

4.0 Environmental Consequences

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

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

- 4.1 Alternative 1, Continuation of Current Management
- 4.2 Alternative 2, Proposed Action

The following critical elements of the human environment were considered but not analyzed. These elements would not be affected by the proposed action or current management and will not be discussed further.

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

4.1 Impacts Under Alternative 1, Continuation of Current Management:

This section discusses the impacts of renewing grazing permits with current terms and conditions and no management changes to environmental elements in the planning area.

4.1.1 Rangelands

If current grazing management continues, rangelands within the watershed would be affected in accordance with the current

upland and riparian condition and trend discussed in sections 4.1.2 and 4.1.3 below.

4.1.2 Upland Range Health

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

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

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

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

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

4.1.3 Riparian Health

Under current grazing management, riparian sites that are meeting Standards (Appendices E, M) would improve or remain

stable. All available information indicates a static or upward trend on riparian sites meeting Standards.

Riparian sites not meeting Standards for reasons other than livestock grazing could continue a conditional decline. Riparian degradation in this category is primarily caused by noxious weeds, channel incisement, extended drought and historical dewatering. With the exception of weeds, these circumstances are not affected by grazing management, and therefore would not be impacted by the selection of Alternative 1. Noxious weeds are discussed in section 4.1.4 below.

Riparian sites not meeting standards as a result of livestock grazing (Appendices E, M) would remain static or continue in a downward trend since no changes in livestock gazing would occur. Without periodic rest from grazing during the growing season, perennial grasses, forbs and woody species in these degraded areas would continue to have low vigor and density with limited reproduction. Riparian ecology and streambank stabilization would be interrupted or impeded leading to degradation and potential loss of functioning riparian areas.

4.1.4 Weeds

Under current management, noxious weed control within the planning area is somewhat inconsistent. Some permittees have signed cooperative weed control agreements and are actively involved in weed control on their allotments; others have no agreements and are not involved in weed control. The present level of weed control could lead to an increase in noxious weeds in the planning area, especially on grazing allotments lacking cooperative weed control agreements. Alternative 1 would not require noxious weed control cooperative agreements as a term and condition of the grazing permit.

4.1.5 Coniferous Forest

Maintaining current management of livestock grazing would not impact coniferous forests. This alternative would not initiate prescribed fire or mechanical treatments.

4.1.6 Livestock Grazing

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

4.1.7 Recreation

No impacts to recreation would occur under this alternative.

4.1.8 Visual Resource Management

No impacts (direct or cumulative) would occur to visual resources under this alternative.

4.1.9 Wildlife

Under current management, the riparian health, upland health and noxious weed infestation issues that have been identified would not improve. Upland sites not meeting standards as a result of livestock grazing would continue to decline in productivity and upland health. Browse availability for mule deer would continue to decline. Forage and cover for birds and other small mammals would also deteriorate. Over time, the reduction in wildlife forage and increased levels of noxious weeds would cause a cumulative loss in the value of these isolated unhealthy areas as wildlife habitat.

Improvement of non-functioning riparian areas would not occur and the trends would remain static or continue to degrade. Unhealthy riparian areas would create a negative impact to most wildlife species. Vegetative diversity and structure that are associated with healthy riparian areas would

not be available for cover, foraging and nesting areas for many species.

Proper functioning riparian systems along Box Elder Creek and the Musselshell River should continue to regenerate cottonwood, willow, green ash and box elder stands and provide quality habitat for a wide variety of wildlife species. Healthy cottonwood stands with diverse herbaceous understory would continue to be a benefit to neotropical birds.

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

4.1.10 Wildland Fire

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

This planning area lies within the LFO "Breaks" Fire Management Unit (FMU). Current wildland fire suppression policy within this FMU is to utilize appropriate fire suppression strategies based on safety, current fire danger, values at risk, cost, suppression resource availability and predicted weather. Each fire occurrence would be evaluated on these elements and a determination made as to the most appropriate course of action. Under certain circumstances, appropriate strategies may include using indirect suppression tactics and utilization of natural fuel breaks to return fire to its natural role in the ecology of the area.

No prescribed burning would be proposed under Alternative 1.

4.1.11 Cultural Resources

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

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

4.1.12 Surface Water

Water quantity and quality affected by flow diversion, impoundments, and stream channel modifications such as spreader dikes would not change. Where infiltration and evaporation rates are altered because of change in plant cover, the time of concentration and water storage within the planning area would remain below natural levels.

This alternative would not address the water quality impaired streams within the planning area or comply with the TMDL process, Clean Water Act, or MOU with MDEQ since no improvements would be made to upland or riparian vegetation. Those public lands in the planning area that are in less than Proper Functioning Condition would continue to possibly contribute sediment to the water quality impaired streams such as Flatwillow Creek.

4.1.13 Ground Water

This alternative would not address the uncontrolled, flowing well in the Zimmerman

Place Allotment. Uncontrolled, flowing wells are in violation of Montana water law and a waste of ground water from valuable, deep aquifers in the area.

4.1.14 Soils

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

4.1.15 Air Quality

Continuation of current management would not impact air quality.

4.1.16 Economics

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

4.1.17 Sociology

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

4.1.18 ACECs

Alternative 1 would not impact ACECs directly or cumulatively.

4.2 Impacts Under Alternative 2, Proposed Acton:

4.2.1 Rangelands

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

4.2.2 Upland Range Health

Rangeland conditions on the allotments listed in Table 4.1 would continue to meet the upland health standard. Trends on these allotments are static or improving; no major management changes would be required. Implementation of Alternative 2 would not impact upland health on the majority of these allotments. Range improvements would be proposed by the permittees on eight allotments to improve livestock grazing efficiency and productivity; impacts to these allotments are discussed below table 4.1.

Table 4.1 Allotments Meeting the Upland Health Standard

Allotment Name	Allotment No.	Identification Number
Petrolia Bench Ranch	04901	001
South War Horse	15153	007
Eager Home Ranch	15061	008
Hubert Coulee	02539	010
Aikens	04859	011
Sheep Wagon	15064	012
Aikens	25012	013
Chippewa	02606	015
Schulz	02666	016
Degner Pasture	02613	018
County Line	12804	019
Forty One	02664	021
S. Fork Bear Creek	14910	022
Grass Range East	02673	023
Croft Place	12608	026
Fanyak Exchange	02536	028
Chippewa School	02623	031
Wellman	02677	032
Railroad	15118	037
Petroleum Ind.	15120	038
54 Livestock	14993	039
FCC Ind. A	25000	041
Bohemian Corner	02668	042
Circle Bar Coulee	04827	043
A Holgren Place	04872	044
Hale Ind. D	05068	045
Hale Ranch	15069	047
S. War Horse (Hale)	25004	048
Hedman Pasture C	15074	054
Hedman Pasture E	15075	056
Hedman Pasture F	15076	057
War Horse Common	15071	058
Bender Creek Winnett	04891	060
Kaufman	02815	062
Bender Creek Hughes	02813	065
Breeding Pasture	04877	066
Meadow Pasture	05141	067
Hawkins Pasture	15138	071
Rozie Pasture	15140	073
Snoose Creek	15144	074
Lambert Bench	15145	075
Windbreak	04873	077
P.D. Pasture	04878	078
D. Iverson	04879	079
Silver Sage	15070	080
Sage Hen	04880	081
Road Junction	15001	084
Flatwillow	15078	085
Mosby Road	25007	086
King	04884	087
King 7 Heifer Pasture	05054	088
King Winter Pasture	15055	089
Nebraska Place	04890	090
Kruger	04885	092
Fisher	02642	095
# Ranch	04869	099
Salt Sage	14992	100
Marks Ind.	04887	101
Munson	02653	103
Musselshell	15010	105
Adams	02665	106

Hill South Winnett	04876	109
S Fork Bear Creek	02654	110
O-N	02662	111
Bohemian South	02656	112
Chimney Rock Ind.	15095	114
Elder	02659	116
Doman-Schultz	04863	117
Marsh Hawk	04894	118
Maxwell Ranch	15009	120
Solf Bros. B	04897	123
Little Bear	05018	124
Gorman Coulee	04990	125
Alfalfa Acres	14988	126
N.T., S. Rattlesnake, Pet., & Elk	04900	127
West Bassett	15039	128
Fords Creek	15045	129
Teigen Ind. Pasture	04899	130
Schuster & White	15048	131
Whisonant Place	14906	133
Little Box Elder	02609	134

4.2.2.1 Petrolia Bench Ranch, Allotment No. 04901

The permittee proposes a stockwater pipeline installation which would cross public land within an existing 2-track trail alignment. Stockwater would not be located on public land; a terminal stocktank would be placed on private land. This project would not impact upland health.

4.2.2.2 Sheep Wagon, Allotment No. 15064

The permittee proposes construction of two crossfences within the allotment to facilitate implementation of a 3-pasture rest rotation grazing system. Three pipeline extensions and four stocktanks are also proposed to provide stockwater in the new pastures. A fence replacement is proposed around a reservoir within the allotment. The permittee proposed rest rotation would positively impact upland health by allowing desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year.

4.2.2.3 Circle Bar Coulee, Allotment No. 04827

The permittee proposes a stockwater pipeline extension which would cross public land within this allotment. Stockwater would not be located on public land; a terminal stocktank would be placed on private land. This project would not impact upland health in the allotment.

4.2.2.4 Hale Ranch, Allotment No. 15069

The permittee proposes construction of a crossfence within the allotment to facilitate implementation of a 3-pasture deferred rotation grazing system in conjunction with the S. War Horse allotment. Deferred rotation grazing would positively impact upland health by allowing desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season.

4.2.2.5 S. War Horse, Allotment No. 25004

The BLM and permittee propose changing this allotment to a pasture in the Hale Ranch Allotment and implementing a 3-pasture deferred rotation grazing system. Deferred rotation grazing would positively impact upland health by allowing desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season.

4.2.2.6 Flatwillow, Allotment No. 15078

The permittee proposes a crossfence in this allotment creating a fifth pasture to be included in the current rest rotation grazing system. A stockwater pipeline extension and one stocktank are also proposed to provide water in the new pasture. Rest rotation grazing would positively impact upland health by allowing desirable upland vegetation in one pasture to accumulate

root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year.

4.2.2.7 Marks Ind., Allotment No. 04887

The permittee proposes a crossfence in this allotment to implement a 2-pasture deferred rotation grazing system. Deferred rotation grazing would positively impact upland health by allowing desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season.

4.2.2.8 Chimney Rock Ind., Allotment No. 15095

The BLM and permittee propose a 100 acre dense clubmoss renovation comprised of a one-pass twisted shank chisel plow mechanical treatment. The treatment would use no drags or harrows to minimize the removal of concentrated stands of Wyoming big sagebrush. Livestock grazing would be excluded from the area for at least two growing seasons utilizing a proposed exclusionary fence. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This project would positively impact upland health by creating more available forage within the allotment without increasing permitted AUMs.

Rangeland conditions on the allotments listed in Table 4.2 are not meeting the standard for upland health; livestock grazing is not a significant factor. Major grazing management changes would not be required on these allotments, although management changes and/or range improvements have been proposed by the BLM and permittees on some allotments to improve grazing operation productivity as

discussed following Table 4.2. Implementation of Alternative 2 would not impact upland health on the allotments with no proposed management changes or range improvements

Table 4.2 Allotments Not Meeting the Upland Health Standard; Livestock Grazing is Not a Significant Factor

Allotment Name	Allotment No.	Identification Number
McDonald Creek	04902	005
Box Elder	02529	009
Yellow Water Creek	15085	014
Flatwillow Ranch	09684	029
Little Dam	12601	033
Gilt Edge	02620	034
North Highway	15024	040
East Winett	15047	051
Hedman Pasture D	04875	055
Wild Horse Lake	15072	059
South Pasture	05142	068
Maidenhead	02616	094
Box Elder L&L Ind.	04854	096
Pearce	14911	107
Chimney Rock South	05098	113
Forgy Common	12700	132

4.2.2.9 Box Elder, Allotment No. 02529

This allotment is not meeting the upland health standard due to historical livestock grazing. The recently implemented 6-pasture rest rotation grazing system is working well. The permittee has proposed a stockwater pipeline extension and two stockwater tanks within the allotment. The pipeline and two stocktanks would be located on public land. This project would aid in distribution of the current permitted livestock numbers thereby improving upland health and benefiting soils.

4.2.2.10 Yellow Water Creek, Allotment No. 15085

The permittee proposes construction of a stockwater pipeline and addition of one stocktank in this allotment. The proposed project would aid in distribution of the current permitted livestock numbers thereby improving upland health and benefiting soils.

4.2.2.11 North Highway, Allotment No. 15024

This allotment is not meeting the upland health standard due to historical livestock grazing. The BLM and permittee propose a 3-wire barbed wire crossfence within the allotment to implement a deferred rotation grazing system. The grazing system would distribute livestock more effectively throughout the allotment. A short extension of an existing water pipeline located on private land is also proposed. The pipeline would extend approximately .5 mi., terminating at a stocktank utilized in two pastures. These projects would aid in distribution of the current permitted livestock numbers, thereby improving upland health.

4.2.2.12 Wild Horse Lake, Allotment No. 15072

This allotment does not meet the upland health standard primarily due to the presence of crested wheatgrass. The BLM and permittee propose construction of a 3-wire barbed wire cross fence (.75 mi. on BLM) to optimize crested wheatgrass utilization. The permittee also proposes a 1.0 mi. stockwater pipeline extension with one common terminal stocktank. Implementation of Alternative 2 would create seven pastures within this allotment managed under a deferred rotation grazing system. The proposed range improvement projects and grazing system would lead to an upward trend in upland health. The upward trend would be achieved through optimum forage utilization, improved livestock distribution and increased soil stability.

4.2.2.13 Box Elder L&L Ind., Allotment No. 04854

This allotment does not meet the upland health standard due to the presence of crested wheatgrass. The permittee proposes installing a single strand high tensile electric fence to promote improved utilization of crested wheatgrass in the

southern portion of the allotment. This project would improve upland health by relieving pressure from the native vegetation during critical growing periods.

4.2.2.14 Chimney Rock South, Allotment No. 05098

This allotment does not meet the upland health standard primarily due to a large percentage of crested wheatgrass. The BLM and permittee propose construction of a crossfence to separate native rangeland in from the crested wheatgrass dominated portion of the allotment. This project would benefit upland health by promoting improved utilization of crested wheatgrass and relieving pressure from the native vegetation during critical growing periods.

C. Beckstrom Ind.	15067	046
Walker Ranch	14903	049
S. War Horse Ind.	15046	050
Yellow Water Basin	04898	052
Hedman Pasture B	15073	053
Yellowwater Ind. B	15092	061
Zimmerman Place	15036	063
Iverson Yellowwater	15151	064
Bench Pasture	05143	069
Pike Creek	05161	070
L. Pike Creek	15139	072
North Flatwillow	15146	076
Jackson Home Place	02010	082
Crowley Dam	15014	083
West Bohemian	02636	091
Bassett Place	15043	093
Buckler Place	02519	097
William Lewis Ind.	04886	098
North Box Elder	04850	102
Briggs Coulee	02647	104
West Winnett	15023	108
Skibby Place	15059	115
Hughes Coulee	04831	119
East Roy	02670	121
Solf Bros. A	15090	122

4.2.2.15 Maginnis, Allotment No. 00823

This custodial allotment is not meeting the upland health standard. The allotment is comprised of 283 acres of public land surrounded by private land. Under Alternative 2, the BLM and permittee propose a change in the season of use from yearlong to 4/1-11/15. This reduced time period authorized for grazing would lead to an upward trend and significant progress toward meeting the upland health standard.

4.2.2.16 Yellowwater, Allotment No. 15040

This allotment is currently not meeting the upland health standard. The BLM and permittee propose implementation of a 5-pasture rest rotation grazing system. Rest rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year. The new grazing system would allow the uplands to meet or make significant progress toward meeting the upland health standard.

Rangeland conditions on the allotments listed in Table 4.3 are not meeting the upland health standard. Trends on these allotments are static or down. Management changes and/or range improvements have been proposed by the BLM and the permittees. The proposed changes would lead to significant progress toward meeting the upland health standard. Impacts to rangelands for each allotment are discussed following Table 4.3

Table 4.3 Allotments Not Meeting the Upland Health Standard

Allotment Name	Allotment No.	Identification Number
Maginnis	00823	002
Yellowwater	15040	003
N. Willow Creek	04824	004
Warhorse Ind.	15152	006
Brickyard	02611	017
Spring Creek	15147	020
Harris	04874	024
Bear Creek	14912	025
Elk Creek Bench	04865	027
Duck Creek	04868	030
Maginnis Creek	00985	035
Alan Ind.	15119	036

4.2.2.17 N. Willow Creek, Allotment No. 04824

This allotment is currently not meeting the upland health standard. The BLM proposes a 1.5 mi., 3-wire barbed wire crossfence in the allotment. Construction of the fence and installation of a cattle guard would create 3 pastures west of the Mosby road (Pasture D, Pasture C North, & Pasture C South). The BLM proposes a 3-pasture rest rotation grazing system with an additional pasture authorized for late fall grazing only (10/5-2/2). Implementation of Alternative 2 would have a positive impact on upland vegetation by eliminating grazing in one pasture each year. Rest rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year.

4.2.2.18 Warhorse Ind., Allotment No. 15152

This allotment is not meeting the upland health standard. The BLM and permittee propose to modify the season of use from 6/16-10/31 to 7/1-9/30. The reduced time period authorized for grazing would lead to an upward trend and significant progress toward meeting the upland health standard.

4.2.2.19 Brickyard, Allotment No. 02611

This allotment is currently not meeting the upland health standard. The BLM and permittees propose implementation of a 3-pasture deferred rotation grazing system utilizing current pastures. Deferred rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season. The new grazing system would allow the uplands to meet or make significant progress toward meeting the upland health standard.

4.2.2.20 Spring Creek, Allotment No. 15147

This allotment is currently not meeting the upland health standard. The BLM and permittees propose utilizing this allotment in conjunction with the Brickyard Allotment in a deferred rotation grazing system. The new grazing system would allow the uplands to meet or make significant progress toward meeting the upland health standard.

4.2.2.21 Harris, Allotment No. 04874

This allotment is currently not meeting the upland health standard. The Harris Allotment consists of three small pastures and one large pasture. Pastures A, B, and C would be used in a spring and fall rotation to utilize crested wheatgrass. These pastures would retain year-round authorizations. The large Harris Pasture is currently utilized as a summer/fall pasture. The BLM and permittee propose two fencing projects and two stockwater pipeline extensions to create three pastures in the Harris Pasture resulting in a 3-pasture deferred rotation grazing system. Implementation of the grazing system would result in improved grazing distribution and desirable upland vegetation vigor which would lead to significant progress toward meeting the upland health standard.

4.2.2.22 Bear Creek, Allotment No. 14912

This allotment is currently not meeting the upland health standard. Bear Creek is a custodial allotment authorized for yearlong grazing. The BLM and permittee propose modifying the season of use to winter/early spring grazing only - 11/1-5/15, 100% active use. Total grazing preference would remain the same. The proposed season of use would benefit upland health by concentrating grazing pressure during the winter and early spring months. This time period is less critical to the growth, reproductive, and energy storage phases of the desirable vegetation's life cycle than the summer/fall time period.

4.2.2.23 Elk Creek Bench, Allotment No. 04865

This allotment is currently not meeting the upland health standard. The Elk Creek Bench Allotment consists of four pastures; Pasture A, Pasture B, NW Highway, and the Phillips Pasture.

Current permitted use would continue in Pasture A. A 38.5 acre agricultural trespass would be reseeded to native vegetation and temporarily excluded from livestock grazing for two growing seasons. This project would improve upland health by creating more available forage within the allotment without increasing permitted AUMs.

The current permitted use in Pasture B would be modified. The BLM and permittee propose construction of a 3-wire barbed wire crossfence within this pasture to implement a 3-pasture deferred rotation grazing system. Two of the pastures would be grazed in the spring, one in the fall. A stockwater pipeline extension and one stocktank are also proposed to implement the 3-pasture grazing system. The proposed grazing system would improve upland health by deferring grazing until after seed-ripe in one pasture each year, allowing an undisturbed vegetative growth and reproductive cycle.

The permitted use in the NW Highway Pasture would continue. The BLM and permittee propose an extension of the proposed Pasture B pipeline into this pasture with one terminal stocktank. This proposed project would benefit upland health by improving livestock distribution and grazing pressure within the pasture.

The current use in the Phillips Pasture would be modified by implementation of a proposed 2-pasture deferred rotation grazing system. A 3-wire barbed wire crossfence would be constructed within the pasture creating two pastures. This proposed project would benefit upland

health by improving livestock distribution and grazing pressure within the pasture.

4.2.2.24 Duck Creek, Allotment No. 04868

This allotment is currently not meeting the upland health standard due to a large percentage of dead Wyoming big sage and historic crested wheatgrass. The allotment also contains an abandoned hand-dug well, miscellaneous garbage, and evidence of supplemental livestock feeding. The BLM proposes to work with the permittee to remove all garbage and discarded items and eliminate supplemental feeding on public land. The BLM also proposes a change in season of use from yearlong to 4/1-12/31. The reduced time period authorized for grazing would lead to an upward trend and significant progress toward meeting the upland health standard.

4.2.2.25 Maginnis Creek, Allotment No. 00985

This allotment is currently not meeting the upland health standard. The BLM proposes a change in the season of use from yearlong to 5/1-12/30, matching the adjacent Alan Ind. Allotment 15119. The reduced time period authorized for grazing would lead to an upward trend and significant progress toward meeting the upland health standard.

4.2.2.26 Alan Ind., Allotment No. 15119

The permittee and BLM propose an option of public land disposal in the Maginnis Creek and Alan Ind. Allotments. Disposal, potentially through direct sale, would entail a process requiring additional planning and analysis. In the interim, actions would be proposed to improve rangeland health pending the outcome of the disposal process. This allotment is currently not meeting the upland health standard. The BLM proposes a 1.75 mi. sheep tight fence in the NE portion of the allotment, modifying current grazing management on 537 acres.

Livestock grazing would be excluded from the 537 acres for at least two years or until BLM monitoring determines that rangeland health is making significant progress toward meeting standards. The new fence would eliminate the need for the existing sheep-tight fence on the east allotment boundary. The east boundary fence would be modified to allow unobstructed antelope movement. Implementation of the proposed management changes would lead to significant progress toward meeting the upland health standard.

4.2.2.27 C. Beckstrom Ind., Allotment No. 15067

This allotment is currently not meeting the upland health standard, primarily due to a high percentage of dense clubmoss. The BLM and permittee propose implementing a 3-pasture deferred rotation grazing system utilizing the currently fenced pastures. The BLM and permittee also propose changing the C. Beckstrom Allotment (and 5 other allotments authorized to Hale Ranch) to a pasture and consolidating all pastures under the Hale Ranch Allotment. This proposed grazing system would benefit upland health by deferring grazing until after seed-ripe in one pasture each year, allowing an undisturbed vegetative growth and reproductive cycle.

In addition, the BLM and permittee propose renovating approximately 80 acres of dense clubmoss-dominated public rangeland with a one-pass twisted shank chisel plow treatment. The treatment would use no drags or harrows to minimize the removal of concentrated stands of Wyoming big sagebrush. The treated area would be packed with a weighted roller following Wyoming big sage seed dissemination in the fall. Livestock grazing would be excluded from the area for two growing seasons utilizing electric fence. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving

precipitation infiltration and perennial decreaser grass species recovery. This project would improve upland health by creating more available forage within the allotment without increasing permitted AUMs.

4.2.2.28 Walker Ranch, Allotment No. 14903

This allotment is currently not meeting the upland health standard. The allotment contains three pastures; Pasture A, Pasture B and Pasture D. Under Alternative 2, Pasture D would be fenced and grazed in conjunction with the S. War Horse Ind. allotment. Pasture A, Pasture B and the S. War Horse Ind. Allotment would be incorporated into a 3-pasture deferred rotation grazing system. Deferred rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season. The new grazing system would allow the uplands to meet or make significant progress toward meeting the upland health standard.

The permittee also proposes two stockwater pipeline extensions into this allotment from an existing private well. The proposed pipelines and three stocktanks would equitably distribute livestock grazing throughout the allotment and provide a reliable stockwater source.

4.2.2.29 S. War Horse Ind., Allotment No. 15046

This allotment is currently not meeting the upland health standard. The BLM and permittee propose to incorporate this allotment with two pastures in the Walker Ranch Allotment in a 3-pasture deferred rotation grazing system as discussed in 4.2.2.28 above. Impacts would be the same as the Walker Ranch Allotment.

4.2.2.30 Yellow Water Basin, Allotment No. 04898

This allotment is not meeting the upland health standard. The allotment contains three pastures; Pasture A, Pasture B and the Basin Pasture. The BLM and permittee propose modifying the current permitted use. Pasture B contains a high percentage of crested wheatgrass; this pasture would be grazed in the early spring to optimize crested wheatgrass utilization. This proposal would benefit upland health by alleviating pressure from the native vegetation in Pasture A and the Basin Pasture during the critical early spring growth period. This change would lead to significant progress toward meeting the upland health standard.

4.2.2.31 Hedman Pasture B, Allotment No. 15073

This allotment is currently not meeting the upland health standard primarily due to a high percentage of dense clubmoss.

This allotment is used in conjunction with the Wild Horse Lake Allotment in a 3-pasture deferred rotation grazing system. The Hedman Pasture B Allotment is managed in conjunction with 5 other allotments in a grazing system. The BLM proposes reflecting this use by changing Hedman Pasture B and the 5 other allotments to pastures and consolidating them under the Wild Horse Allotment.

The BLM and permittee propose modifying the season of use from 4/15-11/15 to 4/1-9/30. The proposed season of use change would contribute to an upward trend and lead to significant progress toward meeting the upland health standard.

4.2.2.32 Yellowwater Ind. B, Allotment No. 15092

This allotment is not meeting the upland health standard. The current permitted use would be modified, changing the season of

use from yearlong to 8/1-12/31, 61% active. This change of season of use would benefit upland health by limiting grazing to fall/winter. Fall/winter grazing allows desirable upland forage to complete the growth, reproductive and energy storage cycles each year prior to livestock grazing. This season of use would lead to significant progress toward meeting the upland health standard.

4.2.2.33 Zimmerman Place, Allotment No. 15036

This allotment is currently not meeting the upland health standard. The BLM proposes implementing a 3-pasture deferred rotation grazing system in the allotment. The proposed grazing system would benefit upland health by deferring grazing until after seed-ripe in one pasture each year, allowing an undisturbed vegetative growth and reproductive cycle.

A Monitor well head and new well pump would also be installed in the Zimmerman well in this allotment. The proposed water well improvements would provide a reliable water source in the existing livestock water system within this allotment and improve livestock distribution throughout the pastures.

4.2.2.34 Iverson Yellowwater, Allotment No. 15151

This allotment is currently not meeting the upland health standard. The BLM and permittees propose implementing a 2-pasture deferred rotation grazing system utilizing the two current pastures within this allotment. Deferred rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season. The new grazing system would allow the uplands to meet or make significant progress toward meeting the upland health standard.

4.2.2.35 Bench Pasture, Allotment No. 05143

This allotment is not meeting the upland health standard. The BLM and permittees propose construction of a crossfence within the allotment creating two pastures. The south pasture would be an early spring pasture to utilize an abundance of crested wheatgrass. The north pasture would be rested from livestock grazing at least two years, followed by fall/winter grazing if BLM monitoring indicates an upward trend and significant progress toward meeting the upland health standard. In addition, a riparian pasture would be created which could be rested during the hot season (7/1-8/31). Current season of use would be modified from yearlong to 4/1-6/10, 10/10-11/15. The proposed action would lead to significant progress toward meeting the upland health standard providing healthy, diverse, vegetative species.

4.2.2.36 Pike Creek, Allotment No. 05161

This allotment is currently not meeting the upland health standard. The BLM proposes a crossfence to split the allotment into north and south pastures. The two pastures would be used in conjunction with the Lambert Bench and the newly created Lower Snoose Creek Allotments in a 4-pasture deferred rotation grazing system. The proposed grazing system would benefit upland health by deferring grazing in one pasture each year until after seed ripe. Desirable upland vegetative species would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. This grazing schedule would allow the upland vegetation to positively respond and shift toward an upward trend.

4.2.2.37 L. Pike Creek, Allotment No. 15139

This allotment is currently not meeting the upland health standard. The BLM proposes a change in season of use from yearlong to

early spring and fall/winter use. Livestock grazing in the early spring and late fall/winter would contribute to an upward trend in rangeland health by promoting reproduction and carbohydrate storage in native grass species.

4.2.2.38 North Flatwillow, Allotment No. 15146

This allotment is not meeting the upland health standard. The allotment currently consists of two non-adjacent pastures – East and West. The BLM proposes creating the Lower Snoose Creek Allotment from the existing West Pasture. The East Pasture would remain the North Flatwillow Allotment.

The BLM proposes incorporating the newly created Lower Snoose Creek Allotment into a 4-pasture deferred rotation grazing system with the Pike Creek and Lambert Bench Allotments. Implementation of a deferred rotation grazing system would benefit upland health by deferring grazing until after seed-ripe in one pasture of this allotment each year, allowing an undisturbed vegetative growth and reproductive cycle. This grazing system would lead to significant progress toward meeting the upland health standard.

4.2.2.39 Jackson Home Place, Allotment No. 02010

This allotment is not meeting the upland health standard. The allotment contains 160 acres of public land currently used in conjunction with adjacent private land during the permitted period. Cattle tend to congregate near the water on BLM during the hot season and over-utilize the BLM forage. The BLM and permittee propose to fence this parcel of public land into a separate pasture and change the season of use to 5/15-11/30. These proposed changes would facilitate removal of livestock from the public land when the standards are met or the AUMs have been consumed. Desirable upland species would

positively respond and lead to significant progress toward meeting the upland health standard.

4.2.2.40 Crowley Dam, Allotment No. 15014

This allotment is not meeting the upland health standard due to historical livestock grazing. The current permittee recently purchased the ranch and assumed responsibility for this allotment. The allotment contains 3 pastures. The BLM and permittee propose construction of a 1.5 mile 3-wire barbed wire cross fence (.33 mi. on public land) to create a fourth pasture. A 4-pasture rest rotation grazing system would be implemented. The proposed rest rotation grazing system would benefit upland health by eliminating grazing in one pasture each year. Desirable upland species would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. This grazing schedule would allow the upland vegetation to positively respond and make significant progress toward meeting the upland health standard.

4.2.2.41 West Bohemian, Allotment No. 02636

This allotment is not meeting the upland health standard primarily due to a high percentage of crested wheatgrass in the southern end. The BLM and permittee propose construction of a crossfence in the allotment to create a third pasture dominated by crested wheatgrass. A 3-pasture deferred rotation grazing system would be implemented. The crested wheatgrass pasture would be grazed early spring and late fall, thereby relieving pressure from the native pastures during these critical growing periods. The proposed grazing system would improve upland health by deferring grazing until after seed-ripe in one native pasture each year, allowing an undisturbed vegetative growth and reproductive cycle.

4.2.2.42 Bassett Place, Allotment No. 15043

This allotment is not meeting the upland health standard. The BLM and permittee propose implementing two different grazing systems utilizing seven pastures.

A 4-pasture deferred rotation grazing system would include the East Timber, Pasture E, South Ford's Creek and Duck Creek Pastures. An additional 3-Pasture deferred rotation grazing system would include the Eagle Butte, North Timber and South Timber Pastures. These grazing systems would positively impact upland health. Livestock grazing would be deferred two out of three years until after seed-ripe in one native pasture each year, allowing an undisturbed vegetative growth and reproductive cycle. This grazing schedule would allow the upland vegetation to positively respond and shift toward an upward trend and make significant progress toward meeting the upland health standard.

4.2.2.43 Buckler Place, Allotment No. 02519

This allotment does not currently meet the upland health standard. Public land within this allotment is currently used for spring grazing, but is authorized for yearlong grazing. The BLM proposes modifying the season of use to accurately reflect the grazing schedule. The current authorization of 3/1-2/28 would be modified to 4/1-6/30. In addition, the BLM and permittee propose implementation of a 2-pasture deferred grazing system to improve upland health. This allotment contains a high percentage of crested wheatgrass and would be used in conjunction with the William Lewis Ind. Allotment No. 04886. The proposed grazing system would use the Buckler Place first each year to emphasize early use of the crested wheatgrass, followed by alternately grazing the two pastures in the William Lewis Ind. Allotment. All grazing of public land would be completed each year by 6/30. This season of use and deferred rotation

grazing system would lead to significant progress toward meeting the upland health standard.

4.2.2.44 William Lewis Ind., Allotment No. 04886

This allotment is not meeting the upland health standard. The BLM and permittee propose implementation of a 2-pasture deferred rotation grazing system to improve upland health. This allotment would be used in conjunction with the Buckler Place Allotment No. 02519. Approximately 80 acres of crested wheatgrass was inventoried in sec. 18. The proposed grazing system would emphasize early use of the crested wheatgrass in the Buckler Place Allotment (reference 4.2.2.29). Benefits to upland health would be the same as the Buckler Place Allotment.

4.2.2.45 North Box Elder, Allotment No. 04850

This allotment is currently not meeting the upland health standard due to historical livestock grazing. The current permittee recently purchased the ranch and assumed responsibility for this allotment. The permittee proposes to add an additional private land pasture of early season 'Bozoyski' Russian wildrye to the current rotation. The additional pasture would result in two early season pastures (one crested wheatgrass and one wildrye) and two native pastures. The BLM and permittee propose to implement a 4-pasture deferred rotation grazing system. Additional livestock water is proposed in the Wildrye Pasture and one of the native pastures. The proposed 4-pasture deferred-rotation grazing system would emphasize early season use of the crested wheatgrass and wildrye. This grazing system would benefit upland health by deferring grazing until after seed-ripe in one native pasture each year, allowing an undisturbed vegetative growth and reproductive cycle.

4.2.2.46 Briggs Coulee, Allotment No. 02647

This allotment is not meeting the upland health standard. The allotment is managed as two separate pastures - North and South; current season of use is yearlong. The BLM and permittee propose to modify the season of use, split the South Pasture with a cross fence, and clean out an existing, low capacity reservoir. The purpose of the proposed projects would be to defer grazing on public land within the South Pasture until after July 1 and to more evenly distribute livestock within the allotment. Livestock grazing after July 1 would allow desirable native vegetation to complete the vegetative growth cycle and be nearing completion of the reproductive cycle prior to commencement of grazing each year. This management action would lead to significant progress toward meeting the upland health standard.

4.2.2.47 West Winnett, Allotment No. 15023

This allotment is currently not meeting the upland health standard. The allotment is currently managed as two separate pastures; the permit authorizes yearlong grazing. Three years ago, private land involved in an exchange of use with public land was plowed and placed into CRP. This action left the existing exchange of use null and void and reduced the number of AUMs available in the allotment. The BLM proposes modifying the season of use to 7/15-9/30 for the first three years, followed by a season of use of 6/1-9/30. If the public land is not fenced into this allotment (reference 2.2.1), the BLM proposes reducing the AUMs from 289 to 265 to reflect the CRP acreage. These management actions would lead to significant progress toward meeting the upland health standard by delaying turnout until after seed set and accurately reflecting the available AUMs.

4.2.2.48 Skibby Place, Allotment No. 15059

This allotment currently does not meet the upland health standard. The allotment contains eight pastures. The BLM proposes implementing a 3-pasture deferred rotation grazing system utilizing the Bombing Range, North, and South Pastures. The deferred rotation grazing system would more equitably distribute livestock throughout the allotment and benefit upland health by deferring grazing in one pasture each year until after seed set. Desirable upland species would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. This grazing schedule would allow the upland vegetation to positively respond and shift toward an upward trend and make significant progress toward meeting the upland health standard. These three pastures would be monitored every two years. If monitoring indicates progress is not being made toward meeting the upland health standard in the first five years, the BLM would implement a 3-pasture rest rotation grazing system.

4.2.2.49 Hughes Coulee, Allotment No. 04831

This allotment is currently managed as two pastures – Johnson Coulee and East Pasture. The permit authorizes yearlong grazing; the BLM proposes to modify the season of use. Johnson Coulee would be authorized from 11/1-4/1, and East Pasture would be authorized from 5/15-9/30. The change in season of use in the Johnson Coulee Pasture would contribute to an upward trend in rangeland health by utilizing native forage during its dormant stage. The shorter grazing period in the East Pasture would result in more uniform grazing pressure for less time, leading to significant progress toward meeting the upland health standard.

4.2.2.50 East Roy, Allotment No. 02670

This allotment does not meet the upland health standard. The allotment currently contains the Irrigation Pasture and the East Pasture; both pastures are authorized for yearlong grazing. The BLM proposes to modify the season of use; the Irrigation Pasture would be changed to 10/1-5/15, and the East Pasture would be changed to 5/15-10/31. The Irrigation Pasture and East Pasture would be used in conjunction with private land in a 3-pasture rotation grazing system.

The change in season of use in the Irrigation Pasture would contribute to an upward trend in rangeland health by utilizing native forage in the winter and early spring months. This season of use would allow desirable upland species to complete the vegetative growth, reproductive, and energy storage cycles uninterrupted by livestock grazing.

4.2.2.51 Solf Brothers A, Allotment No. 15090

This allotment does meet the upland health standard. Current permitted use is authorized from 4/1-5/31 and 11/1-11/30. Livestock grazing in the early spring and late fall should contribute to an upward trend in rangeland health. The permitted use would promote vegetative growth, reproduction and carbohydrate storage in native grass species. If future monitoring results indicate that upland health is not positively responding to the current permitted use, BLM may alter the course of grazing management as directed in section 2.3.1.

4.2.3 Riparian Health

Rangeland conditions on the allotments listed in Table 4.4 would continue to meet the riparian health standard. Trends on these allotments are static or improving; no

major management changes would be required, and no range improvements are proposed. Implementation of Alternative 2 would not impact these allotments.

Table 4.4 Allotments Meeting the Riparian Health Standard

Allotment Name	Allotment No.	Identification Number
Box Elder	02529	009
C. Beckstrom Ind.	15067	046
Marks Ind.	04887	101

Rangeland conditions on the allotments listed in Table 4.5 are currently not meeting the riparian health standard; livestock grazing is not the cause. Trends on these allotments vary depending on the causal factor. Management changes and/or range improvements have been proposed by the BLM and permittees on some allotments to improve riparian health and grazing operation productivity; changes are discussed below. Riparian areas would benefit from the proposed changes by significantly progressing toward PFC.

Table 4.5 Allotments Not Meeting the Riparian Health Standard; Livestock Grazing is Not a Significant Factor

Allotment Name	Allotment No.	Identification Number
S. Fork Bear Creek	14910	022
Little Dam	12601	033
Circle Bar Coulee	04827	043
Walker Ranch	14903	049
Hedman Pasture D	04875	055
Bender Cr. Winnett	04891	060
L. Pike Creek	15139	072
Snoose Creek	15144	074
Fisher	02642	095
Skibby Place	15059	115
Forgy Common	12700	132
Little Box Elder	02609	134

4.2.3.1 S. Fork Bear Creek, Allotment No. 14910

One riparian polygon is in PFC and one polygon is FAR with an upward trend. Progress is being made toward meeting the riparian standard. No management changes or range improvements are proposed. Implementation of Alternative 2 would not impact this allotment.

4.2.3.2 Little Dam, Allotment No. 12601

The Little Dam Allotment contains leafy spurge, whitetop and Canada thistle, primarily within the riparian zone. The BLM and permittee have signed and implemented a weed control cooperative agreement. The permittee has been successful in controlling weeds in the uplands and containing the current infestation within the herbicide restricted riparian zone as directed by the BLM. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control, selective, localized herbicide control and the possibility of sheep grazing. A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.3 Circle Bar Coulee, Allotment No. 04827

The allotment contains leafy spurge, knapweed sp. and salt cedar, primarily within the Musselshell River riparian zone. The BLM would develop and implement a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the uplands and containment and control of existing weed populations within the riparian zone. The permittee is a cooperator in a regional NRCS EQIP program specific to weed management along the Musselshell river. The proposed combined, cooperative weed control effort would positively impact

riparian area health by reducing existing noxious weed infestations and prevent further spread from the Musselshell River corridor.

4.2.3.4 Walker Ranch, Allotment No. 14903

The riparian polygon on Buffalo Creek within this allotment is FAR with an upward trend; current livestock management is not a significant factor. Under Alternative 2, this allotment would be incorporated with the S. War Horse Ind. allotment in a 3-pasture deferred rotation grazing system. Deferred rotation grazing would allow riparian vegetation to complete the vegetative growth and reproductive cycles in two pastures each year prior to livestock grazing, leading to significant progress toward meeting the riparian health standard.

4.2.3.5 Hedman Pasture D, Allotment No. 04875

The riparian polygon on Duck Creek is FAR with an upward trend; current livestock management is not a significant factor. Implementation of Alternative 2 would continue current management which is contributing to an upward trend in riparian habitat within this allotment.

4.2.3.6 Bender Creek/Winnett, Allotment No. 04891

The riparian polygon on Snoose Creek is FAR with a static trend. Weeds and chronic dewatering are significant factors. Current livestock management is not a significant factor.

Leafy spurge and Canada thistle were inventoried on Snoose Creek. Canada thistle and houndstongue were inventoried on a reservoir in sec. 7 and Canada thistle was found on a reservoir in sec. 21. The BLM would develop and implement a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the

uplands and selective control within the riparian areas to prevent damage to non-target species and water resources. Implementation of Alternative 2 would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

The chronic dewatering of Snoose Creek occurs upstream of this allotment; the BLM and permittee cannot prevent or control the problem. Alternative 2 would not change the current situation.

4.2.3.7 L. Pike Creek, Allotment No. 15139

Leafy spurge and Canada thistle were inventoried in the Pike Creek riparian area. The BLM would work with the permittee to continue progressive noxious weed management under the current weed control cooperative agreement. Weed control efforts would emphasize control in the uplands and selectivity within the riparian area to prevent damage to non-target species and water resources. Implementation of Alternative 2 would positively impact riparian area health by reducing existing noxious weed infestations and prevent further spread from Pike Creek.

4.2.3.8 Snoose Creek, Allotment No. 15144

One riparian polygon on Snoose Creek is FAR with an upward trend. An additional polygon is non-functioning; channel incisement is the probable cause. The BLM recognizes that a change in livestock grazing management would not improve the channel incisement problem; Alternative 2 would not impact riparian area health within this allotment.

4.2.3.9 Fisher, Allotment No. 02642

On Brickyard Creek, the riparian polygon is non-functioning; channel incisement is the probable cause. Current livestock grazing management is contributing to an upward

trend in riparian habitat within this allotment. Alternative 2 would not impact riparian area health.

4.2.3.10 Skibby Place, Allotment No. 15059

The riparian polygon on Ford’s Creek is FAR with an upward trend. Significant progress is being made toward meeting the riparian health standard under current management. Alternative 2 would not impact riparian area health.

4.2.3.11 Forgy Common, Allotment No. 12700

Four riparian polygons are FAR with a static trend. Weeds, historical irrigation diversion, channel incisement and drought are significant factors.

The allotment contains leafy spurge, whitetop and Canada thistle, primarily within the riparian zone. The BLM would develop and implement weed control cooperative agreements with each of the permittees. Weed control efforts would emphasize prevention of spread into the uplands and containment and control of existing weed populations within the riparian zone.

Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control, selective, localized herbicide control and sheep grazing. A proposed experimental sheep program would be implemented to determine the effectiveness of sheep grazing on whitetop within a riparian zone dominated by woody vegetation. If the project proves to be effective on whitetop following three years, a long-term sheep program commitment would be contemplated

A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.12 Little Box Elder, Allotment No. 02609

On Brickyard Creek, one riparian polygon is non-functioning and two riparian polygons are functioning at risk with a static trend. Weeds, channel incisement, and drought are probable causes. The BLM would initiate a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the uplands and selective control within the riparian areas to prevent damage to non-target species and water resources. Implementation of Alternative 2 would positively impact riparian area health by reducing existing noxious weed infestations and preventing further spread.

Rangeland conditions on the allotments listed in Table 4.6 are currently not meeting the riparian health standard; livestock grazing is a significant factor. Trends on these allotments are static or degrading. Management changes have been proposed by the BLM and permittees to improve riparian area health and grazing operation productivity. Riparian areas would benefit from the proposed changes by significantly progressing toward PFC.

Table 4.6 Allotments Not Meeting the Riparian Health Standard

Allotment Name	Allotment No.	Permittee
Yellowwater	15040	003
N. Willow Creek	04824	004
Warhorse Ind.	15152	006
Brickyard	02611	017
Alan Ind.	15119	036
Hale Ranch	15069	047
Iverson Yellowwater	15151	064
Bench Pasture	05143	069
Pike Creek	05161	070
North Flatwillow	15146	076
Bassett Place	15043	093

4.2.3.12 Yellowwater, Allotment No. 15040

1.2 miles of an unnamed tributary of Yellowwater Creek are not meeting the riparian standard due to livestock grazing and channel incisement. The BLM and the permittee propose implementation of a 5-pasture rest rotation grazing system within this allotment. Implementation of Alternative 2 and the rest rotation grazing would improve riparian area health by eliminating livestock grazing from one pasture each year and varying the season of use on the remaining 4 pastures. Rest rotation grazing would allow the desirable riparian vegetation adequate protection necessary to maintain streambank stability and riparian function such as dissipating energy associated with high flows, building floodplains, and aiding shallow groundwater recharge. The new grazing system would allow the riparian areas to meet or make significant progress toward meeting the riparian health standard.

4.2.3.13 N. Willow Creek, Allotment No. 04824

0.8 miles on the Musselshell River and 2.1 miles on North Willow Creek are not meeting the riparian health standard because of livestock grazing.

The BLM proposes fencing a 160 acre parcel located in T. 12 N., R. 30 E., sec. 2 to improve riparian and upland health conditions. Livestock grazing would be excluded from the area for a period of at least three years or until BLM monitoring determines that riparian and upland health are meeting or making significant progress toward meeting health standards.

The BLM also proposes a 1.5 mi. crossfence and installation of a cattleguard in Pasture C. These projects would create 3 pastures west of the Mosby road (Pasture D, Pasture C North, Pasture C South) and initiate implementation of a 3-pasture rest rotation grazing system. Livestock would be

moved to Pasture A on the east side of the Musselshell River each year following completion of the rest rotation. This schedule would defer use in Pasture A until late fall each year. Rest rotation grazing would allow the desirable riparian vegetation adequate protection necessary to maintain streambank stability and riparian function such as dissipating energy associated with high flows, building floodplains, and aiding shallow groundwater recharge. The new grazing system would allow the riparian areas to meet or make significant progress toward meeting the riparian health standard.

4.2.3.14 Warhorse Ind., Allotment No. 15152

War Horse Ind. is currently permitted for livestock grazing from 6/16-10/31. The BLM proposes modifying the current season of use to 7/1-9/30, 92% active. The change in season of use would contribute to an upward trend in riparian health by limiting native forage utilization to a narrow time period. The riparian community is dominated by sedges and rushes which are less palatable in late summer. Livestock would be less likely to concentrate in the riparian zone during the permitted dates.

4.2.3.15 Brickyard., Allotment No. 02611

1.1 miles of Brickyard Creek and .8 miles of Ford's Creek are not meeting the riparian health standard. The BLM and the permittee propose to improve riparian area health by altering current grazing management on the three pastures within the allotment. The Brick Pasture would be grazed as part of a 3-pasture deferred rotation grazing system in conjunction with the Spring Creek Allotment. The NW Brick Pasture would be grazed for up to 63 days by 150 cattle and would be used 6/2-8/2 two out of three years. The third year it would be used after November 1. The Sec. 22 Pasture would be authorized for custodial use as a spring holding pasture. The

riparian areas within this allotment would make significant progress toward meeting the health standard as a result of these proposed management changes. Impacts from livestock grazing would be reduced during the critical vegetative and reproductive stages of the native plants' life cycle.

Riparian areas within the allotment contain whitetop, leafy spurge and Canada thistle. The BLM and permittees have signed and implemented a weed control cooperative agreement. Weed control efforts would emphasize prevention of spread into the uplands and containment and control of existing weed populations within the riparian zone.

Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control and selective, localized herbicide control. A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.16 Alan Ind., Allotment No. 15119

On both Maginnis Creek and North Maginnis Creek, riparian polygons are in non-functioning condition. The BLM proposes improving riparian area health by constructing a sheep-tight fence and excluding livestock grazing from the public land within this allotment for at least two years or until BLM monitoring determines that rangeland health is making significant progress toward meeting standards. The 116 AUMs would be suspended. Implementation of Alternative 2 would have a positive effect on riparian area health by allowing natural progression without the influence of livestock grazing.

4.2.3.17 Hale Ranch, Allotment No. 15069

On Buffalo Creek, three riparian polygons are in non-functioning condition.

The permittee and the BLM propose implementation of a 3-pasture deferred rotation grazing system in conjunction with the S. War Horse Allotment. The proposed grazing system would defer livestock grazing in two of the three pastures until after 7/28 each year. This schedule would allow riparian vegetation to complete the vegetative growth and reproductive cycles in two pastures each year prior to livestock grazing, leading to significant progress toward meeting the riparian health standard.

4.2.3.18 Iverson Yellowwater, Allotment No. 15151

On Pike Creek, one riparian polygon is FAR with an upward trend and two riparian polygons are non-functioning.

The BLM proposes implementing a 2-pasture deferred rotation grazing system in this allotment. Livestock use would be deferred until after July 27 in one pasture each year. Cattle utilizing the Iverson Yellowwater Allotment would graze the Bench Allotment early spring and late fall. The proposed grazing system would positively impact riparian area health by minimizing and altering the amount of time livestock would be allowed to graze in the riparian area.

The Pike Creek riparian area contains leafy spurge and Canada thistle. Leafy spurge was also noted in the uplands of sec. 35, and Canada thistle was inventoried on the reservoir in sec. 26. The BLM and permittees have signed and implemented a weed control cooperative agreement. Riparian weed control efforts would emphasize prevention of spread into the uplands and containment and control of existing weed populations within the riparian zone. Upland leafy spurge control would

emphasize containment and control of existing infestations and introduction of biocontrol agents.

Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control and selective, localized herbicide control. A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.19 Bench Pasture, Allotment No. 05143

On Pike Creek, two riparian polygons are non-functioning.

The BLM and permittee propose a crossfence in this allotment creating a North and South Pasture. The South Pasture would be an early spring pasture to utilize an abundance of crested wheatgrass. The North Pasture would be grazed fall/winter.

In the North Pasture, livestock grazing would be excluded for a period of at least two years or until monitoring determines that riparian health is in an upward trend. When BLM monitoring indicates that riparian health is in an upward trend, livestock grazing would be allowed; however, season of use in the North Pasture would be 10/12-11/10. This proposed late fall/winter grazing period would lead to significant progress toward meeting the riparian health standard. The riparian area would receive at least two full years of rest. Furthermore, fall/winter use following the rest would mitigate livestock impacts to streambanks and preferred woody species.

Leafy spurge and Canada thistle were inventoried in the Pike Creek riparian area; leafy spurge was also inventoried in the uplands. The BLM would work with the permittee to continue progressive noxious weed management under the current weed

control cooperative agreement. Weed control efforts would emphasize control in the uplands and selectivity within the riparian area to prevent damage to non-target species and water resources. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control and selective, localized herbicide control. A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.20 Pike Creek, Allotment No. 05161

On Pike Creek, two riparian polygons are FAR with a static trend. Three additional riparian polygons are non-functioning.

The BLM proposes a crossfence to split the allotment into north and south pastures. The two pastures would be used in conjunction with the Lambert Bench and North Flatwillow Allotments in a 4-pasture deferred rotation grazing system. Livestock grazing would be deferred in one of the two pastures each year until after the first of October. This alternative would have a positive impact on riparian health and lead to significant progress toward meeting the riparian standard. The deferred rotation grazing would allow the desirable riparian vegetation adequate protection necessary to maintain streambank stability and riparian function such as dissipating energy associated with high flows, building floodplains, and aiding shallow groundwater recharge. The new grazing system would allow the riparian areas to meet or make significant progress toward meeting the riparian health standard.

Leafy spurge and Canada thistle were inventoried in the Pike Creek riparian area. The BLM would work with the permittee to continue progressive noxious weed management under the current weed control cooperative agreement. Weed control efforts would emphasize selectivity

within the riparian area to prevent damage to non-target species and water resources. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control and selective, localized herbicide control. A combination of these weed control methods would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.3.21 North Flatwillow, Allotment No. 15146

On Snoose Creek, 0.6 miles are not meeting the riparian standard due to livestock grazing. The allotment currently consists of two non-adjacent pastures – east and west. The BLM proposes creating the Lower Snoose Creek Allotment from the existing west pasture. The east pasture would remain the North Flatwillow Allotment.

The BLM proposes incorporating the newly created Lower Snoose Creek Allotment into a 4-pasture deferred rotation grazing system with the Pike Creek and Lambert Bench Allotments. Implementation of a deferred rotation grazing system would benefit riparian health by deferring grazing from the hot season every other year. This grazing system would lead to significant progress toward meeting the riparian health standard.

4.2.3.22 Bassett Place, Allotment No. 15043

On Duck Creek, the riparian polygon is FAR with a static trend.

The BLM and the permittee propose implementing two different grazing systems utilizing seven pastures.

A 4-pasture deferred rotation grazing system would include the East Timber, Pasture E, South Ford's Creek and Duck Creek Pastures. An additional 3-pasture

deferred rotation grazing system would include the Eagle Butte, North Timber and South Timber Pastures. These grazing systems would positively impact riparian area health by deferring livestock grazing two out of three years in the sedge/rush dominated riparian area until a time when the vegetation would be less palatable.

Canada thistle was inventoried on the Duck Creek riparian area and on five reservoirs within the allotment (secs. 2, 26, 29, 31, 33). The BLM would develop and implement a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the uplands and selectivity within the riparian area to prevent damage to non-target species and water resources. Implementation of Alternative 2 would have a positive effect on riparian area health by reducing the existing noxious weed infestations.

4.2.4 Noxious Weeds

Implementation of Alternative 2 would initiate a comprehensive, cooperative weed control effort to systematically treat noxious weeds in the planning area. Priorities would be established utilizing the weed categories outlined in Chapter 3. Infested acres of noxious weeds would decrease through an aggressive, concentrated effort involving all facets of an integrated weed management program.

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

Variable conditions influencing noxious weeds include:

- burn severity
- survival of desired plants
- pre-burn noxious weed cover
- survival of weeds

- reproductive capability of noxious weed species
- pre-burn and post-burn soil moisture
- revegetation

Pastures would be rested for two growing seasons following a wildfire. During the grazing rest period, BLM would continue an integrated weed management program as necessary. After the livestock grazing rest period, the BLM would work with permittees in accordance with the cooperative weed control agreements.

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

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

Category 3 noxious weeds have not been detected in the watershed area or may be found only in small, scattered, localized infestations. Assertive monitoring and

public awareness/outreach would assist in the prevention of new infestations of Category 3 weeds through early detection and eradication.

4.2.5 Coniferous Forest

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

4.2.6 Livestock Grazing

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

4.2.7 Recreation

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

The BLM could implement restrictions on the number and acreage size of the camps, as well as the number of vehicles and/or horse trailers to prevent resource impacts. BLM would close campsites if soil and vegetation resources are damaged or

destroyed. This would be applicable to both private and commercial hunting groups.

4.2.8 Visual Resource Management

Impacts to the visual resource under this alternative would include livestock developments such as stocktanks and fences. Improper placement of signs and boundary markers along travel routes could impact the visual resource as well. The LFO sign plan directs proper location and installation of all approved signs.

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

4.2.9 Wildlife

Several different approaches to meeting standards have been described in this alternative, each designed to address the issues identified in the allotment while accommodating the needs of the individual ranching operation.

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

- The BLM and permittees would develop new upland water sources
- The BLM and permittees would collaborate on new grazing systems to provide for the needs of vegetation, wildlife and the individual ranching operation (rest rotation is preferred if possible)
- New fence construction
- Mechanical treatment of dense clubmoss

Each of these methods would have a positive effect on wildlife in the planning area. Project implementation would be designed specifically to minimize impacts to the various species of birds, mammals, fish,

amphibians and reptiles known to inhabit the planning area. Special emphasis would be placed on avoiding identified crucial winter habitats and parturition areas.

The proposed action would not negatively affect any T&E species or their associated habitat. Impacts to sage grouse would be minimal. Each allotment not meeting the upland health standard would have some deviation in the current grazing program designed to improve rangeland health and sage grouse habitat. Rest rotation grazing was considered in each case and a rest rotation sequence was established for many of the allotments. Alteration in the current grazing use dates or deferred rotation were outlined if rest rotation was not feasible. Regardless of the type of grazing management being applied, allotments not meeting standards in the planning area would be monitored closely.

Black-tailed prairie dogs are present in 20 towns in the Petrolia Watershed (Map M4); opportunities to improve their habitat are limited. Current BLM policy allowing expansion of prairie dog towns onto public land would be continued. Prairie dog towns provide habitat for mountain plovers and other special status bird and mammal species.

The clubmoss treatments could be temporarily disruptive to mountain plovers and other ground nesting birds. Each treatment would be preceded by a ground nesting bird inventory. If nests were found, the treatment would be buffered or delayed until the young have fledged. Treatments would be completed in the fall, if possible, to encourage seed spread and establishment of sagebrush and other native species.

The proposed action includes a plan to develop additional livestock water in several allotments within the watershed. Water development would be designed to relieve livestock grazing pressure on riparian areas and distribute use to lightly grazed uplands. Rest or deferred rotation grazing management would be incorporated into

these allotments. At least one pasture in each of these allotments would be rested or deferred every year. Periodic rest would increase the health of the upland vegetation and provide ungrazed herbaceous vegetation for wildlife winter forage and cover for ground nesting birds. New pasture fences would be necessary to accommodate the majority of the proposed rotation grazing systems.

This alternative would implement an adaptive management approach to insure goals and objectives outlined in section 1.4 are achieved. If management actions outlined in Alternative 2 do not move resource conditions toward these goals and objectives, changes would be made to correct the course of action. Adaptive management changes would be implemented under the review of a biologist and interdisciplinary team. Prior to implementation of changes, a review of potential resource impacts would be conducted. Management adjustments that could adversely affect T&E species would not be implemented. Adaptive management actions that allow for adjustments such as shortening the length of the grazing period, fencing, water developments, exclosures, and alternating the rotation patterns would not negatively affect wildlife (direct or cumulatively) because they would be selected with the needs and requirement of wildlife in mind.

No major changes are proposed on the allotments listed in table 4.7; no impacts to wildlife (direct or cumulative) would occur on these allotments.

Table 4.7 Allotments With No Impact to Wildlife From Implementation of Alternative 2

Allotment Name	Allotment No.	Identification Number
Petrolia Bench Ranch	04901	001
South War Horse	15153	007
Eager Home Ranch	15061	008
Hubert Coulee	02539	010
Aikens	04859	011
Sheep Wagon	15064	012

Aikens	25012	013
Chippewa	02606	015
Schulz	02666	016
Degner Pasture	02613	018
County Line	12804	019
Forty One	02664	021
S. Fork Bear Creek	14910	022
Grass Range East	02673	023
Croft Place	12608	026
Fanyak Exchange	02536	028
Chippewa School	02623	031
Wellman	02677	032
Railroad	15118	037
Petroleum Ind.	15120	038
54 Livestock	14993	039
FCC Ind. A	25000	041
Bohemian Corner	02668	042
Circle Bar Coulee	04827	043
A Holgren Place	04872	044
Hale Ind. D	05068	045
Hale Ranch	15069	047
S. War Horse (Hale)	25004	048
S. War Horse Ind.	15046	050
War Horse Common	15071	058
Hedman Pasture C	15074	054
Hedman Pasture D	04875	055
Hedman Pasture E	15075	056
Hedman Pasture F	15076	057
Kaufman	02815	062
Bender Creek Hughes	02813	065
Breeding Pasture	04877	066
Hawkins Pasture	15138	071
Rozie Pasture	15140	073
Snoose Creek	15144	074
Lambert Bench	15145	075
Windbreak	04873	077
P.D. Pasture	04878	078
D. Iverson	04879	079
Silver Sage	15070	080
Sage Hen	04880	081
Road Junction	15001	084
Mosby Road	25007	086
King	04884	087
King 7 Heifer Pasture	05054	088
King Winter Pasture	15055	089
Nebraska Place	04890	090
Kruger	04885	092
Fisher	02642	095
# Ranch	04869	099
Salt Sage	14992	100
Marks Ind.	04887	101
Munson	02653	103
Musselshell	15010	105
Adams	02665	106
Hill South Winnett	04876	109
S Fork Bear Creek	02654	110
O-N	02662	111
Bohemian South	02656	112
Elder	02659	116
Marsh Hawk	04894	118
Doman-Schultz	04863	117
Maxwell Ranch	15009	120
Solf Bros. B	04897	123
Little Bear	05018	124
Gorman Coulee	04990	125

Alfalfa Acres	14988	126
N.T., S. Rattlesnake, Pet., & Elk	04900	127
West Bassett	15039	128
Ford Creek	15045	129
Teigen Ind. Pasture	04899	130
Schuster & White	15048	131
Whisonant Place	14906	133
Little Box Elder	02609	134

The allotments listed in Table 4.8 do not meet the upland health standard or the biodiversity standard; livestock grazing is not a significant factor (in one or both of the standards). The standards were not met in these allotments due to one or a combination of the following factors:

- Weeds
- crested wheatgrass or other non-native grass species
- dense clubmoss
- prairie dogs

In these specific allotments, the factors are historical and beyond the control of the current livestock grazing permittees. No specific grazing management changes or range improvements are proposed to remedy the issues.

Table 4.8 Allotments Impacting Wildlife; Livestock Grazing is Not a Significant Factor

Allotment Name	Allotment No.	Identification Number
Forgy Common	12700	132
Bender Creek Winnett	04891	060
Flatwillow	15078	085
Yellow Water Creek	15085	014
Gilt Edge	02620	034
Walker Ranch	14903	049
Hedman Pasture B	15073	053
McDonald Creek	04902	005
Little Dam	12601	033
East Winnett	15047	051
Meadow Pasture	05141	067
Maidenhead	02616	094
Pearce	14911	107
Chimney Rock South	05098	113
Flatwillow Colony	09684	029
South Pasture	05142	068

In the Forgy Common, Bender Creek Winnett and Flatwillow Allotments, noxious weeds are prevalent. Leafy spurge, houndstongue, Canada thistle and whitetop were found in one of more of these allotments. An integrated weed control approach would be proposed for these allotments (refer to section 2.2.2). The BLM would incorporate cooperative weed control agreements into the terms and conditions of the ten year grazing permits. Successful weed control would enhance wildlife habitat by promoting native plant species and improving nesting cover. All of the allotments contain sage grouse habitat.

The Yellowwater Creek, Gilt Edge, Walker Ranch and Hedman Pasture B Allotments contain areas of dense clubmoss. The productivity of desirable native vegetation is severely restricted by dense clubmoss. Several bird species prefer the short grass habitat created by clubmoss dominance. Current grazing management changes have little effect on areas dominated by dense clubmoss. Wildlife habitat and upland health in these areas would probably remain static. Chisel plowing or some form of mechanical vegetative manipulation could be incorporated to increase vegetative diversity in clubmoss areas. Post-treatment management including rest from grazing immediately after the treatment and rotation grazing thereafter is essential for mechanical treatment success. The required management changes would currently not be feasible in these allotments. Chisel plowing could be reconsidered with future management changes.

McDonald Creek, Little Dam, East Winnett, Meadow Pasture, Maidenhead, Pearce, and Chimney Rock South Allotments all failed to meet the biodiversity standard due to the abundance of non-native grasses in the plant community. Well-established stands of crested wheatgrass and other non-native introduced grasses restrict the density and productivity of the native vegetation expected in the plant community. Land Utilization (LU) farmlands were planted to

introduced grasses when homestead ownership reverted to the federal government in the 1920's and 30's. Mechanical conversion (plowing and reseeding) from introduced grasses to a native plant community would be desirable and could be considered in some allotments. No crested wheatgrass conversions were proposed or analyzed in this plan. Sagebrush and other native grass, forb and shrub species are encroaching into some introduced grass stands. The BLM prefers to allow natural progression toward a native plant community. If grazing management opportunities allow, some permittees graze crested wheatgrass stands early in the spring. Early utilization of crested wheatgrass minimizes grazing pressure on native plants during the critical spring months. Wildlife habitat and upland health in these areas would generally remain static with some minor improvement in native plant diversity as natural encroachment occurs.

The Flatwillow Colony and South Pasture Allotments are not meeting the upland health standard due to bare ground associated with large prairie dog towns. The BLM is mandated to manage habitat for all native species, and may allocate areas of public rangeland to provide habitat for those species requiring special ecosystem considerations such as bare ground and/or low grass. These allotments do not meet the upland health standard but they do meet the biodiversity standard. Consideration of ecosystem functionality as a whole reveals the absence of conflict. These bare ground habitats are valuable for prairie dogs as well as mountain plovers, burrowing owls and many other species. The permittees in these allotments would be given the opportunity to place a percentage of their livestock AUMs in suspended non-use if they wish.

Grazing management changes and/or range improvements have been proposed by the BLM and permittees on the allotments listed in Table 4.9. Implementation of Alternative 2 would create impacts to wildlife resources associated with these allotments. Impacts are analyzed for each allotment.

Table 4.9 Allotments With Impacts to Wildlife From Implementation of Alternative 2

Allotment Name	Allotment No.	Identification Number
Maginnis	00823	002
Yellowwater	15040	003
N. Willow Creek	04824	004
Box Elder	02529	009
Brickyard	02611	017
Spring Creek	15147	020
Harris	04874	024
Bear Creek	14912	025
Elk Creek Bench	04865	027
Duck Creek	04868	030
Maginnis Creek	00985	035
Alan Ind.	15119	036
North Highway	15024	040
C. Beckstrom Ind.	15067	046
Yellow Water Basin	04898	052
Wild Horse Lake	15072	059
Yellowwater Ind. B	15092	061
Zimmerman Place	15036	063
Iverson Yellowwater	15151	064
Bench Pasture	05143	069
Pike Creek	05161	070
L. Pike Creek	15139	072
North Flatwillow	15146	076
Jackson Home Place	02010	082
Crowley Dam	15014	083
West Bohemian	02636	091
Bassett Place	15043	093
Box Elder L&L Ind.	04854	096
Buckler Place	02519	097
William Lewis Ind.	04886	098
North Box Elder	04850	102
Briggs Coulee	02647	104
West Winnett	15023	108
Chimney Rock Ind.	15095	114
Skibby Place	15059	115
Hughes Coulee	04831	119
East Roy	02670	121
Soif Bros. A	15090	122

4.2.9.1 Maginnis, Allotment No. 00823

This custodial allotment does not meet the upland or biodiversity health standards. The allotment is comprised of 283 acres of

public land fenced in the corner of a large acreage of private land. The BLM and permittee propose a change in the season of use from yearlong to 4/1-11/15. A reduction in nearly four months of grazing use and monitoring livestock use to eliminate concentration in the public land corner would lead to an upward trend. Antelope and sage grouse habitat would improve along with health of the upland vegetation in the allotment.

4.2.9.2 Yellowwater, Allotment No. 15040

This large allotment does not meet the upland health standard. Management of the allotment has recently changed, providing the flexibility to incorporate a rest rotation grazing system and the required livestock grazing rest following a proposed dense clubmoss treatment.

The BLM and permittee propose implementation of a 5-pasture rest rotation grazing system involving both private and public land pastures. Rest rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year. Several known sage grouse leks are located within the vicinity of this allotment; the proposed rest rotation grazing would provide desirable residual nesting cover in at least one pasture each year.

The BLM and permittee propose renovating approximately 120 acres of dense clubmoss in the BLM South Pasture with a chisel plow treatment followed by implementation of a 5-pasture rest rotation grazing system. The BLM South Pasture would be rested from livestock grazing for two years following the clubmoss treatment. The treatment would be completed in a mosaic pattern to emphasize the wildlife benefit of edge effect and to minimize the removal of concentrated stands of Wyoming big sagebrush. The mosaic pattern would encourage native vegetation

reestablishment within the treated areas. This project would be a once-over treatment with no drags or harrows. The treatment would be completed in the fall to eliminate the chance of disturbing ground nesting birds such as mountain plovers and to target sagebrush seed dissemination. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This treatment would benefit sagebrush and sagebrush-dependent wildlife species by avoiding concentrated stands of sagebrush and targeting seed dissemination to promote seedling establishment within the treated area.

4.2.9.3 N. Willow Creek, Allotment No. 04824

This allotment is currently not meeting the upland health standard. Current livestock management does not provide adequate habitat for sage grouse and other wildlife species. The BLM proposes a crossfence and a cattle guard to create a third pasture west of the Mosby road. The BLM proposes implementing a 3-pasture rest rotation grazing system with an additional pasture authorized for late fall grazing only (10/5-2/2). The BLM also proposes to shorten the permitted season of use and remove the horse authorization from the permit. Implementation of Alternative 2 would have a positive impact on upland vegetation by eliminating grazing in one pasture each year. Rest rotation grazing allows the desirable upland vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during an entire year. Sage grouse are present in the sagebrush habitat north, west and south of this allotment. Implementation of the proposed action would eventually provide residual nesting cover in this allotment and encourage more grouse to inhabit the area. Riparian improvement on North Willow Creek within the allotment and the addition

of 160 acres (reference 2.2.1) would provide additional habitat for neotropical migrants and sage grouse brooding.

4.2.9.4 Box Elder, Allotment No. 02529

The recently implemented 6-pasture rest rotation grazing system is working well. The permittee has proposed constructing a stockwater pipeline extension and placing two stockwater tanks within the allotment. The pipeline and two stock tanks would be located on public land. This proposal would improve distribution of the current permitted livestock. Continuation of the existing rest rotation grazing system would further improve riparian habitat along Box Elder Creek and upland habitat for sage grouse, mule deer and antelope.

4.2.9.5 Brickyard, Allotment No. 02611

This allotment is currently not meeting the upland health standard. 1.1 miles of Brickyard Creek and .8 miles of Ford's Creek are not meeting the riparian health standard. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the riparian zone including biological control and selective, localized herbicide control. These weed control efforts would have a positive effect on upland and riparian health and would provide improved habitat for a number of wildlife species along the Ford's Creek corridor.

The BLM and permittees propose implementation of a 3-pasture deferred rotation grazing system utilizing current pastures. Deferred rotation grazing allows desirable upland and riparian vegetation in one pasture to accumulate root mass, carbohydrate reserves and set seed with no disturbance from livestock grazing during the critical growing season.

Residual herbaceous vegetation would be available in a deferred rotation grazing

system if summer moisture provides regrowth on the early use pastures. The proposed deferred rotation grazing would provide a benefit to ground nesting birds only in years with adequate soil moisture.

4.2.9.6 Spring Creek, Allotment No. 15147

This allotment is currently not meeting the upland health standard. The BLM and permittees propose utilizing this allotment in conjunction with the Brickyard Allotment in a 3-pasture deferred rotation grazing system. As discussed in the Brickyard Allotment above (reference 4.2.9.5), deferred rotation grazing would benefit upland and riparian health but would not always provide residual herbaceous cover. Winter wildlife forage and cover for ground nesting birds would be adequate if soil moisture was available for regrowth in the early use pasture.

4.2.9.7 Harris, Allotment No. 04874

This allotment is currently not meeting the upland health standard. The Harris Allotment consists of three small pastures (primarily private land), and one large pasture. The small pastures would be used in a spring and fall rotation to more efficiently utilize crested wheatgrass and to facilitate rotation grazing on the larger native pasture. The large Harris Pasture is utilized as a summer/fall pasture. The BLM and permittee propose two fencing projects and two stockwater pipeline extensions to create three pastures in the Harris Pasture. The three new pastures would be utilized in a deferred rotation grazing system commencing in July each year. The proposed July turnout would provide a large area with no livestock disturbance for most of the growing season. Monitoring indicates that sage grouse lek attendance in this allotment has diminished in recent years. The proposed management changes would benefit sage grouse by providing adequate nesting conditions during May and June each year.

4.2.9.8 Bear Creek, Allotment No. 14912

This allotment is currently not meeting the upland health standard. Bear Creek is a large custodial allotment including numerous small parcels of public land currently authorized for yearlong grazing. The BLM and permittee propose to modify the season of use to winter/early spring grazing only - 11/1-5/15. The proposed season of use would benefit upland health by concentrating grazing pressure during the winter and early spring months. This time period is less critical to the growth, reproductive, and energy storage phases of the desirable vegetation's life cycle than the summer/fall time period. The elimination of grazing during most of the growing season would benefit sage grouse brooding and antelope fawning.

4.2.9.9 Elk Creek Bench, Allotment No. 04865

The Elk Creek Bench Allotment consists of four pastures; Pasture A, Pasture B, NW Highway, and the Phillips Pasture.

Current permitted use would continue in Pasture A. A 38.5 acre agricultural trespass would be reseeded to native vegetation and temporarily excluded from livestock grazing for two growing seasons. This project would benefit wildlife by providing additional native habitat and herbaceous cover in an area that has been farmed for years.

The current permitted use in Pasture B would be modified. The BLM and permittee propose a 3-wire barbed wire crossfence, a pipeline extension and one stocktank within this pasture to implement a 3-pasture deferred rotation grazing system. Two of the pastures would be grazed in the spring and one would be grazed in the fall. The proposed grazing system would improve upland range health by deferring grazing until after seed-ripe in one pasture each year, allowing an undisturbed vegetative growth and reproductive cycle. Ungrazed

vegetation in the deferred pasture would benefit brooding grouse and antelope fawning. Ground nesting birds would only benefit from the proposed deferred grazing in years with adequate soil moisture to promote regrowth in the early use pastures.

The permitted use in the NW Highway Pasture would continue. The BLM and permittee propose extension of the proposed Pasture B pipeline into this pasture with one terminal stocktank. The stocktank would be placed in the disturbance area of an existing small reservoir. This proposed project would benefit wildlife habitat by providing additional AUMs in years when the reservoir is dry, thereby relieving grazing pressure on the pastures with available water.

The current use in the Phillips Pasture would be modified by implementation of a proposed 2-pasture deferred rotation grazing system. A 3-wire barbed wire cross fence would be constructed within the pasture to create two pastures. This proposal would improve upland health in the long term, but would provide very little short-term benefit to wildlife habitat.

4.2.9.10 Duck Creek, Allotment No. 04868

This allotment is currently not meeting the upland health standard. A majority of the allotment contains minimal plant diversity and slight recruitment of desirable plant species. The allotment contains a large percentage of dead Wyoming big sage and evidence of supplemental livestock feeding. The BLM proposes to change the season of use from yearlong to 4/1-12/31, and to add a term and condition to the grazing permit prohibiting supplemental feeding on public land. Shortening the grazing season and discontinuing the winter feeding would allow the sagebrush and other desirable native vegetation to eventually reestablish. Regular monitoring would be essential to ensure permittee compliance and the development of habitat improvement.

4.2.9.11 Maginnis Creek, Allotment No. 00985

This allotment is currently not meeting the upland health standard. The allotment is currently fenced in with Alan Ind. Allotment No. 15119; the two allotments are permitted for different seasons of use. The BLM proposes to change the season of use of the Maginnis Creek Allotment to match the Alan Ind. Allotment (reference 4.2.9.12).

4.2.9.12 Alan Ind., Allotment No. 15119

This allotment is currently not meeting the upland or riparian health standards. In 2005, BLM monitoring determined that the upland and riparian health and wildlife habitat on the public land portion of this allotment were in a degraded condition due to current livestock management.

The BLM proposes a 1.75 mi. sheep-tight fence in the NE portion of the allotment, modifying current grazing management on 537 acres. Livestock grazing would be excluded from the 537 acres for at least two years or until BLM monitoring determines that rangeland health is making significant progress toward meeting standards. The new fence would eliminate the need for the existing sheep-tight fence on the east allotment boundary. The east boundary fence would be modified to allow unobstructed antelope movement. Removing livestock grazing from the degraded 537 acres and 116 AUMs would benefit several wildlife species. Sage grouse and antelope would increase occupancy of this parcel as it recovers.

4.2.9.13 North Highway, Allotment No. 15024

This allotment is currently not meeting the upland health standard; historical overgrazing is known to have occurred. Current livestock grazing management has led to an upward trend in upland health. The BLM and permittee propose a 3-wire barbed wire crossfence within this allotment

creating two pastures. A short extension from an existing water pipeline located on private land is also proposed. The pipeline would extend approximately .5 mi. with a terminal stocktank utilized in both pastures. The two pastures would be managed under a deferred rotation grazing system with a June 1 turnout date. The proposed grazing system and delayed turnout date would benefit wildlife habitat by providing abundant new herbaceous vegetation each year.

4.2.9.14 C. Beckstrom Ind., Allotment No. 15067

This allotment is currently not meeting the upland health standard, primarily due to a high percentage of dense clubmoss. The BLM and permittee propose implementing a 3-pasture deferred rotation grazing system utilizing the currently fenced pastures. This proposed grazing system would benefit upland health by deferring grazing until after seed-ripe in one pasture each year, allowing an undisturbed vegetative growth and reproductive cycle. Residual herbaceous vegetation would be available in a deferred grazing system if adequate summer moisture provides regrowth on the early use pastures. Ground nesting birds would benefit from the proposed deferred grazing only in years with adequate soil moisture.

In addition, the BLM and permittee propose renovating approximately 80 acres of dense clubmoss with a chisel plow treatment. The treatment would be a one-pass twisted shank chisel plowing with no drags or harrows. The treated area would be packed with a weighted roller following Wyoming big sagebrush seed dissemination in the fall. The treatment would be designed to minimize the removal of concentrated stands of Wyoming big sagebrush. Livestock grazing would be excluded from the area for two growing seasons utilizing electric fence. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and

perennial decreaser grass species recovery. This treatment would be completed in the fall eliminating the chance of disturbing ground nesting birds such as mountain plovers. The treatment would benefit sagebrush and sagebrush dependent wildlife species by avoiding concentrations of sagebrush and targeting the time of seed dissemination to promote seedling establishment within the treated area.

4.2.9.15 Yellow Water Basin, Allotment No. 04898

This allotment is not meeting the upland health standard. The allotment contains three pastures; Pasture A, Pasture B and the Basin Pasture. The BLM and permittee propose to modify the current permitted use. Pasture B contains a high percentage of crested wheatgrass; this pasture would be grazed in the early spring to optimize crested wheatgrass utilization. This proposal would benefit upland health by alleviating pressure from the native vegetation in Pasture A and the Basin Pasture during the critical early spring growth period. Good sage grouse nesting cover on the upland benches would be further enhanced by concentrating livestock use on crested wheatgrass in the lowlands.

4.2.9.16 Wild Horse Lake, Allotment No. 15072

This allotment does not meet the upland health standard primarily due to the presence of crested wheatgrass. The BLM and permittee propose construction of a 3-wire barbed wire cross fence (.75 mi. on public land) to optimize crested wheatgrass utilization. The permittee also proposes a 1.0 mi. stockwater pipeline extension with one common terminal stocktank. Implementation of Alternative 2 would create seven pastures within this allotment managed under a deferred rotation grazing system. The proposed range improvement projects and grazing system would lead to an upward trend in upland range health. Residual herbaceous vegetation would be

available in a deferred grazing system if summer moisture allows for regrowth on the early use pastures. Ground nesting birds would only benefit from the proposed deferred grazing in years with adequate soil moisture.

4.2.9.17 Yellowwater Ind. B, Allotment No. 15092

This allotment is not meeting the upland health standard. The current permitted use would be modified, changing the season of use from yearlong to 8/1-12/31. This change in season of use would benefit upland health by limiting grazing to fall/winter. Fall/winter grazing allows desirable upland forage to complete the growth, reproductive and energy storage cycles each year prior to livestock grazing. A pasture with ungrazed vegetation each spring and summer would greatly benefit newly born sage grouse and antelope.

4.2.9.18 Zimmerman Place, Allotment No. 15036

This allotment is currently not meeting the upland health standard. The allotment consists of three pastures; West Highway, North Pasture and South Pasture. The North Pasture would be used in conjunction with one private pasture in a 2-pasture deferred rotation grazing system. The BLM would install a Monitor well head on the Zimmerman well. The stocktank located at the well would be relocated to sec. 8, NW¼. Livestock distribution would be improved when the Zimmerman well is repaired and the existing pipeline becomes effective. Grazing deferment on the North Pasture and improved use patterns on the remaining pastures would improve sage nesting cover throughout the allotment.

4.2.9.19 Iverson Yellowwater, Allotment No. 15151

This allotment is currently not meeting the upland or riparian health standards. The BLM proposes implementing a 2-pasture

deferred rotation grazing system in this allotment. Livestock use would be deferred until after August 3 in one pasture each year. Cattle utilizing the Iverson Yellowwater Allotment would graze the Bench Allotment early spring and late fall. The proposed grazing system would positively impact riparian area and upland range health. Residual herbaceous vegetation would be available in a deferred grazing system if summer moisture provides regrowth on the early use pastures. Ground nesting birds would only benefit from the proposed deferred grazing in years with adequate soil moisture.

The Pike Creek riparian area contains leafy spurge and Canada thistle; leafy spurge was also noted in the uplands. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the allotment including biological control and selective, localized herbicide control. These weed control efforts would have a positive effect on upland and riparian health and would provide improved habitat for a number of wildlife species along the Pike Creek corridor.

4.2.9.20 Bench Pasture, Allotment No. 05143

This allotment is not meeting the upland or riparian health standards. The BLM and permittees propose construction of a crossfence within the allotment creating two pastures. The south pasture would be an early spring pasture to utilize an abundance of crested wheatgrass. The north pasture would be grazed fall/winter. In the north pasture, livestock grazing would be excluded for a period of at least two years or until monitoring determines that riparian health is in an upward trend. When BLM monitoring indicates that riparian health is in an upward trend, livestock would be allowed; however, season of use in the north pasture would be modified to 10/20-11/28. This proposed late fall/winter grazing

period would lead to significant progress toward meeting the riparian health standard. The late fall/winter grazing in the north pasture would be beneficial to riparian vegetation but could result in reduced winter thermal and early spring nesting cover.

4.2.9.21 Pike Creek, Allotment No. 05161

This allotment is currently not meeting the upland or riparian health standards. The BLM proposes a 2.0 mi., 3-wire barbed wire crossfence to split the allotment into north and south pastures. The BLM proposes using these two pastures in conjunction with the Lambert Bench and North Flatwillow Allotments in a 4-pasture deferred rotation grazing system. The proposed grazing system would benefit upland health by deferring grazing in two pastures of the system each year until after seed ripe. Livestock grazing would be deferred in one of the two riparian pastures each year until after the first of October. Desirable upland and riparian vegetative species in the deferred pastures would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. The 4-pasture deferred system would provide wildlife forage and cover in both riparian and upland habitats. Grazing management would be designed to provide a 13 to 14 month undisturbed rest period in two of the four pastures.

Leafy spurge and Canada thistle were inventoried in the Pike Creek riparian area. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the allotment including biological control and selective, localized herbicide control. These weed control efforts would have a positive effect on riparian health and would provide improved habitat for a number of wildlife species along the Pike Creek corridor.

4.2.9.22 L. Pike Creek, Allotment No. 15139

This allotment is currently not meeting the upland or riparian health standards. The riparian area is not meeting the standard due to the abundance of leafy spurge and Canada thistle along Pike Creek. Implementation of Alternative 2 would increase Integrated Pest Management (IPM) efforts within the allotment including biological control and selective, localized herbicide control. These weed control efforts would have a positive effect on riparian health and would provide improved habitat for a number of wildlife species along the Pike Creek corridor.

BLM proposes a change in season of use from yearlong to early spring and fall/winter use. Livestock grazing in the early spring and late fall/winter would contribute to an upward trend in upland vegetation health. The proposed change in season of use would provide minimal benefit to wildlife habitat in the uplands.

4.2.9.23 North Flatwillow, Allotment No. 15146

This allotment is currently not meeting the upland or riparian health standards. The allotment consists of two non-adjacent pastures. The BLM proposes creating the Lower Snoose Creek Allotment from the existing west pasture and incorporating it into a 4-pasture deferred rotation grazing system with the Pike Creek and Lambert Bench Allotments. The 4-pasture deferred system would provide wildlife forage and cover in both riparian and upland habitats (refer to 4.2.9.21).

The east pasture would remain the North Flatwillow Allotment; this pasture includes a small portion of public land which is currently meeting the upland health standard.

4.2.9.24 Jackson Home Place, Allotment No. 02010

The allotment contains 160 acres of public land currently used in conjunction with adjacent private land during the permitted period. Cattle tend to congregate near the water on public land during the hot season and over-utilize the BLM forage. The BLM and permittee propose to fence this parcel of public land into a separate pasture and change the season of use to 5/15-11/30. These proposed changes would diminish the grazing pressure on BLM land during the critical summer months. Desirable upland species would positively respond and lead to significant progress toward meeting the upland health standard. Antelope would benefit from the improved upland health particularly during the winter and spring months.

4.2.9.25 Crowley Dam, Allotment No. 15014

This allotment is not meeting the upland health standard due to historical livestock grazing. The current permittee recently purchased the ranch and assumed responsibility for this allotment. The allotment contains three pastures. The BLM and permittee propose construction of a 1.5 mile 3-wire barbed wire cross fence (.33 mi. on public land) to create a fourth pasture. A 4-pasture rest rotation grazing system would be implemented. The proposed rest rotation grazing system would benefit upland health by eliminating grazing in one pasture each year. Desirable upland species would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. Sagebrush and sage grouse currently inhabit this allotment. Implementation of the proposed action would provide residual nesting cover encouraging additional grouse utilization.

4.2.9.26 West Bohemian, Allotment No. 02636

This allotment is not meeting the upland health standard primarily due to a high percentage of crested wheatgrass in the southern end. The BLM and permittee propose construction of a cross fence in the allotment to create a third pasture dominated by crested wheatgrass. A 3-pasture deferred rotation grazing system would be implemented. The crested wheatgrass pasture would be grazed early spring and late fall, thereby relieving pressure from the native pastures during these critical growing periods. The proposed grazing system would improve upland health by deferring grazing until after seed-ripe in one native pasture each year, allowing an undisturbed vegetative growth and reproductive cycle. Native habitat for antelope, mule deer, sharp-tailed grouse and sage grouse would improve as livestock grazing increases on the crested wheatgrass pasture.

4.2.9.27 Bassett Place, Allotment No. 15043

This allotment is currently not meeting the upland or riparian health standards. This allotment is currently permitted for five pastures but is functionally fenced as eight pastures. The BLM proposes implementing a 4-pasture deferred rotation grazing system in the East Timber, Pasture E, South Ford's Creek and Duck Creek Pastures and a 3-pasture deferred rotation grazing system in the Eagle Butte, North Timber and South Timber Pastures. In October of each year livestock from both grazing systems would be combined into the Calving Pasture for ten days before being moved to private land.

The proposed 4-pastured deferred rotation system would benefit upland health by deferring grazing in two pastures of the system each year until after seed ripe.

Desirable upland and riparian vegetative species in the deferred pastures would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. The 4-pasture deferred system would provide wildlife forage and cover in both riparian and upland habitats. The pasture movement would be designed to provide a 14 month minimum rest in one pasture each grazing cycle.

In the 3-pasture deferred grazing system, Eagle Butte would be utilized first each year to most efficiently utilize the crested wheatgrass. The North and South Timber Pastures would be utilized to provide deferred rest in one pasture each year. The grazing system would improve upland health by deferring grazing in one pasture until after seed ripe each year, allowing an undisturbed vegetative growth and reproductive cycle. Wildlife habitat would benefit from the early spring grazing of crested wheatgrass and the overall reduction in grazing pressure on the native vegetation. Deferment of the remaining two pastures would not consistently provide residual nesting cover without adequate summer moisture to promote regrowth in the June use pasture. The North and South Timber Pastures are primarily timbered. Ground nesting cover would be less essential than the open pastures of the 4-pasture system.

Canada thistle was inventoried on the Duck Creek riparian area and on five reservoirs within the allotment. The BLM would develop and implement a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the uplands and selectivity within the riparian area to prevent damage to non-target species. These weed control efforts would have a positive effect on riparian health and would provide improved habitat for a number of wildlife species along Duck Creek.

4.2.9.28 Box Elder L&L Ind. , Allotment No. 04854

This allotment does not meet the upland health standard due to the presence of crested wheatgrass. The permittee proposes installing a single strand high tensile electric fence to promote improved utilization of crested wheatgrass in the southern portion of the allotment. This project would improve upland health and wildlife habitat by relieving pressure from the native vegetation during critical growing periods. The potential for desirable sagebrush encroachment into the crested wheatgrass would increase with the proposed concentrated use.

4.2.9.29 Buckler Place, Allotment No. 02519

This allotment does not currently meet the upland health standard. Public land within the allotment is currently used for spring and fall/winter grazing, but is authorized yearlong. The current authorization would be modified to 4/15- 6/30. The BLM and permittee propose implementation of a 3-pasture deferred grazing system in conjunction with the William Lewis Ind. Allotment. One of three current pastures (West Pasture) contains a large percentage of crested wheatgrass. The proposed grazing system would emphasize early use of the crested wheatgrass, followed by alternately grazing the remaining two pastures of the William Lewis Ind. Allotment. All grazing of public land would be completed each year by 6/30 in the West Pasture. Crested wheatgrass within the allotment would receive the majority of livestock grazing use. Regrowth of native grasses would provide winter forage and nesting cover for numerous wildlife species.

4.2.9.30 William Lewis Ind., Allotment No. 04886

This allotment does not meet the upland health standard. Public land within the allotment is utilized for spring and fall/winter

grazing. The BLM and permittee propose implementation of a 3-pasture deferred rotation grazing system to improve upland health. This allotment would be used in conjunction with the Buckler Place Allotment (4.2.9.29). The proposed grazing system would emphasize early use of the crested wheatgrass in the West Pasture followed by alternately grazing the South and North Pastures. One pasture would be deferred until at least 8/16 each year. This season of use and deferred rotation grazing system would not provide adequate residual sage grouse nesting cover in either the North or South Pastures. These two pastures would be monitored by the BLM every two years. If future monitoring results indicate that wildlife habitat is not positively responding to the proposed use, the BLM may alter the course of grazing management as directed in section 2.3.1.

Canada thistle and houndstongue were inventoried on four reservoirs in the allotment. The BLM would develop and implement a weed control cooperative agreement with the permittee. Weed control efforts would emphasize prevention of spread into the uplands. These weed control efforts would have a positive effect on rangeland health and would provide improved habitat for a number of wildlife species.

4.2.9.31 North Box Elder, Allotment No. 04850

This allotment does not meet the upland health standard due to historical livestock grazing. The current permittee recently purchased the ranch and assumed responsibility for this allotment. The permittee proposes to add an additional private land pasture of early season 'Bozoyski' Russian wildrye to the current rotation. The BLM and permittee propose extensions of two existing livestock water pipelines and three stocktanks (two tanks on BLM and one on private). The BLM and permittee also propose a .5 mi., 3-wire barbed wire crossfence. These range

improvements would be necessary to accommodate a proposed grazing system.

The proposed 4-pasture deferred-rotation grazing system would emphasize early season use of crested wheatgrass and wildrye. This grazing system would benefit upland health by deferring grazing until after seed-ripe in at least one native pasture each year, allowing an undisturbed vegetative growth and reproductive cycle. Each of the three native pastures would be rested 12 to 15 consecutive months during the grazing cycle. The extended deferrals and 6/15 turnout date on the native pastures would provide adequate residual cover for nesting sage grouse in at least one pasture each year.

4.2.9.32 Briggs Coulee, Allotment No. 02647

This allotment is not meeting the upland health standard. The allotment is managed as two separate pastures - North and South; current season of use is yearlong. The BLM and permittee propose to modify the season of use, split the South Pasture with a crossfence, and clean out an existing, low capacity reservoir. The purpose of the proposed projects would be to defer grazing on public land within the South Pasture until after July 1 and to more evenly distribute livestock within the pasture. Livestock grazing after July 1 would allow desirable native vegetation to complete the vegetative growth cycle and be nearing completion of the reproductive cycle prior to commencement of grazing each year. The deferral on the South Pasture would improve sharp-tailed grouse, mule deer and antelope habitat. Grazing on the North Pasture would not be deferred; the season of use would be 6/1-10/31. Proposed livestock grazing on the North Pasture would not improve marginal sage grouse nesting cover.

4.2.9.33 West Winnett, Allotment No. 15023

This allotment is not meeting the upland health standard. The allotment is currently managed as two separate pastures; the permit authorizes yearlong grazing. Three years ago, private land involved in an exchange of use with public land was plowed and placed into CRP. This action left the existing exchange of use null and void and reduced the amount of AUMs available in the allotment. The BLM proposes modifying the season of use to 7/15-9/30 and reducing the AUMs from 289 to 265 to reflect the CRP acreage. These management actions would lead to significant progress toward meeting the upland health standard by delaying turnout until after seed set and accurately reflecting the available AUMs. Deferral until 7/15 each year would provide winter and brooding habitat for sage grouse and yearlong antelope habitat. This allotment currently provides good residual grouse nesting cover in the south end; the proposed deferral would provide additional nesting cover.

The permittee proposes prairie dog control on 4.5 acres of public land located in T. 14 N., R. 26 E., sec. 13, NE $\frac{1}{4}$ SW $\frac{1}{4}$. The prairie dogs on public land are part of a larger town which has expanded to the Winnett airport runway. A 20 acre prairie dog town is located in section 24 approximately .75 miles southeast of this town. The dogs from the larger town have a tendency to move to the airport runway; continued control efforts would be expected. Guidance from the JVP RMP indicates that BLM will maintain or manage prairie dog towns on public lands based on the values or problems encountered. Removing the prairie dogs from the public land adjacent to the airport would benefit an effort to eliminate the dogs on the airport property. Prairie dog holes on the airport runway are a public safety issue. Eliminating a 4.5

acre prairie dog town would create minimal impact to the planning area which includes 20 towns on 1,043 acres of public land.

4.2.9.34 Chimney Rock Ind., Allotment No. 15095

This allotment does meet the upland health standard. The BLM and permittee propose construction of a 1.5 mi. fence to exclude livestock grazing for two growing seasons following a proposed 100 acre dense clubmoss mechanical treatment. The proposal would utilize a one-pass twisted shank chisel plow treatment with no drags or harrows. The treatment would be designed to minimize the removal of concentrated stands of Wyoming big sagebrush. Chisel plow treatments of dense clubmoss have proven very beneficial in decreasing clubmoss density, vastly improving precipitation infiltration and perennial decreaser grass species recovery. This treatment would be completed in the fall to eliminate the possibility of disturbing ground nesting birds such as mountain plovers. The treatment would benefit sagebrush and sagebrush dependent wildlife species by avoiding concentrations of sagebrush and targeting seed dissemination to promote seedling establishment within the treatment area.

When BLM monitoring determines that the treated clubmoss area can be incorporated into the grazing system, the permittee would remove approximately .75 mi. of existing fence to incorporate the area into the Bombing Range Pasture in the Skibby Place Allotment.

4.2.9.35 Skibby Place, Allotment No. 15059

This allotment does not meet the upland health standard. Seven upland health transects are located in this allotment. BLM health assessments indicated that three were in mid seral condition with a static or downward trend and the other four were in late seral condition with an upward trend.

The allotment contains seven pastures. The BLM proposes implementing a 3-pasture deferred rotation grazing system utilizing the Bombing Range, South and North Pastures. Two miles of 3-wire barbed wire fence and .5 miles of stock water pipeline extension would be necessary to accommodate the 3-pasture system. The deferred rotation grazing system would more equitably distribute livestock throughout the allotment. The grazing system would benefit upland health by deferring grazing in one pasture each year until after seed set. Desirable upland species would not be disturbed during the critical periods of active vegetative growth, reproduction and root reserve storage. This grazing schedule would allow the upland vegetation to positively respond and shift toward an upward trend, making significant progress toward meeting the upland health standard. These three pastures would be monitored every two years. If monitoring indicates progress is not being made toward meeting the upland health standard in the first five years, the BLM would implement a 3-pasture rest rotation grazing system. Deferred rotation grazing would be beneficial to upland health but would not always provide residual herbaceous cover. Winter wildlife forage and cover for ground nesting birds would only be adequate if soil moisture was available for regrowth in the early use pasture.

South Fork Dry Blood Reservoir, located within this allotment, has been identified as a fisheries reservoir and would be fenced with a 4-wire barbed wire (smooth bottom wire) fence to exclude livestock grazing (reference section 2.3.5). To compensate for the loss of livestock water, the BLM proposes a 2.25 mi. pipeline extension and two stocktanks in the North Pasture. This project would benefit fish and wildlife by providing cover for bass and waterfowl and additional forage for sage grouse, antelope, mule deer and elk in wetland habitat around the reservoir.

4.2.9.36 Hughes Coulee, Allotment No. 04831

This allotment does not meet the upland health standard. The allotment is currently managed as two pastures – Johnson Coulee and East Pasture. The permit authorizes yearlong grazing; BLM proposes to modify the season of use. Johnson Coulee would be authorized from 11/1-4/1, and East Pasture would be authorized from 5/15-9/30. The change in season of use in the Johnson Coulee Pasture would contribute to an upward trend in rangeland health by utilizing native forage during its dormant stage. The shorter grazing period in the East Pasture would result in more uniform grazing pressure for less time, leading to significant progress toward meeting the upland health standard. The change in season of use would provide improved elk and mule deer forage. This proposal would not impact ground nesting birds.

4.2.9.37 East Roy, Allotment No. 02670

This allotment does not meet the upland health standard. The allotment is currently managed as two pastures – the Irrigation Pasture and the East Pasture. Both pastures are authorized for yearlong grazing. The BLM proposes to modify the season of use; the Irrigation Pasture would be changed to 10/1-5/15, and the East Pasture would be changed to 5/15-10/31. The Irrigation Pasture and East Pasture would be used in conjunction with private land in a 3-pasture deferred rotation grazing system. The change in season of use in the Irrigation Pasture would contribute to an upward trend in rangeland health by utilizing native forage in the winter and early spring months. This season of use would allow desirable upland species to complete the vegetative growth, reproductive, and energy storage cycles uninterrupted by livestock grazing. Pasture regrowth would provide summer forage for deer, antelope and sage grouse. The proposed 5/15-10/31 season of use in the East Pasture would not provide

an opportunity for regrowth after the cattle are removed. Forage would be available for wildlife but residual cover for ground nesting birds would be limited. If future monitoring results indicate that upland health is not positively responding to the proposed use, the BLM may alter the course of grazing management as directed in section 2.3.1.

4.2.9.38 Solf Bros. A, Allotment No. 15090

This allotment does not meet the upland health standard. Current permitted use is authorized from 4/1-5/31 and 11/1-11/30. Livestock grazing in the early spring and late fall should contribute to an upward trend in rangeland health if the permitted dates and livestock numbers are followed. The permitted use would promote vegetative growth, reproduction and carbohydrate storage in native grass species. If future monitoring results indicate that upland health is not positively responding to the current permitted use, BLM may alter the course of grazing management as directed in section 2.4.1.

4.2.10 Wildland Fire

Implementation of Alternative 2 would not alter current wildland fire suppression management. Fire suppression would be in accordance with the Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas (September 2003), and the Central Montana Fire Zone, Lewistown Field Office (LFO), Fire Management Plan (September 2004).

This planning area lies within the LFO “Breaks” Fire Management Unit (FMU). Implementation of Alternative 2 would result in the continuation of current wildland fire suppression policy for this FMU to utilize appropriate fire suppression strategies based on safety, current fire danger, values at risk, cost, suppression resource availability and predicted weather. Each fire

occurrence would be evaluated on these elements and a determination made as to the most appropriate course of action. Under certain circumstances, appropriate strategies may include using indirect suppression tactics and utilization of natural fuel breaks to return fire to its natural role in the ecology of the area.

Implementation of Alternative 2 may result in a potential increase in fine fuel loads in allotments that would incorporate a rest rotation grazing system. This increase in fine fuel loads would increase a wildland fire's resistance to control efforts and slightly increased smoke emissions.

Prescribed burning is not proposed under Alternative 2, however, the use of prescribed fire as a land management tool in this area may be considered in future analyses/planning efforts.

4.2.11 Cultural Resources

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

4.2.12 Surface Water

This alternative would improve plant cover and increase infiltration, thereby, increasing the time of concentration and the quantity of water stored in the planning area.

Water quantity and quality affected by flow diversion, impoundments, and stream channel modifications such as spreader dikes would not change.

The water quality impaired streams in the planning area would be addressed by improving riparian condition on the Musselshell River and decreasing the amount of sediment being contributed to Flatwillow Creek. Reasonable land, soil, and water conservation practices would improve water quality.

Any impacts to surface water from the range improvement projects would be immeasurable. The existing reservoir in the Briggs Coulee allotment has not developed the characteristics of a wetland. Cleaning out the reservoir would not result in the dredging or placement of fill material in any drainage with an ordinary high water mark or have the potential to impact waters of the United States.

4.2.13 Ground Water

Installing a Monitor well head on the well in the Zimmerman Place allotment would stop the uncontrolled flow of groundwater at the surface and comply with Montana water law.

Under this alternative, several pipeline extensions and additional stock tanks would be installed within the planning area. The pipeline extensions and stock tanks would be fed from several shallow groundwater wells on private land. This would cause a small increase in consumption of shallow groundwater in the planning area. All stock tanks would be installed according to BLM specifications with flow control devices to minimize impacts to the shallow ground water aquifers.

4.2.14 Soils

Grazing management changes which result in allotments making significant progress toward meeting rangeland health standards would create a positive impact to soils in the planning area. Rangelands meeting or exceeding health standards exhibit a higher

percentage of increaser forage species, fewer annual grasses and forbs, increased plant vigor and root mass, a decrease in the percentage of bare ground, and an increase in available water holding capacity and infiltration. These characteristics greatly benefit rangeland soils.

Table 4.10 Summary of Proposed Range Improvement Projects in Alternative 2

Proposed Project	Total Affected Area
Dense clubmoss treatments	300 ac.
4-wire barbed wire fence	4.5 mi.
3-wire barbed wire fence	24.08 mi.
Cattleguards (3)	.07 ac.
Stockwater pipeline	24.0 mi.
Stocktanks (23)	.211 ac.
Crested wheatgrass seeding	38.5 ac.
Sheep fence	1.75 mi.
Temporary electric fence	1.0 mi.
Permanent electric fence	.5 mi.

The cumulative impact of these proposed projects would have an effect on the soil resource, though it would be minimal. The vast area encompassed by the watershed and mitigation measures associated with each of the projects would minimize or eliminate negative impacts. The proposed projects are spread among the 134 allotments and 805,320 total watershed acres.

Soil could be affected by implementation of this alternative in two ways, surface disturbances and compaction. Spillage of equipment lubricants, fluids, and fuels could also adversely impact soils associated with the range improvement projects.

Construction equipment and vehicular traffic associated with the proposed projects would cause soil compaction; severity would be directly related to soil type, frequency, and weight (lbs./sq. inch) of equipment. Compaction alters soil structure - decreasing porosity, infiltration rate, air space, and available water holding capacity.

A combination of these factors would decrease the vegetative capacity and increase the potential for water and wind erosion of affected areas. Mitigation would include limitation of unnecessary traffic associated with the projects and limitation of traffic during wet periods. Excessively wet soils would be defined as soil moisture high enough to:

- foul blades, augers or equipment
- create 3" deep ruts
- conglomerate mud on tires and tracks

Construction and farm equipment and vehicular traffic associated with the proposed projects would also create surface disturbances which could lead to accelerated wind and/or water erosion. Mitigation would include timely rehabilitation of all project-induced surface disturbances as directed by the authorized officer. All seed mixes would be recommended and approved by the authorized officer. Seed would be State of Montana Certified or Registered seed (or certified/registered by the state of origin); certification tags would be made available to the authorized officer for inspection before the seed is planted. Seed would be planted using a disc drill equipped with depth bands (or a suitable depth regulator to ensure proper depth of planting) and packer wheels. Seed would be drilled between one half inch (1/2") and three quarters inches (3/4") deep. Where drilling is not possible, seed would be broadcast and the area would be harrowed or raked to cover the seed. Care would be exercised to prevent burying the seed deeper than one inch (1"). If seed must be broadcast, the drill seeding rate provided by the authorized officer would be doubled. The seeding would be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth would not be made before completion of the first growing season following seeding. Seeding would be completed in the late fall/early winter or early spring between the dates of 10/15 and 05/15. Seedings would not be made when

the soil is frozen or snow covered. If moisture conditions are favorable in late summer, seeding may be completed between 08/15 and 09/15, allowing a minimum of 45 days for germination and seedling development before the seedlings go dormant. Late summer plantings should be attempted only when soil moisture is adequate at or very near the surface and to a substantial depth in the profile.

Silt fence would be properly installed to control offsite movement of any required soil stockpiles in areas with slopes greater than 15%, and adjacent to waterways and stream channels. Topsoil would not be used as padding in trenches or for any other use as a construction material. Standard erosion control practices would be employed to minimize erosion during construction operations. If a high groundwater table is encountered requiring dewatering, water would be pumped and discharged in a manner that would minimize sedimentation and prevent off-site erosion and bottom scour in adjacent waterways. Discharge to the surface would be allowable if vegetation is adequate to effectively function as a filter medium. If vegetation is inadequate, bale filters or other appropriate measures would be used to limit siltation.

Drainage control structures would be used to:

- transport surface runoff across disturbed areas with minimal erosion
- direct surface drainage away from disturbed areas
- provide downgradient control of runoff and sediment from all disturbed areas

These structures include drainage channels and water bars. Water bars would be used to direct intercepted runoff away from disturbed areas. Spacing intervals would be:

<u>Slope Gradient %</u>	<u>Typical Spacing (ft)</u>
5 - 15	150
16-30	100
Greater than 30	75

Soils could also be impacted by fluid spills, including engine oil, hydraulic oil, gear lube, anti-freeze, and fuel (gasoline or diesel fuel). These spills could severely affect soil in localized areas; concentrations may be capable of soil sterilization. Mitigation would include removal and approved disposal of soil from localized spill areas followed by replacement with clean soil and rehabilitation as directed by the authorized officer. Equipment leaks and drips would be fixed immediately upon discovery by the contractor, permittee, or BLM personnel.

All barbed wire fence construction would utilize steel T posts and wooden set posts at corners, stress panels and fence breaks. Wheeled equipment may be used to install the posts and wire creating a short-term impact on vegetation and soils adjacent to the fence alignment. New roads or trails would not be initiated along proposed fence routes, though permittees would be authorized to travel adjacent to fences for maintenance purposes. New fences would alter traditional livestock movement patterns and could create trailing along alignments. Minimal impacts to soils if trailing occurs would be concentrated to the linear fence routes.

All proposed stockwater pipelines would be installed utilizing rotary chain trenchers. Rotary trenchers create a surface disturbance only 6-12" wide, minimizing soil disturbance and potential negative impacts. Trenches would be backfilled immediately upon pipe installation and pressure test completion. Reseeding of the backfilled trenches is generally not required due to the low level of surface disturbance and natural encroachment of adjacent vegetation. Stocktank installation associated with proposed pipeline construction projects would impact soils. The small footprint required during the construction phase (20'

x 20') would minimize short-term impacts. Long-term impacts would result from concentrated livestock use around the stocktanks and associated trailing to and from the water source. Mitigation would include proper tank placement relative to resource concerns and livestock grazing management objectives. Stocktanks would not be placed on narrow ridges, in confined spaces or corridors, in riparian areas, or on slopes greater than 5%.

The three proposed cattle guards would be installed in present road alignments; no negative impacts to the soil resource would result.

Proposed dense clubmoss mechanical treatments and crested wheatgrass reseeding would disturb 388.5 acres. The farming operations associated with these projects would temporarily disturb soils, creating the possibility for accelerated wind and water erosion. Mitigation would include prompt completion of all initiated projects and adherence to seeding requirements discussed above. Long-term impacts would be positive as native vegetation establishes a natural, effective soil protective mechanism.

4.2.15 Air Quality

This alternative would not impact air quality.

4.2.16 Economics

Alternative 2 would create a short-term economic impact on permittees with allotments not meeting rangeland health standards. The BLM would require grazing management changes or range improvements to meet upland and/or riparian health standards. The Permittees would be responsible for a portion of most proposed projects. In the long term, however, proposed changes would lead to healthy rangelands and sustainable livestock grazing. There would be no impacts to permittees whose allotments are meeting rangeland health standards.

4.2.17 Sociology

The management actions and range improvements included in Alternative 2 would generally improve the efficiency of livestock grazing on public lands and the condition of those lands. Some of the proposed actions and improvements may have the indirect effect of increasing the value of base property associated with BLM allotments. These are generally viewed as positive changes by permittees, local communities and the larger national audience concerned about livestock grazing on public lands.

4.2.18 Areas of Critical Environmental Concern (ACECs)

Implementation of Alternative 2 would not impact the ACECs in the planning area.