing both private and public lands, the Belmont allotment was not included in the MRRW Proposed Decision issued in September of 2014. Members of the BLM IDT, the proponent, and his resource consultant visited the allotment on two separate occasions in August and September of 2014 to view resource conditions and discuss the process by which the BLM determined that some of riparian habitat in the allotment had not met the standard.

The Belmont allotment is one of thirteen allotments in the Middle Ruby River Watershed. In 2013, an interdisciplinary team (IDT) assessed public land administered by the Bureau of Land Management in the MRRW for the five Standards of Rangeland Health. The Standards are: Upland Health, Riparian Health, Water Quality, Air Quality, and providing for Biodiversity.

The Belmont allotment was included in the MRRW Assessment Report issued in December of 2013, which described the condition/function of resources within the entire watershed to the Authorized Officer. Based on the Assessment Report, the Authorized Officer issued a Summary and Determination document in December of 2013. It was determined that the Belmont allotment did not meet the Riparian or Water Quality Standards.

Subsequently, an Environmental Assessment, DOI-BLM-MT-B050-2014-0005-EA, was completed in accordance with established procedures to propose and analyze allotment, landscape or site specific management alternatives where applicable. The Belmont allotment was included in the EA which analyzed a range of management alternatives designed to initiate progress towards Proper Functioning Condition (PFC) of the Standards and address site specific resource concerns.

The MRRW Assessment Report and the Authorized Officer’s Summary and Determination (December 2013) and the MRRW EA (June 2014) are available to the public and may be reviewed at the Dillon Field Office, or on the internet at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

1.2 Proposed Action, Purpose and Need

This Environmental Assessment (EA) is in direct response to land health condition/function and recommendations identified in the MRRW Assessment Report for the Belmont allotment. In that document, the IDT described several causal factors, which, when combined, negatively impact the biological, physical, and ecological processes. As a result, the Authorized Officer determined that the riparian and water quality standard was not met in Belmont allotment. See Map # 1 in Appendix A to view all the stream reaches in the Belmont allotment and their functional condition as reported in the Middle Ruby River Watershed Assessment Report.

The Fundamentals of Rangeland Health and Land Health Standards require the BLM to initiate management actions that ensure, “Watersheds are in, or are making significant progress toward, properly functioning condition, including their upland, riparian-wetland, and aquatic components...,” if an assessment determines one or more of the Land Health Standards are not being met (43 CFR 4180.1(a)).

The Authorized Officer determined that livestock grazing impacts are contributing to one or more of the Standards not being met in the Belmont allotment. Pursuant to 43 CFR 4180.2(c), livestock-caused failure to meet any of the Standards mandates the BLM to change the terms and conditions of the grazing permit/lease for the applicable grazing allotment prior to the next grazing season and implement actions that will result in significant progress toward fulfillment of the Standards. Further, BLM guidance stipulates that if actions are necessary and cannot be implemented before the next grazing season interim adjustments will be made prior to the next grazing season and a schedule for final changes must be developed and documented (H-4180-1).

Table 1.1 shows the Authorized Officer’s determination of each standard in the Belmont grazing allotment.

Table 1.1: Determination of Standards

Allotment, Number, Category*	Are Land Health Standards Met?				
	Uplands	Riparian	Water Quality	Air Quality	Biodiversity
Belmont #10469 I	Yes	No	No**	Yes	Yes

* Categories are assigned to allotments based on resource management goals: I=improve, M=maintain, C=custodial
 *1-These allotments contain tributary streams which are not on the 303(d) list, are not priority streams, are not scheduled to be evaluated by the DEQ and have no beneficial use determinations. Therefore, the water quality standard cannot be determined.
 ** The Montana Department of Environmental Quality (DEQ) has been given the responsibility for making water quality determinations and has completed its evaluation of 303(d)-listed streams. Allotments with listed streams failed the water quality standard, but BLM authorized activities are not necessarily a causal factor.

1.3 Conformance with BLM Land Use Plans, Programs, and Policies

This document is tiered to the Dillon RMP, approved in 2006, and the management alternatives considered are in conformance with the RMP. Applicable guidance is in the Record of Decision (ROD) and Approved Dillon RMP, which may be accessed on the internet at <http://www.mt.blm.gov/dfo/rmp/index.html>.

The ROD identified goals, objectives, land use allocations, and management actions for each program area on public lands managed by the BLM Dillon Field Office. All alternatives in this EA, except the No Action Alternative, propose management actions in support of these identified actions, allocations, and objectives.

The proposed actions are in conformance with the Federal Land Policy and Management Act, the Taylor Grazing Act, the Standards for Rangeland Health and Guidelines for Grazing Management (43 CFR 4180), Manual 6330-Management of Wilderness Study Areas, BLM policies and Federal regulations.

Also considered during alternative development were the goals, objectives and management recommendations specified in these documents:

- Interagency Memorandum of Understanding and Conservation Agreement for Cutthroat Trout in Montana.
- BLM’s National Sage Grouse Strategy
- Greater Sage-Grouse Interim Management Policies and Procedures No. 2012-043
- Management Plan, Conservation strategies for Sage Grouse in Montana
- 2010 Nonpoint Source Memorandum of Understanding between the BLM and the Montana Department of Environmental Quality (DEQ)

1.4 Critical Elements of the Human Environment

Critical Elements of the Human Environment, as defined by BLM Manual 1790-1, must be considered in all BLM EAs and Environmental Impact Statements (EISs). The scoping process indicated which Critical Elements may be affected by the alternatives. Table 1.2 is inclusive of the entire MRRW.

Table 1.2: Critical Elements of the Human Environment

Critical Element	Not present	Present, but not affected	May be affected*	Comments
Air Quality			X	Burning of slash materials may result in short term air quality deterioration. Prescribed burning is done in accordance with the MT/Dakotas Fire Management Plan and is coordinated with MT DEQ and the MT/ID Airshed Group. During prescribed fire season, the Smoke Monitoring Unit supports the Montana/Idaho Airshed Group to prevent/reduce the impact of smoke on area communities, especially when it could contribute to a violation of national air quality standards.
Areas of Critical Environmental Concern (ACEC)	X			

Critical Element	Not present	Present, but not affected	May be affected*	Comments
Cultural & Paleontological Resources		X		See features common to all alternatives in section 2.3.1, and a broader discussion of Cultural & Paleontological Resources in section 3.2.10, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
Environmental Justice	X			No low income or minority groups would be disproportionately affected.
Farmland (prime or unique)		X		Prime or unique farmland will be conserved through actions that address Land Health Standards
Floodplains ¹			X	Discussed under Issue # 1-Riparian, Wetland and Aquatic Habitat, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
Hazardous and Solid Wastes	X			None in project area
Invasive Non-native Species			X	Discussed under Resource Concern #1-Noxious and Invasive Species, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
Native American Religious Concerns	X			Tribes familiar with the area have expressed no religious concerns.
T&E species			X	See BE for T&E and Sensitive Species in Appendix C, MRRW EA, MT-B050-2014-0005-EA.
Water Quality (drinking or ground)			X	Discussed under Issue # 1-Riparian, Wetland and Aquatic Habitat and also 1.3.1 Issues considered but eliminated, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
Wetlands/Riparian Zones			X	Discussed under Issue # 1-Riparian, Wetland and Aquatic Habitat, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
Wild and Scenic Rivers	X			No Wild and Scenic Rivers in project area.
Wilderness Characteristics			X	Discussed under Resource Concern #2-Wilderness, MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.
* An "X" in this box means that the resource is further evaluated in the affected environment and environmental impacts sections.				
¹ Floodplains are part of stream systems. Actions which improve streams and riparian habitats will comply with Executive Order 11988 in that they are designed to restore and preserve the natural and beneficial values served by floodplains.				

1.5 Decisions to be made

The BLM is preparing this EA to allow the Authorized Officer to make a reasoned and informed decision regarding improving riparian habitat and water quality in the Belmont allotment. A revised grazing lease would contain appropriate terms and conditions to initiate significant and measurable progress towards achieving the Standards and established goals and objectives within the allotment.

The Dillon Field Manager will choose the alternative which most effectively addresses issues and resource concerns identified by the BLM, and through public scoping. The Dillon Field

Manager must also determine if a selected alternative is a major Federal Action that significantly affects the quality of the human environment. If she/he determines that it is, then an EIS must be prepared before the Belmont management plan can proceed.

Implementation of the Decisions issued as a result of this EA may begin in 2015, but full implementation may take several years and is subject to budget constraints. The decisions will be implemented in consultation and coordination with the affected lessee, the agencies having lands or managing resources within the area, and other interested parties. As with all similar BLM decisions, affected parties will have an opportunity to protest and/or appeal these decisions.

1.6 Applicable Legal and Regulatory Requirements

- Title 43, Code of Federal Regulation, Part 4100
- Taylor Grazing Act of June 30, 1934, as amended
- Sikes Act of 1960, as amended (Habitat improvement on Public Land)
- National Historic Preservation Act of 1966, as amended
- Carlson-Foley Act of 1968 (Weed Control on Public Lands)
- National Environmental Policy Act of 1969 (NEPA)
- Endangered Species Act of 1973
- Federal Noxious Weed Act of 1974, as amended in 1988, 1994
- Federal Land Policy and Management Act of 1976 (FLPMA)
- Fishery Conservation and Management Act of 1976
- Clean Water Act of 1977
- Public Rangelands Improvement Act of October 25, 1978
- Fish and Wildlife Improvement Act of 1978
- State of Montana Streamside Management Zone Law of July 1991
- National Fire Plan of 2000
- Healthy Forests Initiative of 2002
- Healthy Forests Restoration Act of 2003
- Dillon Resource Management Plan of 2006
- Management of Wilderness Study Areas (manual 6330), 2012
- Paleontological Resources Preservation Act of 2009

1.7 Coordination Requirements

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

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

Chapter 2

2.0 Description of Alternatives

This chapter describes the alternative development process, alternatives considered but eliminated from further analysis, and alternatives carried forward and fully analyzed. For the Belmont Allotment, five management alternatives will be fully analyzed: the No Action Alternative (continuation of current management) and four action alternatives. Based on identified issues, combinations of allowable use levels, grazing systems, stocking rates, were discussed at length and carefully considered during scoping and the formulation of three management alternatives (A,B,C) by the Interdisciplinary Team (IDT) and are included, and their environmental effects analyzed, in the Middle Ruby River Watershed EA. Alternatives A, B and C are included in this document for ease of comparison with two additional grazing management alternatives for the Belmont allotment. Alternative D was formulated by the lessee (proponent) and submitted for consideration December 18, 2014. Alternative E has been formulated by the BLM to combine aspects of the other alternatives and incorporate additional proposals.

2.1 Alternatives Considered but Eliminated from Further Analysis

Alternatives that would not make significant progress toward meeting the objectives of the proposed action (section 1.2), or are not consistent with the intent of current BLM legal and regulatory requirements or policy, are not fully analyzed in this document. Alternatives that propose exclusive utilization, development or protection of one resource at the expense of other resources are not considered. FLPMA mandates the BLM to manage public lands for multiple use and sustained yield. This eliminates alternatives such as closing all public land to livestock grazing, oil and gas leasing, or managing only for wildlife values at the exclusion of other considerations. In addition, resource conditions in the MRRW do not warrant watershed-wide prohibitions of any specific use. Each alternative considered in this EA allows for some level of support, protection, and/or use of all resources present in the planning area. The following alternatives were considered, but eliminated from detailed study.

2.1.1 Elimination of Livestock Grazing on the Belmont Allotment

A no grazing alternative was considered for the Belmont allotment. This alternative was considered because the riparian health standard was not met on several stream reaches within the allotment due to livestock grazing. Eliminating livestock grazing would facilitate improvement of riparian, and site specific upland conditions, across the allotment more rapidly than the proposed action alternatives. However, due to the intermixed land pattern of private, state and BLM administered lands throughout this 21,956 acre allotment, approximately 30 miles of fence would need to be constructed to eliminate grazing by domestic livestock on BLM administered lands. There are 12,034 acres of BLM administered land within the allotment. Surveying and constructing 30 miles of fence along BLM boundaries at approximately \$9,000/mile (\$270,000) would be cost prohibitive. These fences would also cause an unacceptable level of barrier/entanglement hazard for big game. The additional 30 miles of fence would also pose a serious hazard for sage grouse by increasing the chance of collision. The southern portion of the Belmont allotment lies within priority sage grouse habitat and the remainder is within general sage grouse habitat. Eliminating livestock grazing would have an adverse economic impact on the ranch operation currently authorized to graze livestock in the Belmont Allotment and

decreased tax revenue for Madison County. In addition, the BLM would still incur a workload to monitor compliance to non-use on the public land in this allotment. A build-up of fine fuels would increase the likelihood of wildfires (both natural and man-caused) moving faster and spreading further within the allotment. For these cumulative reasons, elimination of livestock grazing on the Belmont allotment was eliminated from full analysis.

2.2 Description of Alternatives

This section contains only information pertinent to livestock management in the Belmont allotment. A comprehensive discussion of alternatives affecting other programs, management actions or resources in Belmont, and the entire watershed, is located in Chapter 2, of the MRRW EA, DOI-BLM-MT-B050-2014-0005-EA.

2.2.1 Features Common to All Alternatives, Including the No Action

Livestock Management

The BLM encourages, and if warranted, will require use of temporary electric fence, livestock supplement (e.g., salt, protein block) placement, riding, and herding as a means of improving livestock distribution in all alternatives. When used, livestock supplement should be placed on ridges or terraces at least ¼ mile from the nearest livestock water source.

Fences

- Existing BLM fences that impede wildlife movement will be modified or rebuilt to BLM specifications on a prioritized schedule.
- Dysfunctional or unnecessary fences on public land will be removed.
- Lessees shall provide reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of the public lands.

Water Developments

- All water developments and troughs no longer in use will be removed, but spring enclosure fences may be retained and maintained.
- Functional spring developments will be maintained prior to the livestock grazing season of use for each specific allotment (4130.3-1(c)).

Monitoring

Under all alternatives, resource monitoring will be implemented to measure progress toward meeting site-specific objectives. Monitoring will be done according to the monitoring plan shown as Appendix B, MRRW EA: DOI-BLM-MT-B050-2014-0005-EA.

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

No Action is defined as the continuation of current management. This alternative will be analyzed to serve as baseline information for the Authorized Officer to make a reasoned and informed decision.

Livestock Grazing Management

Under Alternative A, livestock management would continue under the current Terms and Conditions in Belmont allotment. No new range improvement projects would be constructed.

Table 2.1: Grazing Allotments Summary

Allotment number category ¹	Grazing Authorization Number	Livestock Number and Kind	Season of Use	Grazing System	Stocking Rate on BLM	BLM Active AUMs	BLM Acres	Acres in Other Ownerships	Total Acres
Belmont #10469 (I)	2505705	varies by pasture; 20 to 488 cattle	05/10-12/15	partial rest rotation	9 acres/AUM	1288	12034	9922	21956

¹ Allotment Category: I = Improve, M = Maintain, C = Custodial

2.2.3 Features Common to All Action Alternatives

This section covers proposed actions and project design features that would be implemented regardless of the action alternative or combination of alternatives chosen by the Authorized Officer.

Livestock Management

Grazing Management and Permit Administration

- Livestock management changes would be initiated during the 2015 grazing season. Implementation which is dependent on other proposals, e.g. rangeland projects, may take up to five years, due to financial, logistical, or other constraints.
- AUMs reduced from current active use would be held in suspended non-use on the revised Term Grazing Leases.
- Annual utilization guidelines on cool season upland and riparian bunch grasses would be 50% (to maintain plant health/vigor).
- Utilization by livestock of sedge species in the riparian greenline (area of vegetation adjacent to the channel) on non-fisheries or non-native fisheries streams would be four inches.
- Annual use guidelines would be added to the terms and conditions of the term grazing lease, as a tool to determine moves between pastures and/or off the allotment, and in conjunction with long term trend data to determine management effectiveness.
- With prior approval, flexibility would be authorized for the season of use if annual weather conditions and forage production warrant. The season of use begin and end dates may be adjusted up to seven days earlier or later than specified on the permit due to yearly variations in weather affecting forage production. Livestock may need to be removed from a specific pasture prior to the maximum number of days specified in the grazing schedule. If this occurs, the time allocated in subsequent pastures would be adjusted proportionally. Conversely, if annual production is unusually high, livestock may be allowed to remain in a given pasture for up to five additional days and the remainder of the rotation schedule adjusted accordingly.
- After consultation with the BLM, and written approval, the planned pasture grazing sequence (AMP) may be adjusted due to drought or other unforeseen natural events.
- With prior approval, more livestock may be grazed for a shorter period within the authorized season of use. However, the maximum authorized AUMs, or season of use, as specified in the Term Grazing Leases cannot be exceeded by allowing this flexibility.

Rangeland Improvement Projects

Fences

- Any new or replacement boundary fences would normally be a four-wire fence and any new interior (pasture) fences would normally consist of three wires, constructed in conformance with BLM Fencing Handbook H-1741-1.
- All old materials (wire, steel and wood posts, etc.) would be cleaned up and removed when fences are re-built, maintained or abandoned.
- High tensile electric fences would be considered in areas where they may provide an effective alternative to traditional barbed wire construction. These would also be constructed in conformance with BLM Fencing Handbook H-1741-1.
- Fences around springs or tanks would be modified to prevent avian predators from using posts as hunting perches. Modifications include installing spikes or cone-tops to wood posts, replacing wood posts with metal t-posts, and using metal t-posts instead of wood posts and jack and rail, where practical.

Water Developments

- Spring sources and associated riparian wetland habitat would be fenced to exclude livestock use on new spring developments.
- Application for Beneficial Water Use Permit, Montana Department of Natural Resource Conservation (DNRC), DNRC form 600, would be filed prior to construction for surface water appropriations. DNRC would be consulted early in the process in an effort to achieve successful projects.
- Notice of Completion of Groundwater Development, DNRC Form 620 aka Exempt Well, would be submitted for groundwater developments (developed springs and drilled wells), with a maximum use of 35 GPM and 10 AC-FT or less post construction.
- Application to Change a Water Right, DNRC Form 606, would be filed prior to adding new tanks to projects with existing Statements of Claim, Beneficial Water Use Permits or Notices of Completion of Groundwater Development.
- All old materials (pipeline, troughs, head boxes, etc.) would be cleaned up and removed when springs are re-developed, maintained or abandoned.
- Prior to developing water resources all applicable State and Federal Permits would be obtained and the terms and conditions applied.
- Flow measurements, i.e., gallons per minute, would be collected on all springs which are being considered for development. Springs that have inadequate flows to provide a reliable water source for authorized livestock, while maintaining wetland/riparian habitat would not be developed. Adequate water would be left at the spring source to maintain wetland hydrology, hydric soils, and hydric vegetation.
- No new permanent roads would be authorized in conjunction with new water developments. Permit holders may be authorized to travel along pipeline routes to perform maintenance as defined in the term grazing lease.
- Soil disturbance resulting from pipeline installation would be seeded with a native seed mix during the fall, following construction.

2.2.4 Description of Alternative B

Proposed projects for Alternative B are located on Map 2, Appendix A.

Livestock Management

Livestock management changes are being proposed for the Belmont allotment because current and/or historic livestock use has been determined to be one of the causal factors in at least one Rangeland Health Standard not being met. In addition to the actions described above under 2.3.3, one or a combination of the following actions would be implemented: administrative changes, modification of grazing management plan, and/or the construction or modification of range improvement projects.

Grazing Management:

- North 3 pasture:
 - The North 3 pasture would be rested every third grazing season, which would decrease riparian use and associated impacts by 33% during the three year grazing cycle.
 - The grazing use period would begin on 07/15 and end 09/08 (55 days).
- South 1, South 2 and Upper Sage pastures:
 - These three pastures would continue to be used in a three pasture rest-rotation system in the spring. Two pastures would be used and one rested annually.
 - Season of use in these pastures would be reduced by 10 days. The period of use would begin 05/15 and end on 07/05 (51 days).
- Lower Sage pasture
 - Terms and conditions in the Lower Sage pasture would be unchanged.

Projects:

- A riparian exclosure fence around the lower portion of stream reach #885 in the South 2 pasture would be constructed.
- The debris associated with the abandoned water development located on BLM land on reach #885 would be cleaned up.
- If sufficient water flow is present (>3 gpm), the spring at the head of reach #422 in the North 3 pasture would be developed. The project would include placing a headbox in the ground to gather water from the spring source, a small fence exclosure to protect the spring source and a short buried pipeline (200-300 feet) to a water trough on a flat bench southeast of the spring.
- A corridor fence, with a water gap, would be constructed on reach #822, Upper Cottonwood Creek.
- The fence located adjacent to Cottonwood Creek, reach #891, would be removed and a new post and rail fence installed along the lower end of the reach (approximately 0.4 miles). The new fence would be located on the west side of the stream in the Belmont allotment. The upper portion of the fence would be repaired/rebuilt as needed on the east side of the creek in the Garden Creek allotment.

Table 2.2: Current Terms and Conditions, Belmont allotment

Allotment/Category	Pasture	Number/Kind	Year	Begin Date	End Date	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2012	05/10	07/10	62	334
			2013	REST			
			2014	05/10	07/10		
	South 2	242 cattle	2012	05/10	07/10	68	335
			2013	05/10	07/10		
			2014	REST			
	Upper Sage	448 cattle	2012	REST		25	228
			2013	05/10	07/10		
			2014	05/10	07/10		
	North 3	109 cattle	All	07/15	09/30	100	280
Lower Sage	180 cattle	All	10/01	12/15	25	112	

Table 2.3: Proposed Terms and Conditions, Belmont allotment; Alternative B

Allotment/Category	Pasture	Number/Kind	Year	Begin Date	End Date	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2015	05/15	07/05	62	274
			2016	REST			
			2017	05/15	07/05		
	South 2	242 cattle	2015	05/15	07/05	68	276
			2016	05/15	07/05		
			2017	REST			
	Upper Sage	448 cattle	2015	REST		25	188
			2016	05/15	07/05		
			2017	05/15	07/05		
	Lower Sage	180 cattle	All	10/01	12/15	25	112
North 3	109 cattle	2015	REST		100	197	
		2016	07/15	09/08			
		2017	07/15	09/08			

2.2.5 Description of Alternative C

Proposed projects for alternative C are located on Map 2, Appendix A.

Livestock Management

There are some proposed administrative, grazing management and project features listed under alternative C that are carried over from alternative B. Please, refer to table 2.10, *Comparison of Proposed Livestock Grazing or Administrative Alternatives by Allotment*, to compare specific proposals under alternatives A, B, C, D and E.

Grazing Management:

- North 3 pasture:
 - Beginning in 2015 the North 3 pasture would be rested every third grazing season.
 - Season of use would be reduced to 30 days; beginning 07/15 and ending 08/14.
- South 1, South 2 and Upper Sage pastures:
 - These three pastures would continue to be used in a three pasture rest-rotation system in the spring. Two pastures would be used and one rested annually.
 - Season of use in these pastures would be reduced by 14 days. The period of use would begin 05/15 and end on 07/02 (48 days).
- Lower Sage pasture
 - The period of use in Lower Sage pasture would be reduced to 60 days (currently 76 days). Season of use would be 10/01 to 11/30.

Projects:

- A riparian exclosure fence around the lower portion of stream reach #885 in the Lower Sage pasture would be constructed.
- The debris associated with the abandoned water development located on BLM land on reach #885 would be cleaned up.
- If sufficient water flow is present (>3 gpm), the spring at the head of reach #422 in the North 3 pasture would be developed. The project would include placing a headbox in the ground to gather water from the spring source, a small fence exclosure to protect the spring source and a short buried pipeline (200-300 feet) to a water trough on a flat bench southeast of the spring.
- A corridor fence, with a water gap, would be constructed on reach #822, Upper Cottonwood Creek.
- The fence located adjacent to Cottonwood Creek, reach #891, would be removed and a new post and rail fence installed along the lower end of the reach (approximately 0.4 miles). The new fence would be located on the west side of the stream in the Belmont allotment. The upper portion of the fence would be repaired/rebuilt as needed on the east side of the creek in the Garden Creek allotment.

Table 2.4: Current Terms and Conditions, Belmont allotment

Allotment/ Category	Pasture	Number/ Kind	Year	Begin Date	End Date	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2012	05/10	07/10	62	334
			2013	REST			
			2014	05/10	07/10		
	South 2	242 cattle	2012	05/10	07/10	68	335
			2013	05/10	07/10		
			2014	REST			
	Upper Sage	448 cattle	2012	REST		25	228
			2013	05/10	07/10		
			2014	05/10	07/10		
	North 3	109 cattle	All	07/15	09/30	100	280
Lower Sage	180 cattle	All	10/01	12/15	25	112	

Table 2.5: Proposed Terms and Conditions, Belmont allotment; Alternative C

Allotment/ Category	Pasture	Number/ Kind	Year	Begin Date	End Date	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2015	05/15	07/02	62	258
			2016	REST			
			2017	05/15	07/02		
	South 2	242 cattle	2015	05/15	07/02	68	259
			2016	05/15	07/02		
			2017	REST			
	Upper Sage	448 cattle	2015	REST		25	176
			2016	05/15	07/02		
			2017	05/15	07/02		
	Lower Sage	180 cattle	All	10/01	11/30	25	89
	North 3	109 cattle	2015	REST		100	107
			2016	07/15	08/14		
2017			07/15	08/14			

2.2.6 Description of Alternative D (Proponent's Alternative)

Proposed Projects for Alternative D are located on Map 3, Appendix A.

Livestock Management

The operator who currently holds a BLM issued ten year term grazing lease for the Belmont allotment (proponent) submitted the following grazing management alternative for analysis and consideration on December 26, 2014.

The tables have been added by the BLM so the reader may compare pertinent terms and conditions of Alternative D with Alternatives A, B, C and E.

The proponent's unabridged alternative, including a cover letter and additional comments and concerns are included in Appendix C.

Alternative as written by Proponent:

Grazing Management:

North Pasture

- Authorize 109 cattle from July 15 through September 30.
- Relocate allotment boundary fence between Belmont and Garden Cr allotments to exclude livestock use of Cottonwood Cr in Belmont's North Pasture. While the proposed new allotment fence would be located on the west side of Cottonwood Cr, the actual fence location would be established during a joint field inspection with BLM. A temporary fence may be used at first to determine the best alignment for the permanent fence. It is my understanding that BLM and Bradley Livestock would share the cost of

this fence with BLM providing the materials and Bradley Livestock would be responsible for construction.

- As discussed in the field, three springs would be developed. The spring near the head of Cottonwood Cr, the spring in tributary of Stone Cr and the spring in the SW ¼ of Section 24 which is a reconstruction of an existing development. Developments would improve conditions at the current water sources, help us better distribute livestock use and are needed to supplement stock water because Cottonwood Cr will no longer be available.
- It is possible that a pasture division fence running roughly NW to SE may be needed to assist in livestock management in uplands in the future but none is proposed now.

Monitoring

- Establish riparian monitoring sites that will be used to determine trend in future assessments.

Upper Sage Pasture

An Arc GIS map (Map 4, Appendix A) designating the Upper Sage Pasture is included in this proposal to clarify this pasture's boundaries.

- Authorize up to 497 cattle from 05/15 thru 07/10 two years in every three and rest this pasture one year in three. The pasture would be rested in 2015, grazed in 2016 and 2017 and this pattern of rest, graze, graze would repeat every three years. Using the current permit estimate of 25% of the forage in this pasture produced on public land, the total AUM's authorized on public land would be 228 –which is no change from present preference.
- Allow flexibility in turn-out dates and numbers of livestock and bill on actual use. It is difficult to predict the actual turnout date in this and the South 1 and South 2 pastures because the readiness of the pasture for grazing can vary from one year to the next.
- Actively herd livestock and change salt and mineral locations to reduce repeated use of favored watering areas. While the majority of the stream mileage in this pasture is on private land, BLM identified a short reach of Sage Cr where it meets the east boundary fence for this pasture that is Functioning at Risk with a static trend.

Monitoring

- As discussed in the field, we believe the overall trend on Sage Cr –the majority of which is on deeded land -is upward and therefore a monitoring site and method should be agreed to determine trend for the next assessment.

South 1 pastures

- Postpone turnout by 5 days -May 15 instead of May 10. It is important to keep the present off date of July 10 because that is the normal date cattle can be moved to other pastures.
- Authorize up to 292 cattle for this use which would not change the 334 AUMs of Active Use on public land. This pasture would be rested once every three years. The first rest year would be 2016.
- Actual use bill and allow the same flexibility proposed for Upper Sage.

South 2 Pasture

- Postpone turnout by 5 days -May 15 instead of May 10. Livestock would be authorized thru July 10 –the present off date.
- Authorize up to 268 cattle for this use period which would not change the 335 AUMs of Active Use on public land. This pasture would be rested once every three years. The first rest year would be 2017.
- Actual use bill and allow the same flexibility proposed for Upper Sage.

Lower Sage Pasture

Refer to the attached ArcGIS map for pasture boundaries (Map 4, Appendix A). BLM’s October 25, 2004 Final Grazing Decision Record for the Belmont Allotment refers to this use area as both the Badlands and Lower Sage pastures when, in fact, there is no fence or barrier to divide this pasture. Lower Sage is the preferred name.

- Authorize livestock use between May 15 and December 15 each year. Total AUMs used on public land would not exceed the present authorized use of 112 AUMs of Active Use. While the season of use proposed is a change on paper from what BLM currently authorizes for the Lower Sage Pasture, it is no change from current management of the area referred to in the decision record as the Badlands and Lower Sage. The 2004 decision designates both of these areas as custodial pastures.
- Bill on actual use. While May 15 and December 15 would be the earliest and latest dates for stocking, there is often a lot of variability in actual use periods. This is because the pasture is used in the spring to make use of crested wheatgrass in conjunction with use in the Upper Sage Pasture, in the summer to hold cattle being moved to other pastures and in the fall to gather, wean and hold cattle as they are gathered.

North Fork Sage Pasture

The attached map delineates pasture boundaries (Map 4, Appendix A). While BLM’s Notice of Final Grazing Decision dated October 25, 2014 states that “Upper Sage, Lower Sage and Badlands will be designated as Custodial pastures” this pasture is apparently unnamed. The new name North Fork Sage Cr is proposed for this pasture which is primarily private and state land with about 10% of the acreage and a lesser amount of the forage being supplied by public land.

- Authorize use from October 1 to December 15 each year.
- No restrictions should be placed on the number of livestock given the small amount of public land and the healthy rangeland conditions of both uplands and riparian areas.

Table 2.6: Current Terms and Conditions, Belmont allotment

Allotment/ Category	Pasture	Number/ Kind	Year	Begin Date	End Date	# Days	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2012	05/10	07/10	62	62	334
			2013	REST		0		
			2014	05/10	07/10	62		
	South 2	242 cattle	2012	05/10	07/10	62	68	335
			2013	05/10	07/10	62		
			2014	REST		0		
Upper		448	2012	REST		0	25	228

	Sage	cattle	2013	05/10	07/10	62		
			2014	05/10	07/10	62		
	North 3	109 cattle	ALL	07/15	09/30	78	100	280
	Lower Sage	180 cattle	ALL	10/01	12/15	76	25	112

Table 2.7: Proposed Terms and Conditions, Belmont allotment; Alternative D

Allotment/Category	Pasture	Number/Kind	Year	Begin Date	End Date	# Days	% Public Land	Active AUMs
Belmont I	South 1	292 cattle ¹	2015	05/15	07/10	57	62	334
			2016	REST		0		
			2017	05/15	07/10	57		
	South 2	268 cattle ²	2015	05/15	07/10	57	68	335
			2016	05/15	07/10	57		
			2017	REST		0		
	Upper Sage	497 cattle ³	2015	REST		0	25	228
			2016	05/15	07/10	57		
			2017	05/15	07/10	57		
	Lower Sage	63 cattle	ALL	05/15	12/15	215	25	111
	North 3	109 cattle	ALL	07/15	09/30	78	100	280
	North ⁴ Fork Sage	0 (Part of Upper Sage)	ALL	10/01	12/15	76	This area included in Upper Sage pasture	0 (Part of Upper Sage)

¹ The South 1 pasture contains 334 AUMs of public land forage. During the proposed 57 day season of use, the correct number of animals would be 287.

² Proponent's number of cattle in South 2 pasture, 268, would consume 342 AUMs of forage on public land which exceeds the carrying capacity, 335 AUMs. The correct number of cattle for the proposed 57 day season of use would be 263.

³ Correct number of cattle to not exceed consumption of 228 AUMs of public land forage during proposed season of use would be 487.

⁴ New Pasture Designation by Proponent, this geographical area is currently included in the Upper Sage Pasture and used conjunctively.

2.2.7 Alternative E

Proposed projects for Alternative E are located on Map 3, Appendix A.

Livestock Management

Grazing Management

- North 3 pasture:
 - The season of use would be 07/15 to 09/30 (78 days).

- The number of livestock (cows/calf pairs, open cows, bulls, yearlings etc.) would be 109.
- Number of authorized public land AUMs would be 280.
- The North 3 pasture would be rested completely one of three grazing years. The first rest year would be 2015.
- South 1, South 2, and Upper Sage Creek Unit:
 - South 1, South 2 and Upper Sage Creek Unit would be used in a three-pasture rest-rotation system in the spring. Two pastures would be grazed and one rested annually. Upper Sage Creek Unit would include the Sage Creek and Bum/Cottonwood Creek pastures. The Upper Sage Creek Unit is bisected by a division fence and natural barriers which divides the entire unit into two pastures of roughly equal proportions. Each pasture would be grazed for 28/29 days out of the total 57 day period of use. Order of use would alternate yearly between the two pastures. Both pastures-which together would be known as the entire Upper Sage Creek Unit- would be rested during scheduled rest years.
 - The period of use for these three spring pastures would be 05/15 to 07/10 (57 days).
 - South 1 pasture:
 - The number of authorized cattle/pairs would be 211.
 - The number of BLM AUMs would be 300.
 - Percentage public land would be 76%.
 - South 2 pasture:
 - Number of authorized cattle/pairs would be 294
 - Number of BLM AUMs would be 375.
 - Percentage public land would be 62%.
 - Upper Sage Creek Unit (Sage Creek and Bum/Cottonwood Creek pastures):
 - Number of authorized cattle/pairs would be 305.
 - Number of BLM AUMs would be 234.
 - Percentage public land would be 41%.
- Lower Sage pasture:
 - A proposed new pasture boundary fence would exclude all but 110 acres of public land from this pasture.
 - Percentage of public land would be 6%.
 - This pasture would be managed as a Custodial* pasture.
 - Season of use would be 05/15 to 12/15 (215 days).
 - Number of BLM AUMs would be 15.
 - Number of authorized cattle/pairs on BLM land would be 35.
- North Fork Sage pasture
 - Pasture managed as a Custodial pasture, only 12% public land.
 - Season of use would be 08/01 to 12/01 (123 days).
 - Number of public land AUMs would be 37.
 - Number of livestock on BLM land would be 77.

*Custodial Allotments/pastures: Allotments or pastures where public land produce less than 10 percent of the forage or less than 10 percent of the land area. An allotment should not be designated Category C if the public land in the allotment contains: 1) critical habitat for a threatened or endangered species, 2) wetlands negatively affected by

livestock grazing. Also, custodial pastures may be used by the lessee/private land owner in accordance with their normal livestock operation so long as use is not detrimental to the condition of the public lands.

*Projects** (refer to Map 3, Appendix A):

*projects from the other alternatives may be chosen in addition to the proposed projects listed below.

- A riparian exclosure fence around the lower portion of stream reach #885 in the South 2 pasture would be constructed. The debris associated with the abandoned water development there would be cleaned up.
- The spring at the head of reach #422 in the North 3 pasture would be developed. The name of the project would be Northwest Section 12 Spring. The project would include placing a headbox in the ground to gather water from the spring source, a small fence exclosure to protect the spring source and a short buried pipeline (200-300 feet) to a water trough on a flat bench southeast of the spring.
- The dysfunctional water development in the SW $\frac{1}{4}$ of section 24 T7S, R6W in the North 3 pasture would be completely re-designed and re-constructed. This new development would be named the Section 24 Spring.
- Up to one mile of riparian fence would be constructed along the west side of reaches # 891 and 820 of upper Cottonwood Creek, in the North 3 pasture. It would begin on the north side of the Cottonwood Creek road at the hairpin, and-if the entire length is necessary-end at the allotment's northern boundary. The fence along the lower portion of reach #891, adjacent the open meadow, would be constructed with wooden post and rails. The post and rail fence would be approximately one quarter of a mile in length. The remainder of the fence (about three quarters of a mile) would be two strand high-tensile electric fence.
- The fence on the east side of Cottonwood creek adjacent reach #891, which is the boundary between Belmont and Garden Creek allotments, would be repaired and modified to prevent access to the riparian zone by cattle from the Garden Creek allotment. The fence would be modified from four-strand to three-strand barbed wire, with steel posts, to mitigate wildlife hazards.
- Drift fences in the Lower Sage pasture would be constructed as needed. High ridges form the northwestern boundary of the Lower Sage pasture and provide a barrier to drifting cattle. But if it is necessary, drift fences would be strategically placed to prevent livestock drift and maintain pasture integrity.
- If necessary a short drift fence would be constructed between the Cottonwood Creek road and the steep bluff south of the road on, or close to, the public land boundary located at SW $\frac{1}{4}$ of section 33 in T 7 S, R 5 W.

Table 2.8: Current Terms and Conditions, Belmont allotment

Allotment/Category	Pasture	Number/Kind	Year	Begin Date	End Date	% Public Land	Active AUMs
Belmont I	South 1	264 cattle	2012	05/10	07/10	62	334
			2013	REST			
			2014	05/10	07/10		
	South 2	242 cattle	2012	05/10	07/10	68	335
			2013	05/10	07/10		
			2014	REST			
	Upper Sage	448 cattle	2012	REST		25	228
			2013	05/10	07/10		
			2014	05/10	07/10		
	North 3	109 cattle	All	07/15	09/30	100	280
Lower Sage	180 cattle	All	10/01	12/15	25	112	

Table 2.9: Proposed Terms and Conditions, Belmont allotment; Alternative E

Allotment/Category	Pasture	Number/Kind	Year	Begin Date	End Date	% Public Land	Active AUMs/ # used by year
Belmont I	South 1	211 cattle	2015	05/15	07/10	76%	300
			2016	REST			0
			2017	05/15	07/10		300
	South 2	294 cattle	2015	05/15	07/10	62%	375
			2016	05/15	07/10		375
			2017	REST			0
	Upper Sage Unit	305 cattle	2015	REST		41%	0
			2016	05/15	07/10		234
			2017	05/15	07/10		234
	Lower Sage Custodial*	35 cattle	All	05/15	12/15	6%	15
	North Fork Sage Custodial*	77 cattle	All	08/01	12/01	12%	37
	North 3	109 cattle	2015	REST		100%	0
			2016	07/15	09/30		280
			2017	07/15	09/30		280

*Custodial pastures: Pastures where public land produce less than 10 percent of the forage or less than 10 percent of the land area. An allotment should not be designated Category C if the public land in the allotment contains: 1) critical habitat for and threatened or endangered species, 2) wetlands negatively affected by livestock grazing. Also a custodial pasture may be grazed in accordance with a lessee's normal livestock operation so long as use is not detrimental to the condition of the public lands.

2.3 Comparison of Alternative Summary

Table 2.10 is an overview and summary of season of use, number and kind of livestock, active AUMs, grazing systems and proposed rangeland improvement projects by pasture for each of the five grazing management alternatives. Portions of different alternatives, all of which have been analyzed, may be chosen by the Authorized Officer in the Proposed and Final Grazing Decisions. For example; season of use for a specific pasture in Alternative D may be matched with projects from Alternatives B and E.

Table 2.10: Comparison of Alternatives

Belmont #10469	Alternative A (No Action)		Alternative B		Alternative C		Alternative D (Proponent's Alternative)		Alternative E	
Season of Use	South 1	05/10 - 07/10	South 1	05/15/ 07/05	South 1	05/15/ 07/02	South 1	05/15-07/10	South 1	05/15-07/10
	South 2	05/10 - 07/10	South 2	05/15/ 07/05	South 2	05/15/ 07/02	South 2	05/15-07/10	South 2	05/15-07/10
	Upper Sage	05/10 - 07/10	Upper Sage	05/15/ 07/05	Upper Sage	05/15/ 07/02	Upper Sage	05/15-07/10	Upper Sage Unit (Sage Creek & Bum/Cottonwood Creek pastures)	05/15-07/10
	Lower Sage	10/01 - 12/15	Lower Sage	10/01/ 12/15	Lower Sage	10/01/ 11/30	Lower Sage	05/15-12/15	Lower Sage Custodial	05/15-12/15
	North 3	07/15 - 09/30	North 3	07/15/ 09/07	North 3	07/15/ 08/14	North 3	07/15-09/30	North 3	07/15-09/30
								North Fork Sage	10/01-12/15	North Fork Sage Custodial

Belmont #10469	Alternative A (No Action)		Alternative B		Alternative C		Alternative D (Proponent's Alternative)		Alternative E	
Livestock Number and Kind cont.	South 1	264 cattle	South 1	264 cattle	South 1	264 cattle	South 1	292 cattle	South 1	211 cattle
	South 2	242 cattle	South 2	242 cattle	South 2	242 cattle	South 2	268 cattle	South 2	294 cattle
	Upper Sage	448 cattle	Upper Sage	448 cattle	Upper Sage	448 cattle	Upper Sage	497 cattle	Upper Sage Unit (Sage Creek & Bum/Cottonwood Creek pastures)	305 cattle
	Lower Sage	180 cattle	Lower Sage	180 cattle	Lower Sage	108 cattle	Lower Sage Custodial	63 cattle	Lower Sage custodial	35 cattle
	North 3	109 cattle	North 3	109 cattle	North 3	109 cattle	North 3	109 cattle	North 3	109 cattle
								North Fork Sage Custodial	No restriction on number or livestock	North Fork Sage Custodial
Active BLM AUMs per alternative	1,288		1,047		889		1,288		1,241	
Grazing System	South 1	three pasture rest-rotation	South 1	three pasture rest-rotation	South 1	three pasture rest-rotation	South 1	three pasture rest-rotation	South 1	three pasture rest-rotation

Belmont #10469	Alternative A (No Action)		Alternative B		Alternative C		Alternative D (Proponent's Alternative)		Alternative E	
Grazing System cont.	South 2		South 2		South 2		South 2		South 2	
	Upper Sage		Upper Sage		Upper Sage		Upper Sage		Upper Sage Unit (Sage Creek & Bum/Cottonwood Creek pastures)	
	Lower Sage	Annual use	Lower Sage	Annual use	Lower Sage	Annual use	Lower Sage Custodial	Annual use	Lower Sage Custodial	Annual Use
	North 3	Annual use	North 3	Pasture rested every third year; (2017, 2020, 2023)	North 3	Pasture rested every third year; (2017, 2020, 2023)	North 3	Annual use	North 3	rested one in three years
							North Fork Sage Custodial	Annual use	North Fork Sage Custodial	Annual use

Belmont #10469	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proponent's Alternative)	Alternative E
<p align="center">Projects*</p> <p>*Projects from multiple alternatives may be chosen for implementation.</p>	<p align="center">None</p>	<p>1. A riparian enclosure fence around the lower portion of stream reach #885 in the South 2 pasture would be constructed and the debris associated with the abandoned water development cleaned up.</p> <p>2. If sufficient water flow is present (>3 gpm), the spring at the head of reach #422 in the North 3 pasture would be developed.</p> <p>3. A corridor fence, with a water gap, would be constructed on reach #822, Upper Cottonwood Creek.</p> <p>4. The fence located adjacent to Cottonwood Creek, reach #891, would be removed and a new post and rail fence installed.</p>	<p align="center">Same as Alternative B</p>	<p>1. Relocate allotment boundary fence between the Belmont and Garden Creek allotments. The fence would be moved to the west side of Cottonwood Creek (reaches 891 and 820). Consider using temporary electric fence the first year to see how grazing behavior is affected.</p> <p>2. Develop the spring at the head of reach #422 in the North 3 pasture.</p> <p>3. Reconstruct the water development in the SW¼ of section 24 T7S, R6W in the North 3 pasture</p> <p>4. Develop spring at the head of reach #820. Location: NE ¼ section 12, T7S, R6W.</p> <p>5. North 3 pasture division fence (T7S R6W sec. 13), creating two differentiated grazing units, may be implemented in the future to provide additional grazing management options.</p>	<p>1. An enclosure fence around the lower portion of stream reach #885 in the South 2 pasture.</p> <p>2. Develop the spring at the head of reach #422 in the North 3 pasture.</p> <p>3. Reconstruct the dysfunctional water development in the SW¼ of section 24 T7S, R6W in the North 3 pasture.</p> <p>4. About one total mile of fence would be constructed on the west side of reaches # 891 and 820, upper Cottonwood Creek, in the North 3 pasture.</p> <p>5. Drift fences on the northwest boundary of the Lower Sage pasture would be constructed-if necessary-to prevent cattle drifting between the Lower Sage and Bum/Cottonwood pastures.</p>

Chapter 3

3.0 Affected Environment

This chapter describes the existing condition of specific environmental components that may be affected by the proposed action. The description of the affected environment encompasses the entire Middle Ruby River Watershed. This chapter is a summary of the baseline environment. A more detailed and comprehensive description of the current conditions in the watershed is provided in the MRRW Assessment Report (December 23, 2013), which is incorporated by reference into this document, and is available for review at the Dillon Field Office or online at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

3.1 General Setting

The Middle Ruby River Watershed is located in Madison County and drains the east slope of the Ruby Mountains, the Greenhorn Mountains and northwestern perimeter of Gravelly mountain range. Elevations within the MRRW range from approximately 5,200 feet in the Ruby River valley south of Alder, to 9,500 feet on Baldy Peak in the Gravelly Mountains. Topography varies from rolling sagebrush and grass covered bench lands to high alpine slopes. Much of the watershed is characterized by deep, narrow canyon drainages and dense forested slopes, especially in the Greenhorn and Gravelly mountains.

The Ruby River bisects the watershed as it flows through the upper Ruby Valley before going into the Ruby Reservoir. The river exits the reservoir and continues downstream to merge with the Beaverhead River south of Twin Bridges, Montana. Numerous secondary stream systems begin in the mountains and flow down into the Ruby River and Reservoir. These streams, and their tributaries include; Greenhorn, Jack, Idaho, Barton Gulch, Davey, Sweetwater, Cottonwood, Mormon, Hinch, Peterson and Garden Creeks.

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

Average annual precipitation within the watershed varies from less than 12 inches on the lower benches to more than 24 inches on the higher mountain peaks (USDA. 1989).

3.2 Description of Affected Resources/Issues

A comprehensive description of all the affected resources on public land within the entire watershed, as well as the Belmont, is in the Middle Ruby River Assessment Report, and Chapter 3 of the Middle Ruby River Environmental Assessment, DOI-BLM-MT-B050-2014-0005-EA. As stated previously, both of these documents are incorporated by reference into this document

and are available for review at the Dillon Field Office or online at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

A brief description of specific resource conditions, as related to the Five Standards of Rangeland Health-identified in Chapter 3 of the MRRW Assessment Report-for the Belmont allotment are reiterated below.

Uplands

Western Montana Standard #1: *“Uplands are in Proper Functioning Condition.”*

The Belmont allotment met the standard for proper functioning uplands.

The uplands were assessed on an allotment basis according to Interagency Technical Reference 1734-6 *Interpreting Indicators of Rangeland Health*. This technical reference is available to read or download on the BLM Library webpage, <http://web.nc.blm.gov/blmlibrary>. The process is qualitative and evaluates 17 “indicators” of relative condition (e.g., water flow patterns, plant community composition) to assess three interrelated components or “attributes” of rangeland health: soil/site stability, hydrological function, and biotic integrity. The IDT visits specific ecological sites and rates each indicator based on the degree of departure, if any, from what is expected for that indicator at that specific site. The rating for each indicator (none to slight, slight to moderate, moderate, moderate to extreme or extreme) is then weighed to ascertain the attribute rating justification. Table 3.1: *Upland Indicators Evaluation Summary for the Belmont allotment* reviews the findings from the completed field forms at three sites in the Belmont allotment.

Table 3.1: Upland Indicators Evaluation Summary for the Belmont allotment

Allotment Name & Number	Ecological Site Name	Habitat Type (based on Ecological Site Descriptions)	Degree of Departure from Expected for the three Upland Health Attributes		
			Soil Site Stability	Hydrologic Function	Biotic Integrity
Belmont 10469 (3)	Shallow 15-19” precipitation zone	Mountain big sagebrush/Idaho fescue	none to slight	none to slight	none to slight
	Silty-Limy 10-14” precipitation zone	Mountain big sagebrush/Idaho fescue	slight to moderate	slight to moderate	slight to moderate
	Silty 10-14” precipitation zone	Mountain big sagebrush/Idaho fescue	slight to moderate	slight to moderate	slight to moderate

Riparian and Wetland Areas

Western Montana Standard #2: "Riparian and wetland areas are in proper functioning condition"

The Belmont allotment did not meet the standard for proper functioning riparian and wetland areas (Map 1, Appendix A).

Four stream reaches running though BLM administered land in the Belmont allotment are rated PFC or Functioning-at-Risk (FAR) with an upward trend. These streams combined cover about one and one half linear miles.

- Three reaches, # 865, 420 and 892 are in PFC.
- One additional reach, #814, is rated FAR with an improving trend.

Eleven reaches flowing through about 6.5 miles of public land rated FAR static, FAR down or Non-Functional (NF).

- Eight stream reaches in the allotment, covering about 5 miles, are rated FAR with a static trend (# 867, 822, 816, 821, 815, 817, 888, and 422). This means that the hydrological functions of the streams and health and vigor of the associated riparian plant communities are neither improving nor declining. The reasons for current conditions are varied and complex. Livestock utilization has impacted some of the reaches, but other factors such as juniper encroachment, forested habitat that limits the amount and diversity of bank stabilizing vegetation, roads which contribute sediment, browsing by wildlife and man-made push up dams all have additive impacts to the riparian resources.
- Reach # 885, a short reach (0.3 mi.) located in a very narrow and rocky drainage rated FAR with a downward trend. One of the primary reasons is the lack of plant diversity. Heavy juniper encroachment into the riparian zone has eliminated most other woody and herbaceous species. There are small sedge stands along the channel in the steep upper portion of the reach, but down low the channel is over-widened and sediment laden due to livestock impacts.
- Reach # 887 is non-functional because the water from Sweetwater Creek is being diverted by a headgate directs the flow into a ditch leading to Williams Reservoir. According to Montana DNRC Water Rights Query the headgate and ditch are associated with water rights claims dating to 1883 and 1884. The flow rate and period of diversion associated with the claims is 505 miners' inches from April 15 to October 15. Vegetation on this reach include Basin wildrye, Baltic rush and narrowleaf cottonwood.
- Reaches # 891 and 820 rated FAR with a downward trend. These two reaches are both portions of Cottonwood Creek, are located next to the Cottonwood Creek road, and are easily accessible to campers, hunters and livestock. Noted resource concerns are: lack of age-class diversity in the riparian vegetation community, spruce over-story shading out bank holding woody and herbaceous species, browsing of young aspen trees by wildlife and livestock, numerous over-widened crossings and raw banks stemming from livestock impacts and excessive sediment inputs some of which is attributable to the road.

Table 3.2: Functional Status of Stream Reaches in Belmont allotment

Stream Name	Allotment	BLM Reach ID	Vegetative Community Type	Functional Rating & Trend	Miles
Bum Creek	Belmont	867	Rocky mountain juniper/red osier dogwood	FAR static	1.78
Bum Creek tributary	Belmont	865	Geyer willow/beaked sedge	PFC	0.41
Cottonwood Creek	Belmont	822	Engelmann spruce/red-osier dogwood	FAR static	0.43
Cottonwood Creek tributary	Belmont	816	Engelmann spruce/red-osier dogwood	FAR static	0.51
Cottonwood Creek	Belmont	891	Engelmann spruce/red-osier dogwood	FAR down	0.22
Cottonwood Creek	Belmont	820	Douglas-fir/red-osier dogwood	FAR down	0.85
Cottonwood Creek tributary	Belmont	821	Engelmann spruce/red-osier dogwood	FAR static	0.48

Stream Name	Allotment	BLM Reach ID	Vegetative Community Type	Functional Rating & Trend	Miles
Cottonwood Creek tributary	Belmont	815	Douglas-fir/red-osier dogwood	FAR static (2012 MRWA)	0.15
Cottonwood Creek tributary	Belmont	814	Douglas-fir/red-osier dogwood	FAR up	0.57
Cottonwood Creek tributary	Belmont	817	Engelmann spruce/red-osier dogwood	FAR static (2012 MRWA)	0.15
Cottonwood Creek tributary	Belmont	892	Douglas-fir/red-osier dogwood	PFC (2012 (MRWA)	0.13
Stone Creek Left Fork	Belmont	422	Beaked sedge	FAR static	0.38
Stone Creek Middle Fork	Belmont	420	Geyer willow/beaked sedge	PFC	0.33
Sweetwater Creek	Belmont	887	Narrowleaf cottonwood	NF	1.38
Sweetwater Creek tributary	Belmont	885	Rocky mountain juniper/red-osier dogwood	FAR down	0.42

Water Quality

Western Montana Standard #3: *“Water quality meets State standards”*

Because Cottonwood and Sweetwater Creeks is on the State Department of Environmental Quality’s 303-d list of impaired streams the Belmont allotment did not meet the standard for Water Quality.

The 1987 Amendments to the Clean Water Act require States to develop plans for controlling non-point sources (nps) of water pollution. Montana has divided the State into water quality planning areas. The MRRW assessment area is located within the Ruby Total Maximum Daily Load (TMDL) Planning Area.

Montana DEQ has water quality reports for several creeks, rivers and reservoirs in the MRRW including Cottonwood and Sweetwater Creeks which flow through the Belmont allotment. TMDLs have been prepared for some but not all pollutants. Table 3.3 provides some reasons for their listing.

Table 3.3: Montana DEQ 303-d Listed Streams for the Belmont allotment

Name	Beneficial Uses	Probable Sources of Impairment	Probable Causes of Impairment
Cottonwood Creek	Agriculture ¹ , Aquatic Life ¹ , Cold Water Fishery ^{n/a} , Drinking Water ¹ , Industrial ^{n/a} , Primary Contact Recreation ¹	Channelization, Grazing in Riparian or Shoreline Zones, Irrigated Crop Production, Unpaved Roads,	Alteration in streamside or littoral vegetative covers, Low flow alterations, Nitrogen(Total), Sedimentation/siltation,

Name	Beneficial Uses	Probable Sources of Impairment	Probable Causes of Impairment
Sweetwater Creek	Agriculture ¹ , Aquatic Life 1, Cold Water Fishery ^{n/a} , Drinking Water ¹ , Industrial ^{n/a} , Primary Contact Recreation ¹	Irrigated Crop Production Rangeland Grazing Unpaved Roads	Alteration in streamside or littoral vegetative covers, Chlorophyll a Low flow alterations Phosphorous (Total) Sedimentation/siltation Temperature

¹ Threatened

Air Quality

Western Montana Standard #4: “*Air quality meets State standards.*”

The standard for air quality is being met in the entire Middle Ruby River Watershed, including the Belmont allotment.

Biodiversity

Western Montana Standard #5: “*Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including special status species*”

The standard for Biodiversity is being met in the Belmont allotment.

Chapter 3 of the Middle Ruby River Environmental Assessment contains an extensive write up regarding the biodiversity and conditions of various habitats within the entire MRRW including the Belmont. Below are parts of that broader discussion specific to the Belmont allotment.

Special Status Species Habitat

The Belmont allotment borders the only active lek within the watershed. This lek is on private land. There are several leks within ten miles of the MRRW. Sage grouse typically nest within two miles of a lek (MFWP 2005). Nesting habitat and brood-rearing habitat have been documented in the Belmont allotment. The Belmont allotment is mostly within sage grouse priority habitat, with the remainder within sage grouse general habitat. Sagebrush habitat in the MRRW is in good condition with the continued goal to maintain >70% mountain big sagebrush habitat and at least 60% Wyoming big sagebrush habitat in a canopy closure of 5 to 25 percent, and maintaining an herbaceous understory in sagebrush steppe habitat that emphasizes multiple species of native forbs and grasses (MFWP 2005, USDI 2006).

Fish Habitat

Cottonwood Creek: Fish distribution surveys were conducted in 2013. Eastern brook trout were present throughout the entire drainage and one rainbow/cutthroat hybrid also collected in the headwaters. During the distribution survey, an ocular habitat survey was conducted. Fishery habitat was noted as lacking, specifically, lack of stream bank riparian vegetation, low pool quality, excessive levels of bank disturbance and the stream was noted as having high levels of sediment over much of the survey length. A majority of this sediment is originating from the county road which parallels the stream for much of its length. However, based on riparian conditions, it is likely that some of the sediment is originating from stream banks. Fish habitat on this stream on BLM would be considered to be in poor condition. Current livestock use is a

contributing factor to poor habitat conditions. While low stream flows in 2013 are certainly a big factor in elevated stream temperatures, the lack of stream bank and overhead vegetative stream cover is also a contributing cause for the extended elevated water temperatures this drainage experienced in 2013 (See Middle Ruby Watershed Assessment Report – Table 17, page 60). Sweetwater Creek: The actual stream channel has been completely dewatered by an irrigation diversion. The entire stream flow now travels down a man-made ditch. Current conditions are not favorable for fisheries.

Noxious and Invasive Species

Noxious weeds are defined in the Montana Weed Management Plan as “plants of foreign origin that can directly or indirectly injure agriculture, navigation, fish or wildlife, or public health.” Currently there are 35 weeds on the statewide noxious weed list that infest about 7.6 million acres in Montana. Of these 35, the only one of major concern in the MRRW is spotted knapweed.

Spotted knapweed (*Centaurea stoebe*), is one of the more aggressive noxious weeds in the Dillon Field Office. Spotted knapweed is found scattered throughout the MRRW especially along roads and in other disturbance areas. Motor vehicles, livestock, wildlife, and recreation activity can all spread knapweed seeds.

Biological controls such as the Urophora fly (*Cyphocleonus achates*), a knapweed root-boring weevil, and *Larinus minutus*, a knapweed flower weevil are present at release sites within the watershed. These insects help to control seed production and help to limit the spread and competitiveness of spotted knapweed

Other invasive and/or noxious weeds present in isolated locations are Houndstongue (*Cynoglossum officinale*), Hoary cress (Whitetop) (*Cardaria draba*), Black henbane (*Hyoscyamus nigar*), Canada thistle (*Cirsium arvense*) and Cheatgrass (*Bromus tectorum*).

Cheatgrass is established in disturbed areas throughout the watershed. Relatively large infestations were observed by the IDT in the major stream corridors, especially within the lower elevations adjacent to the streams and on south facing slopes. Cheatgrass is an extremely competitive early cool season species that flourishes in disturbed sites. Old mining sites, roads, construction locations, and other disturbed areas provide cheatgrass with the opportunity to establish and spread into adjacent habitats upon disturbance.

Since 1989, BLM has been involved in cooperative control efforts with Madison County. Throughout this period, the goal has been to prevent new noxious weed infestations and control or eradicate existing infestations on public lands within Madison County using Integrated Pest Management (IPM).

The operator that holds the lease for the Belmont allotment has been working with Madison County for a considerable length of time cost sharing chemicals to aggressively treat noxious weed infestations on private land. Using a certified contractor the operator has made a commitment to a coordinated and systematic long term weed treatment plan.

Chapter 4

4.0 Environmental Consequences

4.1 Introduction

The analysis in this section is limited to issues and resources directly affected by the two new grazing alternatives D and E presented in Chapter 2. A full description of the environmental consequences from alternatives A, B and C to all resources and issues identified in the watershed is found in Chapter 4 of the MRRW EA (DOI-BLM-MT-B050-2014-0005-EA). That analysis is incorporated into this EA by reference and is available for review at the Dillon Field Office or online at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

Not every component within the Key Issues and/or Resource Concerns identified in Chapter 1 of the MRRW EA will be affected by alternatives D and E. If Key Issues, Resource Concerns and/or specific components within an issue are not discussed, they were either not present or present but minimally affected.

Carefully planned resource specific monitoring under all alternatives will provide data for adaptive management within the watershed. The monitoring plan for the entire MRRW is attached as Appendix B of the MRRW EA.

4.2 Predicted Effects of Alternatives D and E

4.2.1 Alternative D (proponent's alternative)

Riparian, Wetland, Aquatic Habitat

The North 3 pasture is 100% BLM administered land. Several stream reaches in this pasture were rated FAR with a static or downward trend. Alternative D does not propose any change in the grazing plan, i.e., season of use, number of cattle, number of days or AUMs harvested. Instead, Alternative D relies on rangeland improvement projects, fences and off-site water developments, and riding (herding) to keep cattle out of riparian areas and increase distribution more evenly throughout the entire pasture.

This pasture is currently grazed annually, and this would continue under Alternative D. Also, the duration of grazing is currently 78 days, beginning on July 15 and ending on September 30, and under Alternative D would not be changed. "Next to season-long grazing, which is universally recognized as detrimental to riparian areas, repeated or extended grazing during the hot summer season is generally considered most injurious to riparian zones" (Montana BLM Technical Bulletin No. 4; *Successful Strategies for Grazing Cattle in Riparian Zones*). Clary and Webster (1989) said that "the level of utilization occurring on a site-including riparian areas-is the most important consideration." Van Poolen and Lacey (1979) reviewed 18 studies and determined that stressed riparian vegetation is more affected by grazing intensity than by grazing system. It is apparent that length of grazing and the numbers of livestock is very critical. The number of

authorized livestock in the pasture (109) is not a concern, but the duration of use (78 days), and the lack of rest (annual use) may be detrimental to riparian habitat recovery.

However, the continuation of a mid-July beginning to the season of use in Alternative D would limit some of the impacts to stream banks by cattle. Stream banks are most susceptible to damage from livestock when grazed early in the season (spring, until mid-July) because soil moisture is relatively high. In a study at the Red Bluff Research station in southwest Montana, Marlow (1985), found the greatest bank damage occurred in late June and early July when soil moisture was 18-25%. By August, moisture content had declined to 8-10% and bank damage in the grazed pasture was no greater than on an un-grazed reach.

Alternative D proposes constructing physical barriers (fences) to prevent cattle from accessing the riparian areas in upper Cottonwood Creek area of the North 3 pasture. Excluding the main channel of Cottonwood Creek would eliminate those impacts by livestock that resulted in reaches 891 and 820 being in functional-at-risk condition with a downward trend. The effects of livestock hoof disturbance resulting in bank damages, over widening of the channel, increased sediment inputs and lack of understory herbaceous vegetation would be eliminated if cattle were completely fenced off the reaches. Alternative D proposes moving the fence on the east side of reaches 891 and 820 to the west side of the creek, as well as building additional fences, to protect those areas that have been impacted. It would require approximately 1.5 miles of newly constructed fence to exclude reaches 822 and 891 (Cottonwood Creek's main channel) from livestock utilization on the Belmont side. However, by removing the fence on the east side of the creek cattle on public land in the Garden Creek allotment would have un-restrained access to these same reaches and impacts may continue. Potentially transferring the impacts from one allotment to another may not result in an upward trend on these two primary reaches on Cottonwood Creek.

An additional fence is mentioned in the Proponent's alternative D. This fence would be located about one half mile south of Cottonwood Creek and essentially divide the North 3 pasture into two grazing units (Map 3, Appendix A). The proposed fence would run diagonally across the upper and mid portions of section 13. The upper unit would contain all the riparian resources in the pasture. The lower unit would be water by the new Section 24 spring development and the upper Middle Fork. If this fence is constructed in the future, it would allow cattle to be moved off of riparian areas before the entire season of use expires, but provide upland forage and water for the few days or weeks remaining. This flexibility would benefit long term riparian health because the duration of time cattle spend in riparian areas could be more strictly managed. If certain thresholds are exceeded, e.g., stubble height on sedges in the riparian zone, the cattle could be all moved into the southern unit of the North 3 pasture.

In addition, there are several more small spring fed tributaries and associated wetlands in the upper Cottonwood drainage that would not be protected from impacts by cattle looking for water. Several of these reaches were determined to functional-at-risk with a static trend and may not improve under Alternative D. The riparian vegetation and water resources of these stream tributaries and wetlands would continue to be impacted physically by extended annual utilization.

Three new spring developments are proposed in Alternative D. One of these proposals (spring creek #422) is also proposed in Alternatives B, C and E.

Providing alternative watering sites, in suitable locations, is an effective tool for limiting time in riparian areas. In an Oregon mountain meadow pasture use of the stream was reduced from 4.7 minutes to 0.9 minutes per cow per day, while use of a spring in the same pasture dropped from 8.3 to 3.9 minutes per cow per day. Cattle watered out of the trough 73.5 percent of the time, compared to only 3 percent from the stream and 23.5 percent from the spring. In addition to alternative watering opportunities, shade in the uplands is also an important factor in reducing riparian loafing. Along Greyson Creek south of Townsend, cattle did little browsing on riparian willows and had not appreciably impacted either herbaceous vegetation or stream banks because the pasture contained wooded upland and alternative water, and the operator distributed salt along ridge tops (Ehrhart and Hansen 1998). The uplands in the northern two thirds of the North 3 pasture have ample shading opportunities with large dense patches of forested habitat.

One of the proposed water developments is common to all the alternatives. The proposed spring enclosure and trough at the head of spring creek #422, named the Northwest Section 12 Spring, (Map #2, Appendix A), would protect the spring source, and provide clean water to cattle in the uplands above the steep narrow drainage through which Cottonwood Creek flows. It would encourage cattle distribution over a wider landscape while pulling them away from the sensitive riparian bottoms adjacent to the stream reaches that have been identified as in need of improvement.

In addition, two more spring developments are proposed under Alternative D. One would be located at the head of Cottonwood Creek at the source of reach #420, and called the Wiki-Up Spring. And the third would be in section 24 in the south eastern corner of the North 3 pasture, and named the Section 24 Spring. The Section 24 Spring is located on public land and was developed at some point in the past without BLM oversight or approval. It has not been maintained nor functioned in many years. The proposed spring development would protect a valuable water resource in a large, productive upland pasture. Providing a good watering place for livestock, would increase the time cattle spend grazing this upland area, more fully utilizing the available grass forage, and reduce pressure on the sensitive riparian habitat in the north end of the pasture.

The proposed Wiki-Up Spring would be located in the bottom of the Cottonwood Creek drainage (Map #3). This is a sensitive riparian area which contains a complex of several small spring brooks and associated wetlands which are not proposed to be protected with fencing. Encouraging more cattle to come downhill into this area may increase physical impacts to stream banks, channels, wetland habitats and riparian vegetation of these small spring brooks. Some of these reaches, # 815, 816, 817 and 821 were rated as functional-at-risk with a static or non-apparent trend by the IDT in 2013. Encouraging cattle to stay down in the drainage would not be conducive to improving the riparian health of these systems. In addition, there is already a spring development, North Belmont Spring, about a third of a mile southwest and up slope of the proposed new development site. Also, the proposed spring site would be adjacent to an open meadow that is proposed under Alternative B to be a public parking area for people to use to

access public lands in the Ruby Mountains. Placing a trough a couple hundred yards north of this proposed parking area may increase unintended conflicts between user groups.

A riparian corridor fence would be constructed along reach #822, upper Cottonwood Creek, with one water gap to allow livestock access to water. This would protect the stream bank from cattle induced disturbances, reduce the amount of sediment in the system, and eliminate livestock grazing and associated impacts to bank stabilizing riparian vegetation. Also, re-constructing the fence along reach #891 would protect the lower portions of that section of stream from direct physical impacts from livestock. Because the lower half mile or so of the reach flows beneath forested habitat, the potential for herbaceous species to colonize is limited even with protection from grazing. Some increase in grass, sedge, forbs and riparian woody species like willows and birch would be expected over time in areas that receive sunlight.

In South 1, South 2 and Upper Sage pastures alternative D proposes to reduce season of use by 5 days in these three spring use pastures. The Alternative also proposes to increase livestock numbers in each of these three pastures. The South 1 pasture would increase by 28 head, from 264 to 292; the South 2 number would increase by 26 head, from 242 to 268 and the Upper Sage pasture would have 49 more head, 448 to 497. The proposal to increase the number of authorized cattle in the pastures would offset the lost AUMs resulting from reducing the season of use by 5 days (i.e. AUMs would stay the same as currently authorized).

The South 1, South 2 and Upper Sage Creek pastures would be used in a 3 pasture spring rest-rotation for 57 days. Two of the three would be grazed each year simultaneously from May 15 to July 10 while the third pasture would be completely rested (Table 2.7, pg. 16). This would assure that one pasture is not used every year and each of the three pastures would get a rest every third grazing season. Stream reaches #867 (Bum Creek), 888 (Sage Creek trib.) and 885 (Sweetwater Creek trib.) are within these pastures and were rated as Functional-at-Risk (FAR) with a Static or downward trend (885). Resting riparian areas from impacts by cattle would create the opportunity for improved riparian conditions. However, even with rest, some riparian areas need special management attention to initiate upward trends. In a Nevada study conducted by Masters and others in 1996, two three pasture rest-rotation systems were implemented and only one was successful in improving riparian habitat. The successful strategy included cooperation between the permittee and agency, inherently stable stream bank conditions, long term attention to resource conditions, strategic placement of salt to draw cattle away from riparian areas and herding livestock to improve distribution. Rest rotation favors herbaceous bank forming vegetation which is adequate for low-gradient, low-energy systems (Elmore and Kauffman, 1994), like Bum Creek and Sage Creek. Riding, herding and careful herd management is an important component of the proponent's alternative. This is essential because there is not currently a physical barrier (fences) controlling livestock access to Bum and Sage Creeks from private land in the Lower Sage pasture to the east.

Building a riparian enclosure fence around stream reach #885 in the South 2 pasture would be beneficial in eliminating bank trampling and sedimentation caused by livestock. Physical damage to unprotected banks by cattle would be eliminated, but some bank disturbances may continue from wildlife. Likewise, a fence enclosure would reduce browsing on riparian woody species which would enhance recruitment, expansion and age class diversity. In places where

herbaceous species are established, eliminating herbivory from livestock would promote more vigorous plant communities and improved riparian function through; an increase in sediment trapping during high flow events, bank building, channel stabilization and expansion of the water table. Removing the juniper encroaching heavily into this riparian area would reduce inter-species competition for soil nutrients, available water and sunlight, creating favorable conditions for the woody and herbaceous plant community to expand and prosper.

The Lower Sage pasture is currently not fenced separately from the Upper Sage pasture. Under Alternative D, the proposal is to use the Lower Sage Creek pasture from May 15 to December 15 every year. Cattle would not graze pasture continuously for the entire 214 day period of use, but come and go throughout the grazing season. The proposal is for livestock to be able to graze the pasture in the spring in conjunction with Upper Sage to “make use of the crested wheatgrass” on private land. The Upper Sage pasture proposed period of use is 57 days so presumably cattle would also be in the Lower Sage pasture each spring for 57 days. The proposal also says the pasture would be in use for an un-specified period every summer as a holding pasture during moves between pastures and again for an un-specified period of use in the “fall” for gathering purposes. Bum Creek, reach # 867, which was rated as functional-at-risk with a static or non-apparent trend, is located within the Lower Sage pasture. Under Alternative D, cattle would have access to this reach for several grazing periods each year. Grazing the pasture for 57 days in the spring in conjunction with Upper Sage, followed by an undetermined amount of time in the summer, as well as a third period of use in the fall during gathering is equivalent to season long grazing. Riparian areas will usually be over grazed under a passive or continuous grazing system (DOI-TR 1737-14; *Riparian Area Management*). Spring grazing may result in better cattle distribution between riparian and upland areas due in part to highly palatable forage on the uplands, including annuals and introduced species like the crested wheatgrass on private land. However, in riparian areas, soil moisture is relatively higher or the soil is saturated and grazing cattle can more easily uproot plants and compact soil or shear stream banks. Subsequent rest is often required to encourage root growth and other biological activity, which offsets the effects of soil compaction more likely during spring use. Spring use alone may provide more opportunity for regrowth and recovery, but repeated grazing in the riparian area throughout the season would preclude this potential. During summer grazing in Montana in August and September, approximately 80% percent of the forage used by livestock may come from riparian sites, even though they make up less than 4 percent of the total pasture. Marlow (1985) and Myers (1981) found that in the foothills of southwestern Montana, the frequency of hot-season use from July 10 to September 1 appeared to be a critical factor in developing and maintaining satisfactory riparian area conditions. Spring and fall use in the same year may work in some cases, but it usually fails to meet riparian vegetation needs because it doubles the potential limitations of either spring grazing or fall grazing alone. If temperatures are warm when fall grazing begins, livestock will congregate in riparian areas as long as palatability of both herbaceous plants and willows is high. Willow use can be exceeded and residual herbaceous cover for bank protection removed. Livestock preference for the riparian area in the fall is compounded the following spring because the removal of standing dry matter increases the palatability of riparian forage over un-grazed upland plants.

Alternative D proposes that an area containing approximately 2,175 acres of mostly private and State land be designated a Custodial pasture. The North Fork Sage pasture would contain only

about 12% BLM land. There is a short stream reach, #865, running through the BLM administered portion of the pasture. This reach was determined to be in Properly Functioning Condition (PFC) by the BLM interdisciplinary team in 2013.

Alternative D proposes a fall season of use every year from October 1 to December 15, and no restrictions on the number of cattle authorized to use the pasture. Unrestricted numbers of livestock, grazing for 76 days, may threaten the long term health of the riparian area, located on BLM land. Although there is ample forage within the North Fork pasture if cattle are distributed evenly, usually cattle concentrate more of their time in riparian areas. Riding and herding would be important to ensure that cattle do not spend a disproportionate amount of time in the riparian area. A study by Platts and Nelson in 1985 found that livestock took an average of 29 percent and as much as 40 percent more vegetation from riparian sites than from adjacent upland sites. In this study use on the allotments overall was moderate, but use on riparian sites was heavy to severe.

There is a large and vigorous woody riparian species component within the riparian zone. Aspen, juniper, booth willow, bebb willow, currants and wild rose bushes as well as three sedge species are present. Late in the grazing season, vegetation growing in riparian zones generally is more palatable and of higher nutritive quality than vegetation in upland plant communities. Ungulates, cattle and wildlife, switch to the woody plants in the fall to satisfy their nutritional requirements but as long as herbaceous vegetation is available in the riparian zone, shrub utilization does not occur to greater extent due to late season grazing (Kauffman et al. 1983). Additionally, a study in the central Rocky Mountains showed that utilization of willows in riparian areas is reduced if an herbaceous understory of at least eight inches is present in a riparian area during the fall (Pelster, A. 1998). Reach #865 does have a healthy sedge community comprised of at least three species. In the fall they will have had the entire growing season to complete their vegetative growth and seed production. These important deep rooted, bank-binding plants would provide excellent quality late season forage and may ameliorate the impacts to the woody species.

Also wetland and riparian soil moisture content is very low in the late fall so soils would be resistant to compaction from cattle grazing. Hoof induced disturbances to banks or wetlands would be reduced and sediment inputs into the system be diminished.

Upland and Sagebrush Steppe Habitat

The livestock management proposals in Alternative D would not alter the current positive trends. Season of use, pasture rotations (where applicable), number of authorized livestock and duration of grazing periods proposed are not significantly different from current management and therefore use on, and impacts to, the upland resources is expected to remain consistent.

The upland and sagebrush steppe habitat on BLM administered public lands within the Belmont allotment were assessed by an interdisciplinary team (IDT) of BLM specialists in 2013 as part of the Middle Ruby River Watershed Assessment. The IDT found the upland habitat to be in proper functioning condition (PFC). Using BLM technical reference #1734-6, *Interpreting Indicators of Rangeland Health*, the IDT found that three key range attributes; Soil and site stability, hydrologic function and biotic integrity, had only slightly departed from expected

conditions. Seventeen questions covering the three attributes were answered in three pastures, and the “departure from expected” conditions for the attributes was none to slight or slight to moderate.

Special Status Species Habitat

Sage grouse typically nest within two miles of a lek (MFWP 2005) and the Belmont allotment borders the only active lek within the MRRW. This allotment is mostly within sage grouse priority habitat, and the remaining area is within sage grouse general habitat. Perennial forbs are an important food source associated with sage grouse chick survival and herbaceous cover is important for sage grouse nest concealment (Sveum et al. 1998, Drut et al. 1994, Taylor et al. 2012, Doherty et al. 2014). The purpose of implementing a 50% utilization standard for livestock grazing is to provide adequate residual cover and forage for wildlife, including sage grouse and wintering big game.

In South 1, South 2, and Upper Sage pastures, grazing between 5/15 and 7/10 may reduce herbaceous nesting cover for sage grouse two of three years. Maintaining a rest year would benefit herbaceous cover and forage in these pastures.

Grazing the North 3 pasture between 7/15 and 9/30 and the North Fork Sage pasture from 10/01 to 12/15 every year could reduce elk winter range forage. Changing the Lower Sage pasture begin date from 10/01 to 5/15 through 12/15, would permit cattle grazing during the spring, summer, and fall every year. Grazing during every season, every year may reduce herbaceous nesting cover for sage grouse in the spring and increase impacts to riparian areas, potentially reducing forb production for sage grouse broods.

Constructing a pasture division fence in the North 3 pasture may improve livestock management and associated wildlife habitat, including riparian condition and residual herbaceous forage for wintering elk. However, there are already a lot of fences on the landscape and constructing new fences creates an entanglement and collision hazard for wildlife in areas where wildlife hadn't previously encountered fences.

4.2.2 Alternative E:

Riparian, Wetland, Aquatic Habitat

The grazing management plan for the North 3 pasture under Alternative E includes a season of rest every third year. The number of cattle (109), season of use (07/15-09/30), and duration (78 days) would be the same as Alternative A (No Action) and Alternative D. However, 2015 would be specified as the first season of complete rest for the pasture.

In addition, the upper reaches of Cottonwood Creek (reaches 891 and 820) would be fenced from livestock use using a combination post and rail and two-strand high-tensile electric fence. Preventing cattle from accessing the main channel of Cottonwood Creek would decrease bank disturbances which increase sediment inputs into the system. In some forested sections of the stream localized impacts from ungulates, including wildlife, include degraded stream banks that lack deep-rooted, bank-binding herbaceous or shrub species. In these places the stream channel is over-widened, depth of the stream is unnaturally shallow and the stream bed is clogged with

excessive amounts of sediment. These conditions hinder the system's ability to move sediment, capture sediment, build banks, increase channel sinuosity and access the flood plain for water storage. These geo-morphological limitations also negatively affect the ability of the riparian plant community. The herbaceous species (grass and sedges) and riparian woody species (willows, water birch, alder, ribes) are either not present or reduced due to lack of recruitment and/or regenerate. In addition, much of reach #891 flows beneath a heavy canopy of conifer species (fir and spruce) resulting in limited herbaceous/shrub understory in these areas.

To facilitate the recovery of the riparian vegetation community's vigor and diversity, stream channel geo-morphology, potential fisheries habitat the proposed fence is critical. It would allow natural processes the time it may take to recover from past degradation and restore proper functioning attributes to this small high mountain, high energy stream. The new fence, in conjunction with the modified fence on the east side of the stream, would effectively cordon off the entire length of reaches 891 and 820. The practical affect would be complete rest for the riparian area adjacent to the stream for an undisclosed time. Studies have indicated that riparian systems recover at different rates from livestock impacts depending on stream type and habitat. A deteriorated riparian system where the objective is to get woody plant regeneration above the reach of livestock may require total rest for a few years (Davis 1982). Exclusion of livestock has produced improved riparian and aquatic habitat following four to seven years of total nonuse, woody plant (shrub) recovery following 5 to 8 years, a doubling of fish biomass following three to five years of total rest, and associated positive response in birds and mammals. Another study in northeast Utah concluded that a minimum of six to eight years of nonuse was necessary to restore a deteriorated streamside riparian area to the point where livestock grazing could be allowed at reduced levels (Duff 1983). But, he did observe that "substantial" recovery of stream banks and vegetation was observed following four years of exclusion of grazing by fencing.

The predicted affects to the riparian resources in the South 1, South 2 and Upper Sage Creek pastures under Alternative E would be similar to the analysis under Alternative D. However, refining the period of use in the Upper Sage Unit, which consists of two pastures, Sage Creek and Bum/Cottonwood Creek, would reduce the exposure of Bum Creek (reach #867) and a small segment of Sage Creek (reach #888) to about 30 days, two of three years. As mentioned above under Alternative D, rest rotation favors herbaceous bank forming vegetation which is adequate for low-gradient, low-energy systems, like Bum Creek and Sage Creek. Limiting the time cattle spend on that portion of Bum Creek to roughly 28 to 30 days in the spring would provide the opportunity for the mature aspen along reach #867 to regenerate at a faster pace. Most browsing of aspen by livestock and wildlife is done in fall or winter when the palatability and nutrition of woody species increase and the nutritional value and palatability of herbaceous species wanes. Also, deferring use in one of the pastures until June every other year, in addition to complete rest the third season, would create the conditions for the expansion and increased vigor of the bank holding sedge communities on the greenline and wet meadows adjacent to Bum Creek and Sage Creek.

Under Alternative E, the Lower Sage pasture would be redefined using strategically placed drift fences to allow the mostly private land pasture to be used at the discretion of the land owner. This pasture would include only about 6% public land (primarily secondary range) administered by the BLM. Drift fences in a few draws would prevent cattle from dropping over the ridge

separating the Lower Sage pasture and the Bum/Cottonwood Creek pasture. Most of the boundary between these two areas is provided naturally by steep terrain and very rocky and rough barriers. Livestock cannot inadvertently drift up reach #867, Bum Creek, from the south, because the drainage is very steep and rocky with large boulders that physically block passage. The lower third of reach 867 running through this steep canyon is completely dry so cattle would not be motivated to challenge the impassable terrain. The western boundary of the Lower Sage pasture is a steep and rocky ridge that is not challenged by cattle. However if cattle do drift over the top of the ridge south of Cottonwood Creek drift fences would be constructed to ensure that access to the riparian habitat along Bum Creek is not utilized outside the authorized grazing period.

Alternative E would designate a season of use in the North Fork Sage custodial pasture of August 1 to December 1, 123 days. However, a stipulation in the grazing lease would limit the actual number of authorized days to no more than 60 days per year. This stipulation would provide flexibility for the operator to choose the exact beginning and end date of use each year. For example, in years where other pastures are rested, e.g., North 3 pasture, cattle would be able to use this area earlier in the season to replace the forage not harvested, and the time spent, in the rested pasture. In other years the operator would be able to choose a late fall period of use for cattle that may be returning from summer pasture in higher country on both BLM and Forest Service allotments.

Because the North Fork is a custodial pasture containing only about 12% public land, the amount of time and amount of forage removed would be pro-rated to reflect that percentage. The number of AUMs on the BLM part of the pasture is figured to be about 12 % of the amount of available forage in the entire unit.

There is a short quarter mile riparian reach (#865) located on BLM land within North Fork Sage pasture. As discussed above under Alternative D, this reach is in proper functioning condition so limiting use to 60 days maximum and alternating the season between summer and fall would reduce potential impacts. There is ample upland forage within the North Fork pasture if cattle are distributed evenly, but usually cattle concentrate more of their time in riparian areas. A study by Platt and Nelson in 1985 found that livestock took an average of 29 percent and as much as 40 percent more vegetation from riparian sites than from adjacent upland sites. In this study use on the allotments overall was moderate, but use on riparian sites was heavy to severe. In seasons when the operator chooses to utilize the pasture beginning August 1, time spent in the riparian areas on both BLM and private land in the pasture would be expected to increase. Riding and herding would be vital during this hot season use to ensure that cattle do not spend a disproportionate amount of time in all the riparian areas in the pasture.

Later grazing periods would most likely increase browsing on the woody riparian species in in the grazing season. There is a large and vigorous woody riparian species component within the riparian zone. Aspen, juniper, booth willow, bebb willow, currants and wild rose bushes as well as three sedge species are present. Vegetation growing in riparian zones generally is more palatable and of higher nutritive quality than vegetation in upland plant communities. Ungulates, cattle and wildlife, switch to the woody plants in the fall to satisfy their nutritional requirements but as long as herbaceous vegetation is available in the riparian zone, shrub utilization does not

occur to greater extent due to late season grazing (Kauffman et al. 1983). Reach #865 does have a healthy sedge community comprised of at least three species. In the fall the sedges will have had the entire growing season to complete their vegetative growth and seed production. These important deep rooted, bank-binding plants would provide excellent quality late season forage and may ameliorate the impacts to the woody species. Also wetland and riparian soil moisture content is very low in the late fall so soils would be resistant to compaction cattle grazing activities. Hoof induced disturbances to banks or wetlands would be reduced and sediment inputs into the system be diminished.

Upland and Sagebrush Steppe Habitat

The private land in the northern part of the Lower Sage pasture forms a large natural basin that the land owner seeded with crested wheatgrass years ago. This grass is very nutritious and palatable early in the grazing season, so would be used in the spring to add additional AUMs of forage to the spring use BLM pastures. This private forage resource will thus reduce pressure on public land especially in the Upper Sage Creek Unit.

The livestock management proposals in Alternative E would enhance the positive trends in upland conditions and health. Season of use, pasture rotations (where applicable), number of authorized livestock and duration of grazing periods proposed are similar to, or more conservative in all pastures and therefore use on, and impacts to, the upland resources would continue to be sustainable.

The upland and sagebrush steppe habitat on BLM administered public lands within the Belmont allotment were assessed by an interdisciplinary team (IDT) of BLM specialists in 2013 as part of the Middle Ruby River Watershed Assessment. The IDT found the upland habitat to be in proper functioning condition (PFC). Using BLM technical reference #1734-6, *Interpreting Indicators of Rangeland Health*, the IDT found that three key range attributes; Soil and site stability, hydrologic function and biotic integrity, had only slightly departed from expected conditions. Seventeen questions covering the three attributes were answered in three pastures, and the “departure from expected” conditions for the attributes was none to slight or slight to moderate.

Special Status Species Habitat

Adding a year of rest to the North 3 pasture one of three grazing seasons would likely improve herbaceous cover and forage, including that available for elk winter range. Modifying the four strand barbed wire fence along the east side of reaches 891 and 820 to a three strand barbed wire fence would create a more wildlife-friendly fence. Constructing a combination of post and rail and two-strand high tensile electric fence along the west side of reaches 891 and 820, in addition to the existing fence on the east side of these reaches would add another movement barrier and entanglement hazard along this riparian area. The stream would essentially be partitioned off by these two fences. Riparian areas are disproportionately utilized more than other habitats on the landscape by wildlife (USDI 1998). Wildlife would have to navigate not one, but two fences along these reaches. Just as these areas are more often used by wildlife, they are also highly utilized by cattle. With that in mind, partitioning off the stream would reduce cattle impacts and likely improve riparian health, including cover and forage for wildlife.

Predicted effects in the North Fork Sage, South 1, South 2, and Upper Sage pastures would be similar to those analyzed under Alternative D, including the discussion regarding sage grouse forage and cover. However, modifying the period of use in the Upper Sage Unit to about 30 days, two of three years in each of the two pastures (Sage Creek and Bum Creek/Cottonwood Creek) compared to season-long grazing throughout the unit between 5/15 and 7/10 in Alternative D, would shorten the period of impact on herbaceous and sedge cover and forage. Likewise, using drift fences to control which areas the cattle utilize during different seasons in the Lower Sage pasture, rather than spring, summer and fall grazing pasture-wide, would reduce impacts to herbaceous nesting cover and forage, and forb production compared to Alternative D.

4.2.3 Comparison of Effects, All Alternatives

Table 4.1: Brief Comparison of Affects to Riparian and Upland Habitats.

Belmont Allotment	
Alternative A	<ul style="list-style-type: none"> »Causes and conditions affecting public land resources would be perpetuated. »Six miles of streams rated FAR would not be expected to improve. »No new water developments, fences or projects of any type would be constructed to improve riparian or upland habitats.
Alternative B	<ul style="list-style-type: none"> »Improved riparian habitat health expected on about 6 stream miles rated FAR. »Riparian fences and one new water development would reduce cattle impacts to riparian and water resources and improve upland cattle distribution in the North 3 pasture. »Adding rest and reducing the duration of grazing use in the North 3 pasture would facilitate the improvement of riparian conditions throughout the pasture. »Reducing duration of grazing in the South 1, South 2 and Upper Sage spring rotation pastures would improve upland conditions and reduce impacts to riparian habitats rated FAR (reaches 867 and 888). »Riparian juniper removal would increase deciduous woody and herbaceous vegetation along reach 885.
Alternative C	<ul style="list-style-type: none"> »Reduction time cattle have access to riparian habitat, along with providing one year of rest every three years in the North 3 pasture would accelerate improvement of riparian habitat health on about 6 stream miles rated FAR. »Riparian fences and one new water development would reduce cattle impacts to riparian and water resources in the North 3 pasture. »Reducing duration of grazing in the South 1, South 2 and Upper Sage spring rotation pastures would improve upland conditions and reduce impacts to riparian habitats rated FAR (reaches 867 and 888). »Corridor fence and juniper removal would increase deciduous woody and herbaceous vegetation along reach 885.
Alternative D	<ul style="list-style-type: none"> »Three new water developments within the allotment would expand cattle distribution on the uplands and reduce impacts to riparian and water resources. »Constructing fences to protect some of the stream reaches that are rated FAR in the North 3 pasture would help reduce impacts to banks and riparian vegetation and improve water quality along those streams. »Proposed season long grazing in the Lower Sage pasture may adversely affect reach #865 which is currently rated PFC. »Corridor fence and juniper removal would increase deciduous woody and herbaceous vegetation along reach 885.
Alternative E	<ul style="list-style-type: none"> » Two new water developments within the North 3 pasture would expand cattle distribution on the uplands and reduce impact to riparian and water resources. »One year of rest every three years would also facilitate improvement to the riparian resource within this pasture. »Constructing fences to protect stream reaches that are rated FAR in the North 3 pasture would help reduce impacts to banks and riparian vegetation and improve water quality. »Proposed long duration of grazing in the North Fork Sage pasture may adversely affect reach #865 which is currently rated PFC. »Corridor fence and juniper removal would increase deciduous woody and herbaceous vegetation along reach #885. »Drift fences separating the Lower Sage pasture from the Bum/Cottonwood pasture of the Upper Sage Unit to limit grazing duration on reaches 867 and 888 would facilitate more rapid improvement of physical and biological conditions in these riparian areas.

4.3 Cumulative Effects for All Alternatives

Refer to MRRW EA for more comprehensive watershed wide effects that are also applicable to the Belmont Allotment. Since this tier EA was completed to analyze two additional alternatives for livestock grazing management on one allotment within the watershed, cumulative effects are not expected to be measurably different than the analysis provided in the MRRW EA.

Cumulative effects are those that result from adding the anticipated direct and indirect effects of the proposed action, to impacts from other past, present and reasonably foreseeable future actions. These additional impacts are considered regardless of what agency or person undertakes such actions. The cumulative impacts area for this EA is defined as all land, regardless of ownership, in the MRRW assessment area for all issues and resource concerns except Socioeconomics, for which the cumulative impacts area is Madison County. Climate change is analyzed at the regional level. The temporal boundary when analyzing cumulative impacts is 10 years. Some past, present and reasonably foreseeable actions are discussed in Chapter 3 (Affected Environment) and/or Chapter 2 (Features Common to all Alternatives).

The MRRW Assessment Report and the Authorized Officer's Summary and Determination (December 2013) and the MRRW EA (June 2014) are available to the public and may be reviewed at the Dillon Field Office, or on the internet at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

Chapter 5

5.0 List of Preparers - Support Personnel - Notifications

Core IDT members:

Pat Fosse, Assistant Field Manager for Renewable Resources
Joe Sampson, Fuels Specialist
Paul Hutchinson, Fisheries Biologist
Steve Armiger, Hydrologist/Riparian Coordinator (Soil/Water/Air)
Katie Benzel, Wildlife Biologist
Emily Guiberson, Forester
Chris McGrath, Outdoor Recreation Planner/Wilderness Specialist
David Early, Rangeland Management Specialist, IDT Leader

Support IDT members:

Laurie Blinn, GIS Specialist
Jason Strahl, Archaeologist
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Kelly Savage, TES plants
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Leea Anderson, Range Technician
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Bryce Nelson, Range Technician
Kate Alder, Administrative Assistant
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Floyd Thompson, Range Program Lead MT/Dakotas
Mike Philbin, Riparian Program Lead MT/Dakotas
Jake Chaffin, Wildlife/Fisheries Program Lead MT/Dakotas

Notifications - Middle Ruby River Watershed

Assessment Initiation Notice; Middle Ruby mailing list – May, 2013
Media Release; Assessment Initiation Notice – May, 2013
Internet NEPA Log – Dillon Field Office – December, 2013
Media Release; Assessment Completion and EA Initiation Notice – December, 2013
Montana/Dakotas External Website - Assessment Report – December, 2013
Montana/Dakota External Website – Executive’s Summary and Authorized Determination – December, 2013

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Appendix A

Belmont Allotment Maps: 1-4

Appendix B

Monitoring Plan for Belmont

Monitoring Plan for Belmont

Introduction

The purpose of this resource monitoring plan is to measure the effectiveness of management changes, structural projects and vegetative treatments in meeting the goals and objectives developed for the Middle Ruby River Watershed (MRRW). This plan has been designed to measure progress towards site specific objectives developed by an ID team where resource concerns were identified during the Middle Ruby River Watershed Assessment.

This plan will identify when, where and how studies will be conducted, as well as the types of data that will be collected, how the data will be evaluated, and who will participate in the process. All monitoring methodologies are approved BLM monitoring methodologies and are described in various BLM or Interagency Handbooks. This information, including technical references, BLM policy and procedure handbooks, and monitoring guidelines and methodology descriptions are available for review at the Dillon Field Office. Technical references and BLM procedural handbooks are also available on the BLM library website; <http://web.nc.blm.gov/blmlibrary>.

All *existing* monitoring studies that are needed to measure progress towards objectives or Standards will continue to be read on the same time schedule as any identified new studies.

Site Specific Objectives

Four Key Issues and seven additional Resource Concerns were identified during the Middle Ruby River Watershed Assessment and through public scoping and were analyzed in the Middle Ruby River Watershed Environmental Assessment (EA). Site specific objectives have been developed based on each key issue and resource concern. The amount of change desired for each of the objectives will be determined once additional baseline data is gathered during the 2014 or 2015 field seasons. The goal is to make measurable progress towards site specific objectives to be able to meet all Rangeland Health Standards by 2023.

Riparian, Wetland, and Aquatic Habitat Objectives:

- Improve streambank stability and width/depth ratio of streams within the natural range of variability based on Rosgen Stream Types.
- Mitigate excessive head cutting and restore vertical channel stability.
- Restore deciduous woody and herbaceous riparian habitat types, with emphasis on reducing conifer and non-native species composition.
- Increase deep-rooted riparian vegetation (sedges, willows) where decreased composition was documented.
- Reduce sediment inputs into streams where human activities such as authorized grazing, recreational impacts and roads are contributing to unacceptably high sediment loads.
- Maintain/enhance habitat for cold water fish in occupied streams.
- Restore, maintain and/or enhance native vegetation and hydrology of springs, seeps and wet meadows with emphasis on ecological function and biodiversity.
- Protect the water source of developed springs from impacts (hoof action) by livestock.

Monitoring activities to measure progress towards meeting Riparian, Wetland and Aquatic Habitat objectives:

- Continue monitoring existing riparian studies to measure progress towards objectives.
- Springs that are developed/redeveloped will be photographed before and after development and inspected and photographed periodically after development (every 2-3 years), including prior to the next scheduled assessment.
- Spring developments will be checked at least annually during compliance inspections to verify that maintenance is being completed as agreed to in Cooperative Agreements.
- Dysfunctional spring developments that are removed/cleaned up will be photographed before and after project clean-up.

Table B-1: Site Specific Riparian and Wetland and Aquatic Habitat Monitoring

Allotment Name and #	Stream and Stream Reach	Objective	Monitoring Methodology
Belmont #10469	Cottonwood Creek 822 Cottonwood Creek 891 Cottonwood Creek 820	Improve streambank stability and channel morphology. Increase riparian vegetation along the greenline.	Cumulative width-depth and greenline transects
	Sage Creek trib. 888 Bum Creek 867	Improve streambank stability and channel morphology.	Greenline Transects and Photo point(s)
	Sweetwater Creek trib. 885	Improve streambank stability and channel morphology. Increase riparian vegetation.	Photo point(s)
	Stone Creek Upper L. Fork 422	Reduce impacts at spring source	Photo point(s)

Upland and Sagebrush Steppe Habitat

Objectives:

- Restore the soil/site stability, hydrological function, and biotic integrity of upland sites in allotments where one or more of these attributes of rangeland health was determined to be reduced.
- Increase cover and frequency of native perennial cool season herbaceous species where concerns were documented, which will improve the hydrological function and site productivity.
- Restore/maintain open sagebrush communities in habitats with conifer expansion.

Monitoring activities to measure progress towards meeting upland habitat and associated species objectives:

- Continue monitoring existing upland studies to measure progress towards objectives.
- Non-commercial mechanical/prescribed fire treatments:
 - Gather fuels and vegetation transect data on up to five representative sites. Photographic documentation should include pre and post-treatment photos from a designated point to verify ocular estimates. If prescribed burns are conducted after May 15, complete migratory bird surveys prior to burning activities.
 - Directly after prescribed fire treatments, retake photographs at established points and/or retake measurements along each pre-treatment transect to determine if treatment objectives have been attained.

- One to four years after treatment: Re-measure transects and photo points to show vegetative response to the treatment and progress towards meeting objectives. Changes in use by big game, specifically elk, within a sample of the treatment areas will be measured by conducting pellet group transects prior to treatment and then, at least annually, for up to five years following treatment.

Table B-2: Site Specific Upland and Sagebrush Steppe Habitat Monitoring

Allotment Name	Objective	Monitoring Methodologies
Belmont #10469	Increase composition and cover of cool season perennial bunchgrasses	Daubenmire or Quadrat Frequency transects and/or Photo points (most of this monitoring is already in place, but will be continued)

Special Status Species Habitat

Objectives:

- Enhance/improve/protect “Priority Habitats” including aspen, whitebark pine and limber pine.
- Improve streambank stability, vegetative cover and width/depth ratio on WCT streams where site specific issues were identified.
- Maintain >70% mountain big sagebrush habitat in canopy closure of 5 to 25 percent.
- In habitats that are predominately Wyoming big sagebrush, manage sites with the ecological potential to maintain sagebrush over at least 60% of those areas in a canopy closure of 5 to 25 percent.
- Maintain an herbaceous understory in sagebrush steppe habitat emphasizing multiple species of native forbs and grasses.
- Maintain or enhance habitat for sensitive plant species and provide ample opportunity for reproduction and seedling establishment.

Monitoring Activities to measure progress towards meeting Fish, Wildlife and Special Status Species Habitat objectives:

Table B-2: Site Specific Upland and Sagebrush Steppe Habitat Monitoring

Allotment Name	Objective	Monitoring Methodologies
All Priority and General Sage Grouse Habitat	-Maintain 15 – 25% sagebrush cover in nesting/early brood rearing habitat. -Maintain an average of 6-7 inch residual understory within site potential on the majority of the area.	-Line Point Intercept plots to measure canopy cover of sagebrush, and herbaceous and forb understory. -Forage utilization and herbaceous understory cover will be measured annually within time constraints of staff.

Related objectives and monitoring activities to measure progress towards fish, wildlife and

special status species habitat are included above under Key Issues for Riparian, Wetland, and Aquatic Health, Upland Health and Sagebrush Steppe Habitat, and Forest and Woodland Habitat.

Additional monitoring activities specific to fish, wildlife and special status species habitat include:

- Document and establish baseline inventory for any new “unmapped” populations of sensitive plants that are found.
- The inventory should include the number of individual plants, a description of the habitat (e.g., associated species, soils, aspect and elevation) and an assessment of any existing and potential threats to the population.
- Coordinate with MTFWP and USFS biologists to continue delineating seasonal habitat for sage grouse.
- Coordinate with MTFWP and Montana Audubon to continue sage grouse lek counts.
- Coordinate with MTFWP and USFS biologists to continue monitoring population trends of WCT in Jack Creek, Idaho Creek, Dark Hollow and North and South Forks of Greenhorn Creek.
- Maintain a 6” herbaceous stubble height along greenline and/or three inches on the floodplain by reach, whichever occurs first to provide a sediment buffer on all WCT stream
- Continue habitat monitoring on WCT Habitat every 5-10 years to include temperature data and habitat surveys using the DEQ protocol for monitoring.
- Inventory harvest units for northern goshawk and great gray owl to identify any nesting territories and determine nesting activity.

Noxious and Invasive Species

Objectives:

- Reduce the composition of noxious and invasive vegetative species within the watershed.
- Mitigate the spread of noxious and invasive plants into, within, or from the watershed.

Monitoring activities to measure progress towards meeting noxious and invasive species objectives are included in above under Riparian, Wetland, and Aquatic Habitat and Upland and Sagebrush Steppe Habitat.

Any aerial weed treatment areas will be monitored or evaluated for site specific objectives through photo points, ocular observation, and/or vegetative transects. Site specific objectives for aerial treatment will be to reduce composition of spotted knapweed with negligible reduction of non-target species.

Types of Data Collected

The established permanent vegetative and physical trend transects in the Middle Ruby River Watershed were read and data was updated during 2012. The date when these studies were initially established and read is considered baseline data. However, in order to adequately measure progress towards site specific objectives, additional studies will be established in key

areas during 2014 or 2015 and baseline data will be gathered on the newly established studies. Baseline data is considered the starting point from which to measure progress towards meeting objectives or effectiveness of management changes implemented beginning in 2015 (on the new studies only). Data from existing studies will be compared and evaluated from the time they were established and data was initially collected.

Key areas are defined as relatively small areas that reflect or have the capability to reflect the effectiveness of management of the resources of a larger area. Depending on management objectives, a key area may be a representative sample of a large stratum, pasture, allotment, or a particular management area. Key areas or monitoring sites should represent the high variability of riparian, upland and forest habitat types, patterns of use, and conditions of forest, rangeland or riparian health. Over the next several years the following data will be collected (See Table 4).

- Actual livestock and wildlife use. Actual use is the grazing use of an area by all classes of forage consumers. This information is necessary to provide a correlation between utilization and trend data. Considered alone, actual use data are essentially meaningless. However, when considered in conjunction with climate and utilization data, this data is necessary to interpret trend data accurately.
- Annual compliance, including utilization of upland forage, browse levels on willows and aspen, measurement of sedge stubble heights and/or measurement of stream bank alteration. This monitoring will occur primarily at established key areas, but may occur in other areas as well. Annual compliance monitoring will be done on a prioritized basis with I category allotments being the highest priority, followed by M, and then C category allotments. In areas where competition for resources may occur between livestock and big game, pre-livestock data may also be collected. This annual data will be used to help determine pasture moves, accurately interpret trend data, and serve as an early indicator on whether implemented changes are effective. If annual monitoring reveals resource degradation or ineffective management changes (as determined by BLM specialists), trend studies may be read at any time prior to the next scheduled assessment (2023), and adjustments in management analyzed in the interim.
- Local precipitation and temperature. This data is necessary to interpret trend data accurately.
- Long term trend. Trend data will be used to measure progress towards meeting objectives as described above.

Trend refers to the direction of change and indicates whether the forest, rangeland, riparian area or other resource is being maintained or is moving toward or away from the desired plant community or other specific management objectives. Trend studies are important in the long term for determining the effectiveness of management actions in meeting or moving towards management objectives.

Trend data will be collected again in 2022 or 2023, unless specified otherwise for specific objectives. The Middle Ruby River Watershed will be re-assessed or evaluated during 2023. In this process, all monitoring data will be summarized, analyzed, interpreted, and evaluated to measure progress toward meeting objectives. Trend data gathered in 2022 will be compared to baseline (established in 2014 or 2015) and existing trend data gathered or updated in 2012. The

measured change in the data will be used to measure progress toward meeting objectives, thereby evaluating management and making informed decisions regarding subsequent management (continuation or change). This is called adaptive management. For example, if monitoring data shows that progress is being made toward established objectives, current management will be continued or modified slightly as warranted, according to the data. However, if data shows a downward trend (change away from objectives) or does not show any progress toward meeting objectives by 2022, and it is determined that current livestock management is a significant factor in precluding progress toward meeting objectives, then management will be adjusted by implementing an alternate system, changing the season of use and/or reducing authorized AUMs. The level of adjustment will be determined by the degree of divergence from the objectives.

Monitoring methodology descriptions are available for review at the Dillon Field Office. Technical references and BLM procedural handbooks are also available on the BLM library website; <http://web.nc.blm.gov/blmlibrary>.

Table B-4: Planned Resource Monitoring Activities

Type	Method	Responsibility	Frequency
Actual Use	Actual Use Reports submitted by grazing lessees Wildlife observations Wildlife population monitoring in cooperation with the MFWP Recreation user days	Range, Wildlife and Recreation Staff	Annually
Compliance/ Utilization	Utilization – Grazed/Ungrazed Method or Key Forage Plant Method	Range, Wildlife or Fisheries Biologists, Hydrologist	Annually on a prioritized basis
	Stubble height – Stubble Height Method		
	Bank alteration – Stream bank Alteration Methodology as defined by Idaho State Office BLM, 2000		
	Browse use – Extensive Browse Method		
Climate	Precipitation data available from National Oceanic and Atmospheric Administration and other sources	Available from external sources	Annually
Habitat Characterization	Inventory for leks and seasonal habitats Sagebrush canopy and herbaceous understory measurements along established transects in sage grouse, elk calving and mule deer winter habitats	Wildlife Staff, MFWP, NWF	Annually on a prioritized basis
Population(s)	Sage Grouse – male lek attendance WCT – periodic population sampling through electro-fishing Pygmy rabbit surveys	MFWP and BLM Biologists will coordinate and assist, where applicable	Annually for sage grouse; 5 year intervals for WCT

Type	Method	Responsibility	Frequency
Trend (also see Table 3)	Biotic Quadrat Frequency Daubenmire Line Intercept Cover Board Woody Species Regeneration Greenline Multiple Indicator Monitoring (MIM) Macroplots/Belt Transects Photopoints Fire Regime Condition Class (FRCC) LANDFIRE (as applicable)	Range, Wildlife or Fisheries Biologists, Hydrologists, Foresters, Fuels Specialists	Any new trend monitoring studies will be established during 2013. Trend data (new and existing studies) will be gathered again in 2022 or 2023.
Watershed Evaluation	Physical Cumulative width/depth ratio	Analysis, Interpretation, Evaluation and Recommendations	ID team FY2023

Budget Requirements

This monitoring plan was prepared with the assumption that funding will remain at or near existing levels for the foreseeable future. In this light, it is anticipated that the bulk of the monitoring workload will have to be borne by the existing range, wildlife, fisheries, forestry, fuels, hydrology, recreation, wilderness and cultural resource specialists along with a minimum of six seasonal employees each field season for the duration of this plan.

Litigation workload associated with Watershed Assessments also directly effects how much monitoring the existing staff is able to complete.

Appendix C

Proponents Alternative and Comments

December 16, 2014
Cornie Hudson, Field Manager
BLM Dillon Field Office
1005 Selway Drive
Dillon, MT 59725

Dear Ms. Hudson,

Enclosed is our alternative for future grazing management of the Belmont Allotment. We believe this proposal will address all the riparian concerns that BLM surfaced for the allotment in the Middle Ruby Watershed Assessment and Environmental Analysis. It will also maintain or improve the already healthy upland range conditions which BLM documents in 2013 field inspections.

We understand that this alternative will now be considered in a further assessment of the environmental effects of livestock grazing and other management actions for the Belmont Allotment. In addition to considering the effects of future grazing as proposed in this alternative, we will take great interest in your assessment of the adverse effects of other activities that degrade water quality and effect riparian health. The county road accessing Cottonwood Cr is an obvious source of sediment, especially that section upstream from where the road crosses Cottonwood Cr in the North Pasture. Wildlife, especially elk, can and often do account for quite a bit of riparian disturbance in Cottonwood Cr and other riparian habitats in the Belmont Allotment.

Noxious weeds, especially new infestations, are a very real threat to the health and continued productivity of rangelands throughout both Belmont and Garden Cr allotments. We believe this threat and the management actions Bradley Livestock continues to take to contain, control and eradicate noxious weeds should be included in the assessment of effects –beneficial effects in this case which would not accrue without commitment to the health of both private and public lands.

If there are detail questions about the alternative(s) proposed, please have your staff members contact George Hirschenberger at 406-543-8232.

Sincerely

Beau Bradley
Bradley Livestock

Belmont Allotment Proponent's Alternative

North Pasture

- Authorize 109 cattle from July 15 through September 30
- Relocate allotment boundary fence between Belmont and Garden Cr allotments to exclude livestock use of Cottonwood Cr in Belmont's North Pasture. While the proposed new allotment fence would be located on the west side of Cottonwood Cr, the actual fence location would be established during a joint field inspection with BLM. A temporary fence may be used at first to determine the best alignment for the permanent fence. It is my understanding that BLM and Bradley Livestock would share the cost of this fence with BLM providing the materials and Bradley Livestock would be responsible for construction.
- As discussed in the field, three springs would be developed. The spring near the head of Cottonwood Cr, the spring in tributary of Stone Cr and the spring in the SW ¼ of Section 24 which is a reconstruction of an existing development. Developments would improve conditions at the current water sources, help us better distribute livestock use and are needed to supplement stock water because Cottonwood Cr will no longer be available.
- It is possible that a pasture division fence running roughly NW to SE may be needed to assist in livestock management in uplands in the future but none is proposed now.

Monitoring

- Establish riparian monitoring sites that will be used to determine trend in future assessments.

Upper Sage Pasture

An Arc GIS map (Map #4, Appendix A) designating the Upper Sage Pasture is included in this proposal to clarify this pasture's boundaries.

- Authorize up to 497 cattle from 05/15 thru 07/10 two years in every three and rest this pasture one year in three. The pasture would be rested in 2015, grazed in 2016 and 2017 and this pattern of rest, graze, graze would repeat every three years. Using the current permit estimate of 25% of the forage in this pasture produced on public land, the total AUM's authorized on public land would be 228 –which is no change from present preference.
- Allow flexibility in turn-out dates and numbers of livestock and bill on actual use. It is difficult to predict the actual turnout date in this and the South 1 and South 2 pastures because the readiness of the pasture for grazing can vary from one year to the next.
- Actively herd livestock and change salt and mineral locations to reduce repeated use of favored watering areas. While the majority of the stream mileage in this pasture is on private land, BLM identified a short reach of

Sage Cr where it meets the east boundary fence for this pasture that is Functioning at Risk with a static trend.

Monitoring

As discussed in the field, we believe the overall trend on Sage Cr –the majority of which is on deeded land -is upward and therefore a monitoring site and method should be agreed to determine trend for the next assessment.

South 1 pastures

- Postpone turnout by 5 days -May 15 instead of May 10. It is important to keep the present off date of July 10 because that is the normal date cattle can be moved to other pastures.
- Authorize up to 292 cattle for this use which would not change the 334 AUMs of Active Use on public land. This pasture would be rested once every three years. The first rest year would be 2016.
- Actual use bill and allow the same flexibility proposed for Upper Sage.

South 2 Pasture

- Postpone turnout by 5 days -May 15 instead of May 10. Livestock would be authorized thru July 10 –the present off date.
- Authorize up to 268 cattle for this use period which would not change the 335 AUMs of Active Use on public land. This pasture would be rested once every three years. The first rest year would be 2017.
- Actual use bill and allow the same flexibility proposed for Upper Sage.

Lower Sage Pasture

Refer to the attached ArcGIS map (Map 4, Appendix A) for pasture boundaries. BLM's October 25, 2004 Final Grazing Decision Record for the Belmont Allotment refers to this use area as both the Badlands and Lower Sage pastures when, in fact, there is no fence or barrier to divide this pasture. Lower Sage is the preferred name.

- Authorize livestock use between May 15 and December 15 each year. Total AUMs used on public land would not exceed the present authorized use of 112 AUMs of Active Use. While the season of use proposed is a change on paper from what BLM currently authorizes for the Lower Sage Pasture, it is no change from current management of the area referred to in the decision record as the Badlands and Lower Sage. The 2004 decision designates both of these areas as custodial pastures.
- Bill on actual use. While May 15 and December 15 would be the earliest and latest dates for stocking, there is often a lot of variability in actual use periods. This is because the pasture is used in the spring to make use of crested wheatgrass in conjunction with use in the Upper Sage Pasture, in the summer to hold cattle being moved to other pastures and in the fall to gather, wean and hold cattle as they are gathered.

BLM has raised concern about riparian and aquatic health in this pasture; specifically for portion of Bum Cr and for a short reach of Sage Cr near the west boundary fence. Fish habitat and water quality are not factors for these streams because water from Bum Cr rarely reaches Sage Cr. and because Sage Cr is dewatered before it reaches any other perennial stream. What is not discussed in the current EA is the overall improvement that has occurred over the past two decades along about 2.5 miles of Cottonwood Cr., approximately 2 miles of Sage Cr. and the reach of Bum Cr. with flowing water due to careful livestock management. While most of the improvement is on private land, the net effect is a benefit to fisheries, water quality and riparian/aquatic health.

Regarding conditions in Bum Cr and Sage Cr, we believe BLM should consider the following in its assessment:

As stated during our joint field inspection on September 22, Bum Cr is regarded by BLM as a low energy stream that will take a relatively long time to show improvement. It is also understood that this is a relatively low priority stream for management actions.

The upper reach of Bum Cr. on public land appears to be an ephemeral stream. Based on our joint inspection of the well vegetated, small and dry watercourse/channel, spring and fall use by ungulates should have few if any adverse effects except for the localized effects of spring elk and fall livestock use at the three small push-up dam sites.

The middle reach of Bum Cr on public land had a small volume of flowing surface water in places -estimated at 2-3 gallons per minute-and a few areas where water collected in small, shallow and sometimes stagnant ponds. While livestock use was noted during our September inspection, no site specific problems caused this year by livestock were noted. For the record, elk disturbance was apparent in Bum Cr. when inspected in the early summer. BLM rated this stream as "Functioning at Risk (FAR) with a static trend" but, in some areas where there was a good expression of a stream channel and riparian habitat, some evidence of satisfactory and improving riparian conditions was noted during our joint inspection.

The lower reach of Bum Cr on public land is a steep rocky ravine with no water, no sign of livestock use and very little sign of use by elk or deer. Regarding the segment of Sage Cr on public land just below the west boundary fence of this pasture which BLM assessed as FAR with a static trend; this segment of Sage Cr. also shows evidence of stabilizing conditions and indications of good riparian health suggesting that trend may well be upward.

Estimated Effects of Ungulates on Bum and Sage creeks:

Use around the three push-up dams in the mainly dry upper reach of Bum Cr will not be easy to change since these small water holes will continue attract both elk and cattle. The adverse effects of current use are localized and have very little adverse effect on downstream conditions.

The middle reach of Bum Cr on public land which has some flowing surface water and some naturally occurring, small and sometimes stagnant ponds, will continue to attract

use by both wildlife and livestock. However, livestock use in this pasture is made primarily during in the cool seasons and some simple, practical measures including changing salt and mineral placement, herding and creating slash barriers to limit access to favorite use areas can be taken to discourage livestock from congregating near these water sources. We believe the proposed livestock use in this pasture will allow riparian conditions to continue to improve on public lands.

Monitoring:

Given that Bum Cr. is low energy stream and will not improve quickly, it is important to establish base line information in areas that can be used to determine the trend in conditions for the next assessment BLM conducts. BLM and Bradley Livestock representatives should agree on the monitoring location and methods to use and establish monitoring sites in the spring of 2015. Trend monitoring should also be established for Sage Cr.

North Fork Sage Pasture

The attached map delineates pasture boundaries (Map 4, Appendix A). While BLM's Notice of Final Grazing Decision dated October 25, 2014 states that "Upper Sage, Lower Sage and Badlands will be designated as Custodial pastures" this pasture is apparently unnamed. The new name North Fork Sage Cr is proposed for this pasture which is primarily private and state land with about 10% of the acreage and a lesser amount of the forage being supplied by public land.

- Authorize use from October 1 to December 15 each year.
- No restrictions should be placed on the number of livestock given the small amount of public land and the healthy rangeland conditions of both uplands and riparian areas.

Noxious Weed Management

One major concern for the future health of both rangeland and riparian areas which is not specifically addressed in your EA is management of noxious weeds. Bradley Livestock is committed to control, containment and prevention of new infestations on all the lands we graze. This year we spent over \$50,000 on noxious weed control and this expenditure benefitted all lands by direct control and by curtailing the spread of weeds.

To be most effective in managing the established weeds and to act quickly on new invasions, we need to better understand the current situation on public land within both the Belmont and Garden Cr allotments. We believe the adverse effects of noxious weeds on rangeland health and the positive effects of my control actions should at least be acknowledged in the assessment.

Also, we request BLM provide us with the best available map of known infested areas, which noxious plants are present, what measures have been and are planned to be taken by BLM to contain and control these plants. And, to be most effective, we need to understand what is being done to prevent introduction of new invasive species.

Does BLM have an interactive, easily updated and reliable system for reporting new infestations on public and adjacent private land? This would be a valuable tool to help us share GPS and other field data, develop good strategies and coordinate control work with your office.