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Preliminary Environmental Assessment MT-066-08-035
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Woodhawk Allotment (20031)
Grazing Permit Renewal

Location: Upper Missouri River Breaks National Monument
Townships 22 and 23 North, Ranges 19, 20, 21 and 22 East
Fergus County, Montana

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Chapter 1
Introduction

Introduction

The Bureau of Land Management (BLM) proposes to issue a permit to allow livestock grazing on public land in the Woodhawk allotment for the upcoming 10-year period (January 1, 2009 to December 31, 2018). Several permits may be issued within the 10-year period based on the duration of the base property leases.

Purpose and Need for the Proposed Action

The current grazing permit will expire on December 31, 2008 and the BLM is required to complete an environmental analysis when renewing 10-year grazing permits/leases. A determination and evaluation of the allotment has been completed for the Standards for Rangeland Health and Guidelines for Livestock Grazing Management. This allotment is meeting the upland, air quality, and biodiversity standards. However, the allotment is not meeting the riparian and water quality standards and livestock management is a significant factor.

This environmental assessment (EA) evaluates rangeland health standards and analyzes impacts associated with renewing the grazing permit for the Woodhawk allotment. The proposed action is needed to address the expiring grazing permit and current management as it relates to resource conditions on the allotment where the rangeland health standards for riparian and water quality are not being met based on current assessments. The purpose is to modify current grazing practices on the allotment so that progress can be made toward meeting the rangeland health standards.

Conformance with BLM Land Use Plans

The proposed action is in conformance with the Approved Judith Resource Area Resource Management Plan (RMP) (BLM 1994) and the West HiLine Resource Management Plan (BLM 1988, 1992a) as amended by the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota (BLM 1997). The proposed action is also in conformance with the State Director's Interim Guidance for Managing the Upper Missouri River Breaks National Monument (BLM 2001a).

Under the Approved Judith Resource Area RMP, livestock grazing will be managed through the development and monitoring of grazing or similar plans to maintain or improve ecological condition, enhance vegetation production, maintain and enhance wildlife habitat, and protect watersheds (p. 12 of the approved plan).

Under the West HiLine RMP, the BLM will maintain the public lands that are in satisfactory ecological condition and on public lands with unsatisfactory ecological condition the BLM will manage according to multiple use objectives based on ecological site potential for specific uses (p. 11 of the Final West HiLine RMP).

Livestock grazing is managed under the Lewistown District (Lewistown and Malta Field Offices) Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997). Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands, and guidelines focus on establishing and maintaining proper functioning conditions. The application of the guidelines is dependent on individual management objectives.

Under the State Director’s Guidance for the Monument (p. 6), continued livestock grazing is permitted, pursuant to the terms and conditions of existing permits and leases. Guidelines for livestock grazing management will be followed to protect rangeland resources.

Relationships to Statutes, Regulations and Other Plans

This proposal is in accordance with federal law, regulation and policy. Management of grazing on BLM land will be in accordance with the grazing administration regulations found in 43 CFR 4100. This allotment was previously analyzed in the Woodhawk Watershed Management Plan Environmental Assessment (BLM 1998a) and the selected alternative was detailed in the Woodhawk Watershed Interdisciplinary Management Plan (BLM

1998b). The custodial portion of this allotment was previously analyzed in the Two Calf Watershed Management Environmental assessment (BLM 1998c). These documents are available from the Lewistown Field Office and on the web site at the following address:

http://www.blm.gov/mt/st/en/fo/lewistown_field_office/Watershed_Plans.html

Chapter 2
Description of Alternatives

Introduction

This environmental analysis examines four alternatives. The alternatives were developed in response to resource conditions on the allotment and with input from the grazing permittee and interested public. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

A no grazing alternative was previously analyzed in the Missouri Breaks Grazing Environmental Statement (BLM 1979) and will not be considered in this environmental assessment.

Alternative 1: No Action

This alternative would continue current management of the Woodhawk allotment (Map 1).

The BLM would issue the new grazing permit for 3,120 animal unit months (AUMs) with the same terms and conditions as the expiring permit in accordance with the Woodhawk Watershed Interdisciplinary Management Plan, (BLM 1998b) and the Two Calf Watershed Management Plan (BLM 1998c). The grazing schedule under Alternative 1 is shown in the table below.

There would be no new range improvements. Maintenance would continue on the existing improvements.

Alternative 1
Grazing Schedule

Pasture and AUMs	Year			
	2009	**2010**	**2011**	**2012**
North River 643 AUMs total (266 public AUMs)	June 1 to Sept 24 150 cattle	June 1 to Sept 24 150 cattle	June 1 to Sept 24 150 cattle	June 1 to Sept 24 150 cattle
East Riparian 432 AUMs total (432 public AUMs)	Non-use	May 1 to June 15 285 cattle	May 1 to June 15 285 cattle	Non-use
West Riparian 447 AUMs total 410 public AUMs)	May 1 to June 15 295 cattle	Non-use	Non-use	May 1 to June 15 295 cattle
West Upland 928 AUMs total (587 public AUMs)	June 15 to Aug 15 460 cattle	Sept 1 to Oct 31 460 cattle	Sept 1 to Oct 31 460 cattle	June 15 to Aug 15 460 cattle
East Upland 1148 AUMs total (1040 public AUMs)	Aug 16 to Oct 31 460 cattle	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle	Aug 16 to Oct 31 460 cattle
Two Calf Custodial 356 AUMs	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28
Woodhawk Custodial 29 AUMs	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28

Alternative 2

This alternative was developed by the BLM interdisciplinary team to address riparian and water quality standards in the Woodhawk allotment (Map 2).

The BLM would issue a new grazing permit for 3,120 AUMs (see table below) with the following changes from the previous permit:

- The boundary between the East Riparian and West Riparian pastures would be changed and livestock grazing would be decreased by 27 AUMs in the East Riparian pasture and increased by 27 AUMs in the West Riparian pasture. This would put the river bottoms in Sections 1 and 2 in the West Riparian pasture and would facilitate cattle control by using natural barriers while grazing riparian pastures.
- The season of use in the East Riparian pasture would be decreased from 6 weeks to 26 days.
- The North River pasture would be used in the spring or fall.
- The reservoir near the junction of Woodhawk Creek and the Woodhawk Trail in the East Upland pasture would be removed and the area reclaimed to a natural setting.
- Approximately 100 yards of fence along Woodhawk Bottom Road at the Woodhawk Wilderness Study Area (WSA) boundary would be removed and replaced with a wooden barrier if necessary to prevent unauthorized vehicle use in the WSA.
- The fence between the East Upland and West Upland pastures would be reconstructed with a 3 wire fence (2 barbed wires with a bottom smooth wire) built to BLM specifications.

Alternative 2
Grazing Schedule

Pasture and AUMs	Year			
	2009	**2010**	**2011**	**2012**
North River 643 AUMs (266 public AUMs)	Oct 30 to Nov 30 460 cattle	May 1 to May 20 460 cattle Nov 1 to Nov 20 460 cattle	May 1 to May 20 460 cattle Nov 1 to Nov 20 460 cattle	Oct 30 to Nov 30 460 cattle
East Riparian 405 AUMs total (405 public AUMs)	Non-use	May 21 to June 15 460 cattle	May 21 to June 15 460 cattle	Non-use
West Riparian 474 AUMs total (437 public AUMs)	May 1 to June 15 295 cattle	Non-use	Non-use	May 1 to June 15 295 cattle
West Upland 928 AUMs total (587 public AUMs)	June 15 to Aug 15 460 cattle	Sept 1 to Oct 31 460 cattle	Sept 1 to Oct 31 460 cattle	June 15 to Aug 15 460 cattle
East Upland 1148 AUMs total (1040 public AUMs)	Aug 16 to Oct 31 460 cattle	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle	Aug 16 to Oct 31 460 cattle
Two Calf Custodial 356 AUMs	Oct 1 to June 15	Oct 1 to June 15	Oct 1 to June 15	Oct 1 to June 15
Woodhawk Custodial 29 AUMs	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28

(Dates and cow numbers are approximate. There may be slight adjustments to reflect grazing conditions and permittee requests. Custodial pastures would be used in conjunction with private and state lands. BLM only regulates the animal units months within custodial pastures. The four-year rotation would begin again in 2013.)

Alternative 3

This alternative was developed by the grazing permittee to provide better water distribution in the East Upland and West Upland pastures and maintain the investments and agreements associated with the Two Calf Custodial pasture (Map 3).

The BLM would issue a new grazing permit for 3,120 AUMs (see table below) with the following changes from the previous permit:

- The East Upland pasture would be used from June 15 to August 30. This pasture provides early grass and currently, there are no known sage-grouse in this pasture during this time of year. If Woodhawk Creek runs, it would run in June or July, and using this pasture first would provide better water distribution.

- The West Upland pasture would be used from August 31 to October 31. There are more varieties of grass, better water with pipeline and stock tanks, and sage-grouse would be done nesting by August 1.

- The Two Calf Custodial pasture would remain as a custodial pasture. There are about 6,000 acres of state and private land and about 1,000 acres of BLM land in this pasture. The permittee has invested at least $25,000 on a water pipeline and stock tanks, and another $25,000 on cross fencing to create four pastures to facilitate a rotation schedule. The permittee spends approximately $8,000 a year for the State Lease and has a summer use agreement in place with the state.

- The north half of the North River pasture would be used in conjunction with the West Riparian pasture.

- The south half of the North River pasture would be used in early spring from April 1 to May 1 and then again in late fall from September 1 to October 31. The south half of this pasture is 90% deeded and farmed land and has a pipeline from the main buildings extending out about 1½ miles with a stock tank.

- Range improvements include (Map 3): small segments of new fence, two segments of fence would be removed, a new pipeline and tanks would be installed on private land, and several reservoirs may be cleaned out and repaired primarily in the East Upland pasture.

Alternative 3
Grazing Schedule

Pasture and AUMs	Year			
	2009	**2010**	**2011**	**2012**
North River (River Portion) 131 AUMs total (104 public AUMs) (South Portion) 512 AUMs total (162 public AUMs)	May 1 to June 15 87 cattle Apr 1 to May 1 and Sept 1 to Oct 31 170 cattle	May 1 to June 15 87 cattle Apr 1 to May 1 and Sept 1 to Oct 31 170 cattle	Non-use Apr 1 to May 1 and Sept 1 to Oct 31 170 cattle	Non-use Apr 1 to May 1 and Sept 1 to Oct 31 170 cattle
East Riparian 405 AUMs total (405 public AUMs)	Non-use	Non-use	May 1 to June 15 285 cattle	May 1 to June 15 285 cattle
West Riparian 474 AUMs total (437 public AUMs)	May 1 to June 15 295 cattle	May 1 to June 15 295 cattle	Non-use	Non-use
West Upland 928 AUMs total (587 public AUMs)	Aug 31 to Oct 31 460 cattle	Aug 31 to Oct 31 460 cattle	Aug 31 to Oct 31 460 cattle	Aug 31 to Oct 31 460 cattle

Alternative 3 Grazing Schedule				
	Year			
Pasture and AUMs	**2009**	**2010**	**2011**	**2012**
East Upland 1148 AUMs total (1040 public AUMs)	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle
Two Calf Custodial 356 AUMs	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28
Woodhawk Custodial 29 AUMs	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28	Mar 1 to Feb 28

(Dates and cow numbers are approximate. There may be slight adjustments to reflect grazing conditions and permittee requests. Custodial pastures would be used in conjunction with private and state lands. BLM only regulates the animal units months within custodial pastures. The four-year rotation would begin again in 2013.)

Alternative 4: Proposed Action

This alternative was developed with input from the BLM interdisciplinary team, interested public, and the grazing permittee to address riparian and water quality; and maintain livestock distribution through maintenance of the existing range improvements (Map 4).

The BLM would issue a new grazing permit for 3,120 AUMs (see table below) with the following changes from the previous permit:

- The boundary between the East and West Riparian pastures would be changed, which would reduce the East Riparian pasture grazing by 27 AUMs and increase the West Riparian pasture grazing by 27 AUMs. This relocated boundary would include the river bottoms in Sections 1 and 2 in the West Riparian pasture and facilitate livestock management by using natural barriers.

- The season of use in the East Riparian pasture would be decreased from 6 weeks to 26 days.

- The reservoir near the junction of Woodhawk Creek and the Woodhawk Trail in the East Upland pasture would be removed and the area reclaimed to a natural setting.

- Approximately 100 yards of the fence along the Woodhawk Bottom Road at the Woodhawk WSA boundary would be removed and replaced with a wooden barrier if necessary to prevent unauthorized vehicle use in the WSA.

- The North River pasture would be divided using natural barriers and short fence segments. The southern portion would be used in a custodial manner in conjunction with the private lands. The river portion would be used between May 1 and May 20 for two years and then rested for two years.

- Additional range improvements would include: cleaning out, repairing and maintaining up to 14 reservoirs which would consist of repairing spillways, raising the spillway elevation to compensate for volume lost to siltation, removing silt, but would not increase storage capacity or create disturbance outside the original footprint (Map 4); installing cattleguards to replace gates on DeWeese Trail; and reconstructing the fence between the East and West Upland pastures with a 3 wire fence (2 barbed wires with a bottom smooth wire) built to BLM specifications.

- The riparian objectives in the Woodhawk Watershed Interdisciplinary Management Plan (BLM 1998b) would be adjusted and additional water quality objectives would be added. See Appendix A, Woodhawk Allotment (20031) Riparian and Water Quality Affected Environment/Allotment Evaluation.

Alternative 4: Proposed Action Grazing Schedule				
	Year			
Pasture and AUMs	**2009**	**2010**	**2011**	**2012**
North River (River Portion) 131 AUMs total (104 public AUMs) (South Portion Custodial) 512 AUMs total (162 public AUMs)	Non-use March 1 to Feb 28	May 1 to May 20 198 cattle March 1 to Feb 28	May 1 to May 20 198 cattle March 1 to Feb 28	Non-use March 1 to Feb 28
East Riparian 405 AUMs total (405 public AUMs)	Non-use	May 21 to June 15 460 cattle	May 21 to June 15 460 cattle	Non-use
West Riparian 474 AUMs total (437 public AUMs)	May 1 to June 15 295 cattle	Non-use	Non-use	May 1 to June 15 295 cattle
West Upland 928 AUMs total (587 public AUMs)	June 15 to Aug 15 460 cattle	Sept 1 to Oct 31 460 cattle	Sept 1 to Oct 31 460 cattle	June 15 to Aug 15 460 cattle
East Upland 1148 AUMs total (1040 public AUMs)	Aug 16 to Oct 31 460 cattle	June 15 to Aug 31 460 cattle	June 15 to Aug 31 460 cattle	Aug 16 to Oct 31 460 cattle
Two Calf Custodial 356 AUMs	March 1 to Feb 28	March 1 to Feb 28	March 1 to Feb 28	March 1 to Feb 28
Woodhawk Custodial 29 AUMs	March 1 to Feb 28	March 1 to Feb 28	March 1 to Feb 28	March 1 to Feb 28

(Dates and cow numbers are approximate. There may be slight adjustments to reflect grazing conditions and permittee requests. Custodial pastures would be used in conjunction with private and state lands. BLM only regulates the animal units months within custodial pastures. The four-year rotation would begin again in 2013.)

Chapter 3
Affected Environment/Environmental Consequences

Introduction and General Setting

The Woodhawk allotment is located 20 miles northeast of Winifred, Montana in Fergus County. It contains approximately 27,200 acres of public land (BLM), 10,000 acres of private land and 4,900 acres of State of Montana land. Approximately 23,900 acres of public land are located within the Upper Missouri River Breaks National Monument. The northern boundary of the allotment is the Missouri River. In this area the Missouri is narrow with limited developed floodplain. The topography of the majority of the allotment is typical of the Missouri Breaks (very rough and broken). Woodhawk Creek runs west to east through the allotment.

The allotment is in the 10 to 14 inch precipitation zone. The soils developed from sandstone and shale parent materials and the prevalent soil types include clayey, dense clay, shallow clay, exposed shales and rock outcrop.

The five Standards for Upland Health for the Lewistown Field Office have been evaluated for the allotment:

Standard 1: The upland standard is being met.

Standard 2: The riparian standard is not being met and livestock are a significant factor. See Appendix A.

Standard 3: The water quality standard is not being met and livestock are a significant factor. See Appendix A.

Standard 4: The air quality standard is being met.

Standard 5: The biodiversity standard is being met. However, noxious weeds (leafy spurge and Russian knapweed) are found along the Missouri River within the allotment.

Riparian and Water Quality

Affected Environment

Because of the length of the discussion regarding water resources and riparian areas within the Woodhawk allotment, the description of the affected environment and allotment evaluation are attached in Appendix A, Woodhawk Allotment (20031) Riparian and Water Quality Affected Environment/Allotment Evaluation.

In summary, Woodhawk Creek has 14.02 miles that are in proper functioning condition (PFC) and 4.17 miles that are functional at risk (static trend) because of livestock grazing impacts. The Missouri River has 12.47 miles that are in proper functioning condition (PFC), 3.21 miles that are functional at risk (upward trend), and 2.60 miles that are functional at risk (downward trend) because of livestock grazing impacts.

Environmental Consequences

Alternative 1: No Action

This No Action alternative is continuation of current management within the Woodhawk allotment. This alternative would not address the areas of riparian and water quality concerns.

On Woodhawk Creek, the 4.17 miles of stream within close proximity to the reservoir near the bottom of Woodhawk Creek would remain in degraded condition with high streambank alteration levels and less than desirable plant species composition. The remaining 14.02 miles of Woodhawk Creek would remain in proper functioning condition and may continue improving. Stream channel function and streambank vegetation would be maintained on these miles of stream. Woodhawk Creek would be most vulnerable to decreases in water sources in the uplands, particularly in the East Upland pasture. As reservoirs fill with sediment and become unusable, livestock distribution would decrease from current levels, and Woodhawk Creek would begin to receive a disproportionate amount of use.

On the Missouri River, the 3.21 miles in the North River pasture would remain static or may improve slightly because of the current lower stocking rate. Functionality of the riparian area would still occur. However, the density and canopy coverage of willow species within this pasture would remain at decreased levels, and no recruitment into mature willow would occur. Currently, most willow within this pasture remains at or below browse level.

The 6.10 miles of Missouri River in the West Riparian pasture and the 3.59 miles in the west portion of the East Riparian pasture would continue to be in good vegetative condition. These areas would not only be in at least proper functioning condition, but they would also continue to support pioneer woody species recruitment such as cottonwood/willow. The early season of use combined with rest would continue to support limited use levels on other riparian trees/shrubs as well such as green ash, chokecherry, box elder, etc. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

On the backside of Cow Island, 2.60 miles of Missouri River would continue a downward trend in riparian health. Intense utilization on trees and shrubs would continue. Streambank alteration would remain high, and the vigor of streamside vegetation would remain poor.

Within the Woodhawk Bottoms exclosure, 2.78 miles of Missouri River would remain in proper functioning condition and would also have the ability to move toward its ecological capability. The maximum amount of protection to the riparian area would continue. Furthermore, the understory condition within this reach would continue to rank high in species richness and structural complexity. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

Alternative 1 would not address the water quality concerns within the Woodhawk allotment. The State of Montana lists the Missouri River from Bullwhacker Creek to Fort Peck Reservoir as water quality impaired. Riparian areas in less than proper functioning condition would continue to potentially contribute excess levels of nitrates, fecal coliform, and sediment to the water quality impaired water body. Those areas in proper functioning condition or above would continue to mitigate some levels of pollutants entering water bodies. Proper functioning condition has been identified as an allowable level of impacts and evaluation technique for identifying areas of non-point source pollution by the State of Montana.

Alternative 2

Under Alternative 2, BLM would remove the pit reservoir near the bottom of Woodhawk Creek. The 4.17 miles of Woodhawk Creek within the vicinity of this reservoir would begin immediate improvement. By the time livestock rotates to the pastures that contain Woodhawk Creek, there is usually no water in the stream. Furthermore, the streambank vegetation is composed of species which lose palatability later in the summer. By removing the reservoir, livestock would have little reason to spend large amounts of time on the creek. Streambank alteration levels would decrease, and the condition of the vegetation would improve. Therefore, sediment trapping would improve and floodplain development would increase.

The remaining 14.02 miles of Woodhawk Creek would remain in proper functioning condition and should continue improving. Stream channel function and streambank vegetation would be maintained on these miles of stream. Woodhawk Creek would be most vulnerable to decreases in water sources in the uplands, particularly in the East Upland pasture. As reservoirs fill with sediment and become unusable, livestock distribution would decrease from current levels, and Woodhawk Creek would begin to receive a disproportionate amount of use.

The North River pasture would be used in the spring and/or fall in this alternative. By shifting from season long summer use to tighter permitted dates outside of the hot season, improvement in riparian area condition on the 3.21 miles of Missouri River would be expected. The riparian area would progress to proper functioning condition, and the willow species would have a greater opportunity to recruit into older age classes. This action would also address water quality concerns on the Missouri River by mitigating the amount of pollutants potentially entering the water body.

The 6.10 miles of Missouri River in the West Riparian pasture and the 3.59 miles in the west portion of the East Riparian pasture would continue to be in good vegetative condition. These areas would not only be in at least proper functioning condition, but they would also continue to support pioneer woody species recruitment such as cottonwood/willow. The early season of use combined with rest would also continue to support limited use levels on other riparian trees/shrubs such

as green ash, chokecherry, box elder, etc. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

Behind Cow Island, the season of use in the East Riparian pasture would be changed to 26 days of use in May and June two years in a row. Then, it would be rested two years. This would lead to a period of use of only 7½ weeks of cool season use out of every four-year period. This would make progress in moving the 2.60 miles of Missouri River toward proper functioning condition. Use levels on preferred woody species would decrease along with streambank alteration levels. Non-point source pollution would be at least partially mitigated.

Within the Woodhawk Bottoms exclosure, 2.78 miles of Missouri River would remain in proper functioning condition and would also have the ability to move towards its ecological capability. The maximum amount of protection to the riparian area would continue. Furthermore, the understory condition within this reach would continue to rank high in species richness and structural complexity. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

Alternative 3

Under this alternative, grazing in the East and West Riparian pastures would remain the same. The 6.10 miles of Missouri River in the West Riparian pasture and the 3.59 miles in the west portion of the East Riparian pasture would continue to be in good vegetative condition. These areas would not only be in at least proper functioning condition, but they would also continue to support pioneer woody species recruitment such as cottonwood/willow. The early season of use combined with rest would also continue to support limited use levels on other riparian trees/shrubs such as green ash, chokecherry, box elder, etc. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

On the backside of Cow Island, 2.60 miles of Missouri River would continue a downward trend in riparian health. Intense utilization on trees and shrubs would continue. Streambank alteration would remain high, and the vigor of streamside vegetation would remain poor.

Within the Woodhawk Bottoms exclosure, 2.78 miles of Missouri River would remain in proper functioning condition and would also have the ability to move toward its ecological capability. The maximum amount of protection to the riparian area would continue. Furthermore, the understory condition within this reach would continue to rank high in species richness and structural complexity. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

The North River pasture would be split in this alternative. The river portion of the pasture would be used in conjunction with the West Riparian pasture (May 1 to June 15 for two years/rested two years). The southern portion would be used in conjunction with private land in the spring and fall. By shifting from season long summer use to tighter permitted dates outside of the hot season, improvement in riparian area condition on the 3.21 miles of Missouri River would be expected. The riparian area would progress to proper functioning condition, and the willow species would have a greater opportunity to recruit into older age classes. This action would also address water quality concerns on the Missouri River by mitigating the amount of pollutants potentially entering the water body.

Using the East Upland pasture first every year would have a small negative impact on Woodhawk Creek. Livestock would be in the pasture most times if and when Woodhawk Creek flowed water. This would lead to more use on the stream. The 4.17 miles that are currently in degraded condition would continue a downward trend in health. The stream miles that are currently in proper functioning condition would potentially decline in health.

Cleaning and maintaining reservoirs, particularly in the East Upland pasture would help to improve the 4.17 miles of Woodhawk Creek. As reservoirs fill with sediment and become unusable, livestock distribution would decrease from current levels, and Woodhawk Creek would begin to receive a disproportionate amount of use.

Alternative 4: Proposed Action

Under the Proposed Action, BLM would remove the pit reservoir near the bottom of Woodhawk Creek. The 4.17 miles of Woodhawk Creek within the vicinity of this reservoir would begin immediate improvement. By the time livestock rotate to the pastures that contain Woodhawk Creek, there is usually no water in the stream. Furthermore, the streambank vegetation is composed of species which lose palatability later in the summer. By removing the reservoir, livestock would have little reason to

spend large amounts of time on the creek. Streambank alteration levels would decrease, and the condition of the vegetation would improve. Therefore, sediment trapping would improve and floodplain development would increase.

The remaining 14.02 miles of Woodhawk Creek would remain in proper functioning condition and should continue improving. Stream channel function and streambank vegetation would be maintained on these miles of stream. Woodhawk Creek would be most vulnerable to decreases in water sources in the uplands, particularly in the East Upland pasture.

Maintenance would be completed on up to fourteen of the identified reservoirs. These water sources are critical for maintaining distribution and rotation through the upland pastures. No disturbance outside of the original "footprint" would occur, and there would be no increases in capacity. Small increases in sediment yield would follow disturbance around the reservoir. However, reservoirs store far more sediment than what would be produced.

The North River pasture would be split under this alternative. The southern portion of the pasture, which is primarily deeded property, would be authorized for custodial use. The river portion of the pasture would be changed from season long summer use to fall or spring use. By shifting from season long summer use to tighter permitted dates outside of the hot season, improvement in riparian area condition on the 3.21 miles of Missouri River would be expected. The riparian area would progress to proper functioning condition, and the willow species would have a greater opportunity to recruit into older age classes. This action would also address water quality concerns on the Missouri River by mitigating the amount of pollutants potentially entering the water body.

The 6.10 miles of Missouri River in the West Riparian pasture and the 3.59 miles in the west portion of the East Riparian pasture would continue to be in good vegetative condition. These areas would not only be in at least proper functioning condition, but they would also continue to support pioneer woody species recruitment such as cottonwood/willow. The early season of use combined with rest would also continue to support limited use levels on other riparian trees/shrubs such as green ash, chokecherry, box elder, etc. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

Behind Cow Island, the season of use in the East Riparian pasture would be changed to 26 days of use in May and June two years in a row. Then, it would be rested two years. This would lead to a period of use of only 7½ weeks of cool season use out of every four-year period. This would make progress in moving the 2.60 miles of Missouri River toward proper functioning condition. Use levels on preferred woody species would decrease along with streambank alteration levels. Non-point source pollution would be at least partially mitigated.

Within the Woodhawk Bottoms exclosure, 2.78 miles of Missouri River would remain in proper functioning condition and would also have the ability to move toward its ecological capability. The maximum amount of protection to the riparian area would continue. Furthermore, the understory condition within this reach would continue to rank high in species richness and structural complexity. Riparian area succession would continue to be impeded by leafy spurge and invasive species like smooth brome.

This alternative contains actions to address every riparian area in less than proper functioning condition. These actions would partially address water quality issues by improving stream reaches that could be contributing non-point source pollution to the water quality impaired Missouri River.

Wildlife and Threatened, Endangered and Species of Concern

Affected Environment

A full description of wildlife habitat and resources can be found within the original Woodhawk watershed plan, which is available on the following web site:

http://www.blm.gov/mt/st/en/fo/lewistown_field_office/Watershed_Plans.html

Wildlife

Wildlife species within this area include typical species associated with the Missouri River Breaks habitat. Mule deer, bighorn sheep, raptors, migratory birds, sharptail grouse, coyotes, furbearers, numerous small rodents, reptiles and amphibians are found in the area. The proposed action is within identified mule deer, elk, bighorn sheep and sage-grouse year-

round habitat. Greater sage-grouse year-round habitat, including winter habitat, occurs in the East Upland and West Upland pastures (primarily West Upland). Bighorn year-round habitat occurs primarily in the East Riparian, West Riparian, and East Upland pastures. Mule deer and elk occur in all pastures, with fewer animals or lower densities occurring in the badland habitat occupied by bighorn sheep.

Threatened, Endangered and Species Proposed for Listing

Pallid sturgeon are protected by the Endangered Species Act (ESA) and can be found adjacent to the allotment in the Upper Missouri River. There would be no affect to them or critical habitat from any alternative. There are no other species protected or proposed for listing under the ESA within the allotment.

Designated Sensitive Species

Northern goshawk, bald eagle, golden eagle, ferruginous hawks, peregrine falcons, Swainson's hawk, long-legged and long-eared myotis, and Townsend's big-eared bat, all have habitat and could occur within available habitat, but there are no recent documented roosting or nesting sites within the area. The greater short-horned lizard occupies open badlands and sagebrush grassland habitat, and is likely present within the area. Sage-grouse occupy the sagebrush grasslands portion of the allotment and prairie dogs occur on a small portion of public lands within the allotment.

Migratory Birds

This area is used by numerous songbirds and raptors, including ferruginous hawks, peregrine falcons, Swainson's hawk, bald and golden eagles, all BLM sensitive species. The migratory bird species present in this area are locally abundant and the habitat is not considered crucial to any species.

Fisheries

The Upper Missouri River supports the only fisheries within the allotment. These populations are managed by Montana Fish, Wildlife & Parks. There would be no impacts to the fisheries from any of the alternatives.

Environmental Consequences

Alternative 1: No Action

While the allotment is currently meeting the biodiversity Standard for Rangeland Health, current grazing use is resulting in overuse of some riparian habitat important to migratory birds and other wildlife. Recent observations indicate that current grazing management in the West Upland pasture may be over-utilizing herbaceous cover on portions of the sage grouse habitat within the allotment. If monitoring indicates current grazing management is impacting this portion of the allotment, continuing current grazing practices may reduce the habitat available to sage-grouse and other species dependent on sagebrush grassland, and reduce available riparian habitat for migratory birds. There would be no impact to any designated sensitive species from this alternative.

Alternative 2

Under this alternative, riparian vegetation would improve, which will benefit migratory birds and several other species. This alternative may shift grazing pressure to upland areas, reducing herbaceous cover in these areas. The majority of upland habitat currently receives light use and would not be impacted in any significant way. Shift of grazing to upland areas may alter the level of use for small areas on the periphery of sage-grouse habitat. This could also affect migratory birds, sharp-tail grouse, small mammals, and reptiles. Additional grazing in the upland pastures may provide some benefit to the prairie dogs, allowing them to expand. There would be no impact to any other designated sensitive species from this alternative.

Alternative 3

Under this alternative, riparian habitat would not improve as much as Alternative 2, nor would impacts to sagebrush grasslands increase as much. Impacts to species dependent on these habitats would fall between Alternatives 1 and 2, with some species receiving some benefits, and other being somewhat more impacted. Impacts to sage-grouse habitat would be less, while benefits to riparian dependent species and prairie dogs would be less. There would be no impact to any other designated sensitive species from this alternative.

Alternative 4: Proposed Action

Riparian habitat dependent species, including many migratory bird species, would benefit from this alternative, as riparian areas receive longer rest and develop successionally. Big game habitat in the uplands would receive greater use as livestock are better dispersed. These impacts are expected to be minimal, as much of this habitat currently receives little use and is in excellent condition. Maintenance of the livestock reservoirs would benefit many species, including big game, bats, amphibians, and migratory birds. Grazing would not be managed significantly different than Alternative 2 in the upland pastures containing sage-grouse habitat. No BLM designated sensitive species would be impacted by this alternative, but there may be some minor benefits from improved distribution and increased availability of water.

Wildlife habitat would continue to meet the biodiversity Standard for Rangeland Health. The uplands areas in the allotment would be used at different times throughout the grazing season and receive deferment or rest at some time during the multi-year grazing cycles. Cleaning and repairing reservoirs could improve livestock distribution and provide additional habitat and water sources for many species.

Upland Vegetation

Affected Environment

The dominant vegetation type in the allotment is sagebrush/grass followed by ponderosa pine/juniper. Grasslands, Douglas fir/ponderosa pine, mixed shrub, deciduous trees and willow and cropland are present.

Environmental Consequences

Alternative 1: No Action

Upland vegetation would continue to meet standards. Weed control would continue and noxious weeds would be contained or controlled.

Alternative 2

Upland vegetation would continue to meet standards. Changing grazing in the North River pasture from current June-September grazing to spring and fall grazing could improve vigor and abundance of upland vegetation.

Alternative 3

Upland vegetation would continue to meet standards but grazing at the same time each year in the East Upland and West Upland pastures could potentially impact plant vigor. Cleaning and repairing reservoirs could improve livestock distribution.

Alternative 4: Proposed Action

Upland vegetation would continue to meet standards. The uplands areas in the allotment would be used at different times throughout the grazing season and receive deferment or rest at some time during the multi-year grazing cycles. Cleaning and repairing reservoirs could improve livestock distribution.

Invasive Species

Affected Environment

Executive Order 13112 defines invasive species as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health” and “a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.” Not all alien or exotic species are considered invasive.

Management of many of the invasive plant species within the Upper Missouri River Breaks falls under the Guidelines for Integrated Weed Management Plan (BLM 2001b). The management outlined in this plan covers mainly state and county listed noxious weeds. Noxious weeds known to occur in the allotment include leafy spurge, Russian knapweed, and Canada thistle. These species are found mainly in or near riparian areas or along the river. Other invasive species known to occur include annual bromes (downy and field), smooth brome, and crested wheatgrass.

Environmental Consequences

Control of state listed noxious weeds would continue under all alternatives. Infestations in riparian areas would probably persist due to the biology of the species involved and the limited management techniques available for these species in sensitive areas. Other invasive species would also continue to persist.

Recreation and Visual Resources

Affected Environment

About 20 miles of the Missouri River forms the northern and eastern boundaries of the Woodhawk allotment. A portion of the allotment (about 11,700 acres) is within the boundary of the Upper Missouri National Wild and Scenic River (UMNWSR). In this area about 17 miles of the Missouri River are classified as Wild and three miles are Scenic. River access is good throughout the area for hunters and fishermen, sightseers, history buffs, and outfitters. Most recreational use is concentrated within the Woodhawk Recreation Area along the river in the East Upland pasture. This popular area has one developed public access site and campground which is used by floaters/boaters and vehicle recreationists, as well as two primitive boat camps a little further upstream. Visitors to Woodhawk visit the nearby Nelson Homestead and the Nez Perce National Historic Trail.

The allotment lies within Visual Resource Management (VRM) Class I (13,000 acres), Class II (600 acres), and Class IV (13,600 acres). The objective of VRM Class I is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude limited management activity. The object of VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. The objective of VRM Class IV is to provide for management activities that require major modifications of the existing character of the landscape. Public land within the allotment was assigned a VRM class based on a process that utilizes scenic quality and sensitivity to changes in the landscape contingent upon the distance zone from which a project or proposal would be seen by the casual observer.

The North River, West Riparian, and East Riparian pastures are mostly within the UMNWSR and are primarily VRM Class I. Most of the East Uplands pasture is within VRM Class IV with some Class I and II. The West Upland and Two Calf Custodial pastures are primarily VRM Class IV.

Environmental Consequences

Alternative 1: No Action

Visual impacts from riparian vegetation that is not meeting the standard near Cow Island would affect the scenic quality of this popular segment of the Missouri River.

Alternative 2

A decrease in season of use in the East Riparian pasture would increase the streamside vegetation, eventually improving the scenic values along the river bottom in this segment of the Missouri River.

Alternative 3

Visual impacts from riparian vegetation that is not meeting the standard near Cow Island would affect the scenic quality of this popular segment of the Missouri River.

Alternative 4: Proposed Action

The impacts would be the same as Alternative 2. The proposed action would improve the scenic quality of this segment of the Missouri River.

Woodhawk Wilderness Study Area

Affected Environment

The Woodhawk Wilderness Study Area (WAS) consists of approximately 8,100 acres. This WSA was recommended as nonsuitable for preservation as wilderness in the 1991 Montana Statewide Wilderness Study Report (BLM 1991). Page 93 of the report states, “The area appears mostly natural, with the following exceptions . . . .” and continues with mention of the reservoirs, roads, and other human imprints within the Woodhawk WSA boundary. However, the scenic vistas from the end of DeWeese and Sunshine Ridge roads provide outstanding panoramic views of Cow Creek to the north and historic Cow Island crossing in the Missouri River channel below. The Cow Creek WSA, which can be seen across the river to the north, spreads out toward the Little Rocky Mountains and gives the observer an appreciation for the great expanse of the Upper Missouri River Breaks area.

The WSA is currently within VRM Class I (2,900 acres), Class II (400 acres) and Class IV (4,800 acres). Maintenance of existing range improvement projects (fences and reservoirs) is allowed in the WSA to keep them in an effective, usable condition (Interim Management Policy (IMP) and Guidelines for Lands Under Wilderness Review (BLM Manual H-8550-1)).

Environmental Consequences

Alternative 1: No Action

Some of the natural characteristics of the Woodhawk WSA, specifically Woodhawk Creek and the Missouri River stream banks, would continue to be impacted under the No Action alternative.

Alternative 2

The removal of a fence along the boundary road on the southern side of the Woodhawk WSA, and reclamation of a small pit reservoir near Woodhawk Creek would enhance wilderness characteristics because cattle would spend less time in and around the stream bottom, giving the soils time to stabilize and vegetation to grow, and giving the area a more natural appearance. The small pit reservoir near Woodhawk Creek is outside the WSA boundary and reclamation would not impair the WSA. The maintenance of the existing reservoirs, primarily in the East Uplands pasture, would not impair the lands under wilderness review (4 out of the 6 reservoirs are within the WSA). The other range improvement projects are not within the WSA.

Alternative 3

The impacts would be the same as the No Action alternative.

Alternative 4: Proposed Action

The removal of a fence along the boundary road on the southern side of the Woodhawk WSA, and reclamation of a small pit reservoir near Woodhawk Creek would enhance wilderness characteristics because cattle would spend less time in and around the stream bottom, giving the soils time to stabilize and vegetation to grow, and giving the area a more natural appearance. The small pit reservoir near Woodhawk Creek is outside the WSA boundary and reclamation would not impair the WSA. The maintenance of the existing reservoirs (4) in the WSA would not impair the lands under wilderness review. The other range improvement projects are not within the WSA.

Cultural Resources

Affected Environment

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

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

The Early Prehistoric period (roughly 10,000 – 5,700 B.C.) is characterized by a tool assemblage consisting of large, lanceolate and/or fluted spear points, and multipurpose tools made of stone or ivory. Subsistence strategies specialized in hunting megafauna but smaller game and plant foods were utilized as well. Typical site types include kill and butchering sites, open air camp sites, and limited activity sites.

The Middle Prehistoric period (roughly 5,000 B.C. – A.D. 400), is characterized by a shift in tool types from thrusting spears with lanceolate spear heads to spear throwers and darts with diagnostic spear points. Groundstone tools also begin to show up in the assemblages. Subsistence strategies shift from more specialized hunting of megafauna to a broader spectrum strategy which becomes focused on bison by the end of this period. Plant procurement and use also occurs. Evidence of storage in the form of storage pits begins to show up during this period as do large cooking pits. Site types typical of this period include kill and butcher sites, camp sites, and rock shelters. Stone circle sites are rare in this area.

The Late Prehistoric period (roughly A.D. 500 – 1800), is characterized by a technological shift from spear throwers and darts to bow and arrows. Tool assemblages consist of small side, corner, or tri-notched points. Some ceramics become evident in the record in limited number on the Northwest Plains at this time. Grooved mauls, bone fleshers, and shell

beads are common. Subsistence strategies continue to focus on bison procurement. Large communal bison kill/jump sites, rock shelters, wind breaks, and caves are the site types typically found in this area. Stone circle sites are rarer compared to northern areas.

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

Cultural sites can be considered significant for several reasons; some because information about the past can be learned through methodical study of the sites, while other sites communicate a sense of a particular time period they represent in history. Finally, sites can be considered to be important because of the current use or values associated with the location.

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

The cultural resource site database maintained by the Montana State Historic Preservation Office was reviewed on January 29, 2008. A printout from the database was compared to the Woodhawk planning area which shows land status. Archaeologists for the State of Montana and the BLM completed inventories primarily for road upgrades and for range developments (pipelines, wells, fences, reservoirs, tanks).

A total of twenty cultural sites have been formally documented within the watershed area on private land and land administered by the BLM. Additionally, the Nez Perce National Historic Trail and a Lewis & Clark campsite – part of the Lewis & Clark National Historic Trail – are present within the analysis area. The prehistoric sites include lithic scatter sites and fire hearths/roasting pits. The historic sites relate primarily to homesteading and early agriculture, and historic trash/dumps. Of the twenty sites, three have been identified as being eligible for listing on the National Register of Historic Places and two are ineligible. The fifteen sites identified as being unevaluated receive the same protection as those sites that are eligible, until such time as their eligibility can be determined.

The following table lists the total cultural resources identified within the watershed area.

Cultural Resources Identified within the Allotment				
	Eligible	***Ineligible***	***Unevaluated***	***Total***
Historic	2	2	3	7
Prehistoric	1	0	12	13
Total	3	2	15	20

Seventy-five percent of the sites within the analysis area have not had their eligibility determined. This is directly related to the types of projects with which the inventories were associated. For those sites discovered during the course of an inventory for a range development, an avoidance strategy was employed which generally involved relocating or rerouting the proposed range development. By moving the project, the site was no longer within the area of potential effect, removing the need to determine the site's eligibility. The historic sites documented along the river were recorded as part of an analysis of the suitability of the Missouri River's designation as a wild and scenic river. Follow-up documentation of the sites occurred as part of a thematic look at homesteading along the Missouri River.

Environmental Consequences

Alternative 1: No Action

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 the integrity of a site eligible for listing on the National Register of Historic Places. 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.

Cultural sites eligible for listing on the National Register of Historic Places would be identified for stabilization or mitigation of deterioration as time and funding allow. Site monitoring would continue, and eligibility determinations would be made as

undertakings are proposed in areas that contain cultural resources that have yet to be evaluated.

Alternatives 2-4

Effects from grazing practices would be the same as identified in Alternative 1. Season of use changes in other analysis areas in the Lewistown Field Office have not been shown to affect cultural resources.

Some minor beneficial impacts could result from management actions that reduce erosion. Proposed surface-disturbing activities, especially water developments at springs and other water sources could create negative impacts if mitigation were not incorporated into project designs. A file search and/or Class III cultural resource inventory would be conducted prior to all surface disturbance actions proposed in this watershed plan to determine the presence of historic properties within the proposed areas of potential effects. Possible benefits could include identification of additional resources during inventories.

As specific project designs are developed the number of sites that could potentially be affected is expected to decrease. Excavation associated with pipeline installation, and concentrated cattle impacts on prehistoric sites with stock tank placement have the greatest potential to affect sites. All of the proposed improvements that are new construction would be reviewed as described in the previous paragraph. If a conflict were to exist between the proposed action and the presence of cultural resources, mitigation measures would be factored into the project's design. Such measures could include complete documentation of the site to exhaust its information potential, evaluating the site and making a determination that the site is not eligible for inclusion on the National Register of Historic Places, avoiding the site through project redesign, or implementing protective measures to prevent impacts to the characteristics of the site that make the site eligible. Such measures could include installing fences or barriers to protect sites, placing mats or other pads to prevent erosion or soil compaction if a site needed to be crossed, or installing sections of jack-leg fence in areas where subsurface disturbance would be a concern. Proposed maintenance work at existing reservoirs would be reviewed if the construction of the reservoir predated the need to complete a cultural resource inventory. At this time the proposed fences and pipeline and tank developments have no known conflicts with documented sites. The proposed reservoir removal is in an area with a known prehistoric site, and also is near the Nez Perce National Historic Trail. The proposed removal should be monitored, particularly if ground disturbance is necessary outside of the area disturbed by the reservoir and its construction zone. The proposed cattle guard is in the vicinity of an unevaluated prehistoric site. That project would need to be reviewed to ensure that ground disturbance would not affect the integrity of the prehistoric site, if the site proves to be eligible for listing on the National Register.

Climate

Affected Environment

Ongoing scientific research has identified the potential impacts of anthropogenic "greenhouse gas" (GHG) emissions and their effects on global climatic conditions. These anthropogenic GHGs include carbon dioxide; methane; nitrous oxide; and several trace gases, as identified by the Intergovernmental Panel on Climate Change (IPCC). The general consensus is that as GHG emissions continue to rise, average global temperatures and sea levels will rise, precipitation patterns will change, and climatic trends will change and influence earth's natural resources in a variety of ways.

Montana's GHG emissions were recently updated and a forecast was made of expected emissions through 2020 (MDEQ 2007). The inventory indicates that Montana's electricity generation, heating needs, commerce, agriculture practices, and transportation needs accounted for 0.6% of the GHG emissions in the United States in 2005 or about 37 million metric tons of gross consumption-based carbon dioxide equivalent. The state's forests, cropland, and rangeland provide a vast terrestrial carbon sink that helps balance the state's emissions, however, a 14% increase in GHG emissions from 1990 to 2005 moved Montana from a net carbon sink to a net carbon emitter.

Environmental Consequences

Alternatives 1-4

Potential impacts to natural resources due to climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' ranges could potentially move north and due to the potential loss

of habitat, or from competition from other species whose ranges shift northward, the population of some animal species could change. While many existing climate prediction models are global or regional in nature, the lack of scientific tools designed to predict climate change on local scales limits the ability to project potential future impacts of climate change on the specific area for this project. It is not possible to predict with any certainty site-specific effects on climate change relative to the proposed action.

Cumulative Impacts

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

The construction and operation of upstream dams on the Missouri and Marias Rivers has had a dramatic impact on the historic flow regime on the Missouri River. The flood recurrence interval has increased, thereby decreasing the frequency of flood events which are necessary to support flood and disturbance-dependent riparian vegetation and native fishes along the Missouri River. These impacts would likely continue in the long term.

Livestock and other ungulate grazing has been occurring for many decades. Impacts to soils and vegetation will continue in the long term.

Chapter 4
Consultation and Coordination

During preparation of this environmental assessment (EA), the public was notified of the proposal by letter and a press release to the local media. A public meeting was held on April 30, 2008 to discuss the proposal, issues, and alternatives. A 30-day public comment period will follow release of a preliminary EA.

The following people, agencies and organizations were consulted:

- Grazing permittee and base property owner
- Attendees of a public meeting on April 30, 2008
- Woodhawk mailing list

List of Preparers

Name	***Title***	***Area of Responsibility***
Vinita Shea	Rangeland Management Specialist	Team Leader Vegetation and Grazing Management
Chad Krause	Hydrologist	Water Resources and Riparian
Jody Peters	Wildlife Biologist	Wildlife
Rod Sanders	Outdoor Recreation Planner	Recreation, WSA, and Wild and Scenic River
Kenny Keever	Natural Resource Specialist	Weeds
Zane Fulbright	Archeologist	Cultural Resources
Jerry Majerus	Planning and Environmental Coordinator	NEPA

Appendix A

Woodhawk Allotment (20031)
Riparian and Water Quality
Affected Environment/Allotment Evaluation

Riparian and Water Quality

A general description of the affected environment for riparian and watershed resources can be found in the Woodhawk Watershed Interdisciplinary Management Plan (BLM 1998b). The following discussion is directed towards evaluation of monitoring and inventory data collected in the Woodhawk Allotment since plan implementation.

Woodhawk Creek

Woodhawk Creek is an intermittent stream that flows for approximately 18.2 miles on BLM land within the Woodhawk Allotment. Runoff usually only occurs following snowmelt or intense precipitation events; however, water is stored for a long enough period to support obligate wetland plant species such as prairie cord grass, three-square bulrush, and alkali bulrush. The landscape through which Woodhawk Creek flows is entrenched, steep, and very erosive (see Figure 1. Woodhawk Creek).

Figure 1. Woodhawk Creek

In 2007, a stream channel reference site was installed following Harrelson and others (1994). The complete results can be found in the Woodhawk Study Files at the Lewistown Field Office. The results document what is evident in the above figure. Woodhawk Creek is a highly sinuous (Sinuosity=2.395) stream with a less than a 1.0% slope. Bankfull width-to-depth ratios on three channel cross-sections were 2.36, 2.66 and 3.93. Entrenchment ratios on the same three cross-sections were 2.91, 2.35, and 2.01. In this highly erosive landscape, channel evolution is probably fast. More than likely, Woodhawk Creek functions by deepening and widening during wet years and the channel narrows once the stream widens to the point that it is no longer capable of carrying its sediment load. Through dry years, vegetation is effective at capturing sediment and narrowing the channel during periods of low flow. Regardless of which channel type Woodhawk Creek is at any given time, the measured, physical characteristics above indicate that the presence and condition of riparian vegetation is an important component of stream stability and ensuing water quality on this stream.

In 1993, under contract with the BLM, the Montana Riparian Association (MRA) inventoried the lower 8.80 miles of Woodhawk Creek and evaluated riparian area function and health. Out of the 8.80 miles, 7.3 miles were functional at risk, and 1.50 miles were nonfunctional. In 2007, 18.19 miles of Woodhawk Creek were inventoried following USDI TR 1737-15 A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. Following changed management in the Woodhawk Allotment, improvement was made in riparian health on Woodhawk Creek as 14.02 miles were in proper functioning condition (PFC). On the other hand, 4.17 miles are still functional at risk (static trend) because of livestock grazing impacts. These impacts are largest within approximately plus/minus one mile of a small stock pond in the bottom of Woodhawk Creek. A map of the condition of Woodhawk Creek is shown below (see Figure 2. Woodhawk Creek PFC).

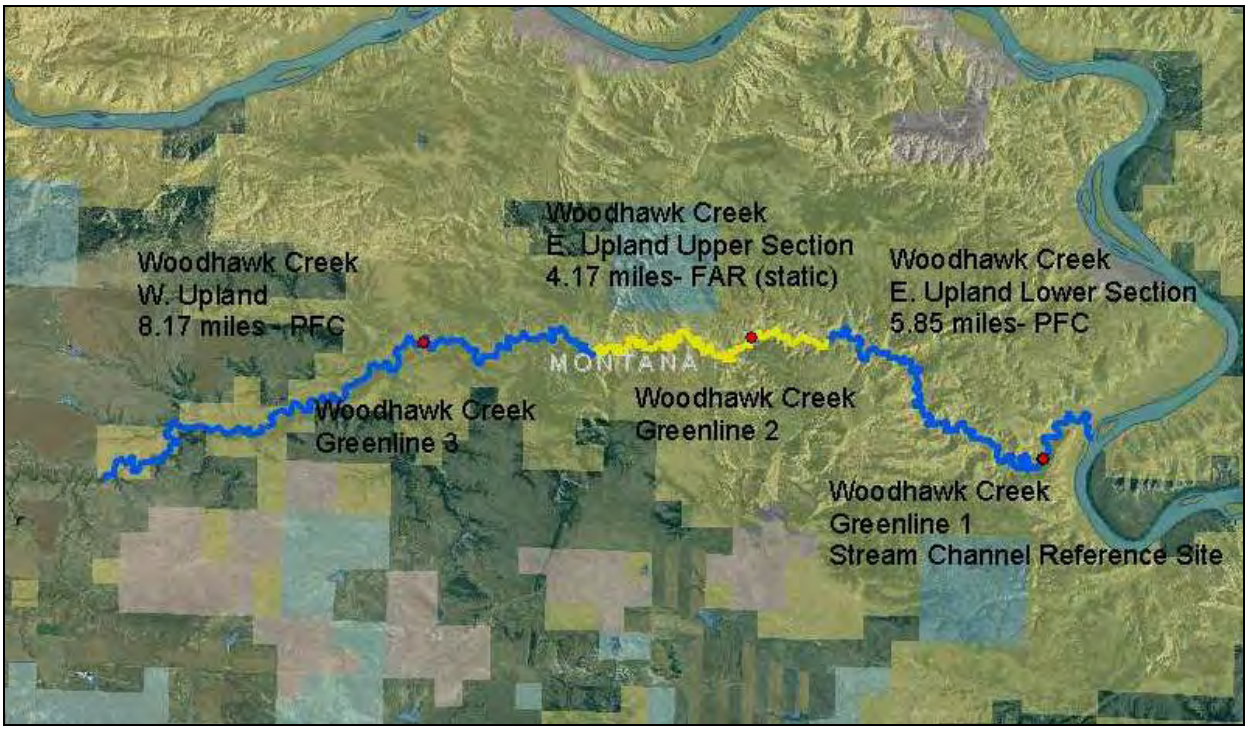

Figure 2. Woodhawk Creek PFC

Results of the PFC surveys indicate that the 4.17 miles that are functional at risk are primarily at risk because of a vegetation attribute and excessive levels of streambank alteration. The condition of the vegetation was poor enough that the reach was considered at risk to subsequent degradation. The reach of stream contained high percentages of bare ground and upland species, and point bars were revegetating with less than desirable vegetation such as foxtail barley, Canada thistle, curly cup gumweed, and cocklebur, all of which are disturbance increasers. Streambank alteration within this reach was 27%.

Three greenline transects were installed on Woodhawk Creek, and their locations are shown in Figure 2. The complete results can be found in the Woodhawk Study Files at the Lewistown Field Office. Using a modified Winward (2000) and techniques found in Monitoring Stream Channels and Riparian Vegetation-Multiple Indicators (Burton and others, 2007), greenline vegetation composition, greenline stability rating, and percent streambank alteration were all found.

On greenline transect 1, prairie cord grass and quack grass composed 56% of the dominant greenline vegetation. Percent streambank alteration was 14.9%, and greenline stability rating was 5.85 (moderate).

On greenline transect 2, alkali bulrush, anchored rock, prairie cord grass, and inland salt grass composed 61% of the dominant greenline vegetation. Percent streambank alteration was 26.8%, and greenline stability rating was 5.91 (moderate). The greenline stability rating for greenline transect 2 is deceiving. It has a higher stability rating than greenline transects 1 or 3 because it contained plant species and anchored rock with very high stability ratings; however, they composed smaller percentages of the greenline.

On greenline transect 3, prairie cord grass and three-square bulrush composed 42% of the dominant greenline vegetation. Percent streambank alteration was 11.4%, and greenline stability rating was 5.17 (moderate).

The greenline stability ratings and percent compositions listed above are somewhat misleading from on-the-ground conditions. Riparian-wetland plant species with streambank stability ratings higher than 6, such as alkali bulrush and three-square bulrush, are typically only found near pools that held water, which may only compile ten percent of the stream channel. Reaches between pools are capable of supporting drier riparian vegetation such as prairie cord grass, western wheat, and quack grass (all with stability ratings of 6). However, the fact that a high percentage of the streambanks are comprised of vegetation with a stability rating of 6 will always keep stability ratings lower than on streams where 100 percent of the streambank is capable of supporting obligate wetland plant species.

Woodhawk Creek is not listed in Montana Department of Environmental Quality's (MDEQ) 2006 Water Quality Database, but BLM's goal is to protect and improve water quality within Woodhawk Creek by focusing on the biological integrity because stream function/stability and ensuing water quality within Woodhawk Creek are strongly dependent on the presence and condition of riparian vegetation.

Missouri River

The BLM's goal is to not only improve and maintain riparian health on the Missouri River to proper functioning condition (PFC), but it is also to ensure the establishment and recruitment of cottonwood/ willow and other desirable woody species on sites capable of supporting such species. Within the Woodhawk allotment, the Missouri River flows through a unique geologic setting. The river is young and constrained within an entrenched valley. The stream length is nearly equal to the valley length leading to a very low sinuosity. These environmental circumstances do not create the conducive environment for woody species recruitment that broad meandering valleys do. However, according to Auble et al. (2005), exceptions to this pattern occur in less constrained areas such as back channels and islands and tributary junctions (see Figure 3. Woodhawk Bottoms).

Figure 3. Woodhawk Bottoms

The riparian bottoms on the Woodhawk allotment are a large success for the BLM in terms of resource improvement, but more work needs to be done. The last time the Missouri River was inventoried, all of the river reaches were functional at risk (static trend). In 2007, 18.28 miles of Missouri River were inventoried following USDI TR 1737-15 A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. Following changed management in the Woodhawk Allotment, improvement was made in riparian health on the Missouri River as 12.47 miles were in proper functioning condition (PFC) and 3.21 miles were functional at risk (upward trend). Because of livestock grazing, 2.60 miles were functional at risk (downward trend) (see Figure 4. Missouri River PFC).

The 3.21 miles in the N. River Pasture were rated as functional at risk (upward trend) by the interdisciplinary team because repeatable photos indicated that it is in better condition currently than it was in the early 1990's. However, there are issues that need to be addressed. On public land within the pasture, potential for preferred woody species recruitment is limited because of steep banks and vulnerability to ice scour, but there are small pockets capable of supporting preferred woody species. It was the opinion of the interdisciplinary team that the density, vigor, and recruitment into older age classes of willow species were being affected by livestock grazing.

For the most part, the W. Riparian Pasture, E. Riparian Pasture, and exclosure are in good vegetative condition. An exception occurs within the 2.60 miles on the backside of Cow Island down to the top of the exclosure. Livestock use in this area has been heavy and lead to intense utilization of cottonwood/willow species, highly altered streambanks, and increases in the percentage of disturbance increaser plant species and noxious weeds.

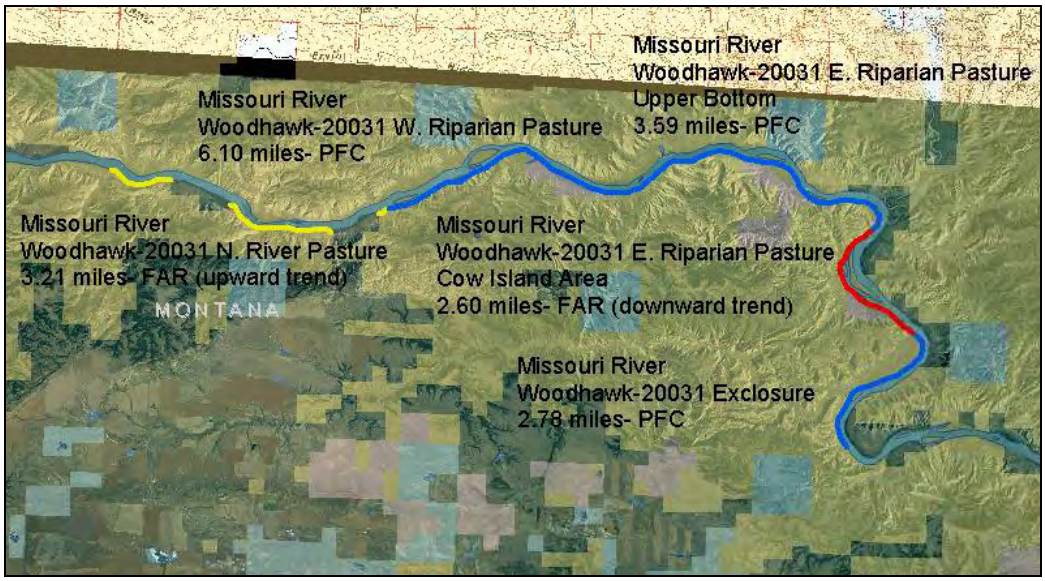

Figure 4. Missouri River PFC

The BLM and United States Geological Survey (USGS) have three permanent monitoring sites with 3 transects each within the Woodhawk allotment. At these sites, complete census of woody species and age class are recorded in relation to inundating discharge. Vegetation sampling, stage discharge, and cross-section surveying are completed each year. The BLM also monitors 20 polygons that were delineated in Hansen's Inventory, Classification, and Management of Riparian Sites Along the Upper Missouri National Wild and Scenic River. Seven of these sites were identified as key areas in the original Woodhawk Plan with specific monitoring objectives.

Although canopy cover values are ocular estimates rather than measurements, this method has value to the BLM in that it has been in use since 1990, which has created large, long-running data sets, and that it is a relatively fast method, allowing staff to look at lots of areas through the river.

The seven key areas are polygon numbers 2112, 2167, 2245, 2330, 2369, 2396, and 2400. Polygon 2112 replaced 2101 because polygon 2101 is actually in the allotment upstream of the Woodhawk allotment. Their locations are shown below (see Figure 5. Woodhawk Missouri River Key Areas).

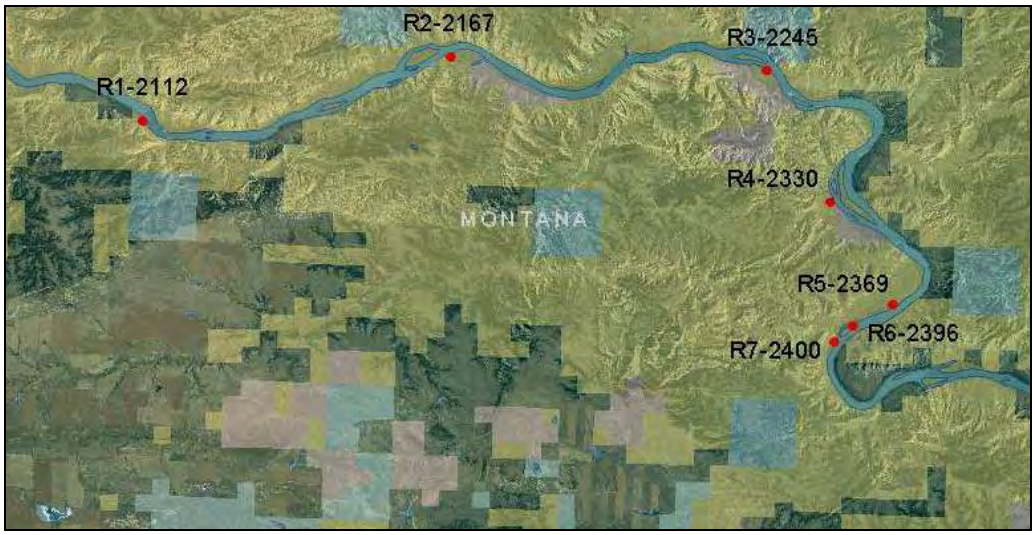

Figure 5. Woodhawk Missouri River Key Areas

Both the USGS monitoring and the MRA polygons indicate an increase in canopy cover and age class of preferred woody species within the Woodhawk allotment. Nevertheless, not all specific objectives in terms of canopy cover from the original Woodhawk Plan were met. This may be because of livestock grazing, ice, or an inaccurate estimate of canopy cover potential within a specified time frame. For example, R5, R6, and R7 are within a long-term exclosure, and they did not reach canopy cover objectives. The BLM has a sense of the areas where livestock are impacting recruitment of cottonwood/willow, and they are the 3.21 miles of Missouri River that includes the N. River Pasture and the 2.60 miles behind Cow Island.

One noteworthy item is the understory condition in the Woodhawk Bottoms area. Kudray et al. (2004) sampled 154 plots along the Wild and Scenic River and developed indices that address native species diversity and structural complexity. A combined rank was assigned to each plot, and the 25% with the highest combined rank were identified. Two plots within the highest 25% are located within Woodhawk Bottoms. Preserving the Woodhawk Bottoms exclosure is an important component of conserving this important habitat.

The Missouri River from Bullwhacker Creek to Fort Peck Reservoir is listed as water quality impaired in MDEQ's 2006 Water Quality Database. One of the probable causes/sources is alteration in streamside or littoral vegetative cover/grazing in riparian shoreline zones. The BLM plans to address the water quality concerns by working on the parameter that we have the most direct control over which is the condition of the streamside vegetation. By keeping our healthy riparian areas healthy and improving our degraded ones, the BLM hopes to decrease the amount of pollutants (sediment, fecal coliform, nitrates, etc.) entering the water body.

Goals and Objectives

Quantitative riparian and water quality objectives were developed for the Woodhawk allotment using the SMART acronym. Objectives should be (s)pecific, (m)easurable, (a)ttainable, (r)esults oriented, and (t)ime sensitive.

Riparian

Woodhawk Creek

Goal: The BLM's goal is to improve and maintain riparian health on Woodhawk Creek to proper functioning condition (PFC) or above in order to protect stream/riparian function and water quality.

Broad Objective: The broad objective is to maintain the 14.02 miles of Woodhawk Creek currently in PFC at or above PFC and to improve the 4.17 miles of Woodhawk Creek currently functional at risk (static trend) to PFC or above.

Quantitative Objectives:

-Maintain the percent composition of plants with a stability rating of 6 or better above 80% on greenline transect 1 by 2012.

-Increase the percent composition of plants with a stability rating of 6 or better from the current 57% to 70% on greenline transect 2 by 2012 and increase the percent composition to 80% by 2017.

-Increase the percent composition of plants with a stability rating of 6 or better from the current 60% to 70% on greenline transect 3 by 2012 and increase the percent composition to 80% by 2017.

Indicator: Greenline transects will be used to determine if objectives are being met.

Use Guidelines: Utilization of key riparian grasses would be limited to an average 4" stubble height.

Rationale for Selecting the Monitoring Objective and Use Guidelines: The 4" stubble height requirement is not an objective, but rather it is an indicator of impending resource damage and a trigger for movement of livestock. The permittee should be responsible for realizing when stubble height levels may be met and moving livestock before resource damage occurs.

Based upon the PFC assessments of Woodhawk Creek, it was determined that it was a vegetation attribute and streambank alteration that was contributing to the reach being at risk. Therefore, the monitoring objective at greenline transects 1, 2, and 3 was based upon a measurable quantitative method to monitor trend in vegetative condition along Woodhawk Creek.

Missouri River

Goal: The BLM's goal is to not only improve and maintain riparian health on the Missouri River to proper functioning condition (PFC) or above, but it is also to ensure the establishment and recruitment of cottonwood/willow and other desirable woody species on sites capable of supporting such species.

Broad Objective: The broad objective is to maintain the 12.47 miles of Missouri River currently in PFC at or above PFC and to improve the 5.81 miles of Missouri River currently functional at risk to PFC or above. Second, with the exception of a large ice or flood event occurring, the objective is to increase the canopy cover class of mature willow and sapling or older cottonwood at MRA polygons 2112, 2167, 2245, 2330, 2369, 2396, and 2400.

Quantitative Objectives:

-R1-2112-Increase the canopy cover of preferred woody species (sandbar, yellow, and peachleaf willow, or plains cottonwood) in polygon 2112 from the current canopy cover of (20 to 30%) to 40% by 2012. Increase the canopy cover of sapling plains cottonwood from 0% to (1 to 5%), and increase the canopy cover of sapling/mature willow species from 0% to (1 to 5%) by 2012.

-R2-2167-Increase the canopy cover of preferred woody species (sandbar, yellow, and peachleaf willow, or plains cottonwood) in polygon 2167 from the current canopy cover of (15 to 35%) to 40% by 2012. Increase the canopy cover of sapling plains cottonwood from 0% to trace, and increase the canopy cover of sapling/mature willow species from (5 to 15%) to 20% by 2012.

-R3-2245-Increase the canopy cover of preferred woody species (sandbar, yellow, and peachleaf willow, or plains cottonwood) in polygon 2245 from the current canopy cover of (1 to 10%) to 15% by 2012. Increase the canopy cover of sapling plains cottonwood from 0% to trace, and increase the canopy cover of sapling/mature willow species from (1 to 5%) to 10% by 2012.

-R4-2330-Increase the canopy cover of sapling plains cottonwood in polygon 2330 from 0% to (1 to 5%) by 2012. Increase the canopy cover of sapling/mature sandbar willow from (15 to 25%) to 30% by 2012.

-R5-2369-Increase the canopy cover of pole plains cottonwood saplings in polygon 2369 from (1 to 5%) to 10% by 2012. Increase the canopy cover of mature sandbar willow from 0% to 10% by 2012.

-R6-2396-Increase the canopy cover of sapling/pole plains cottonwood in polygon 2396 from trace to (1 to 5%) by 2012. Increase the canopy cover of mature sandbar willow from 0 to 15% by 2012.

-R7-2400-Increase the canopy cover of pole plains cottonwood in polygon 2400 from 0 to (1 to 5%) by 2012. Increase the canopy cover of mature sandbar willow from 0 to (1 to 5%) by 2012.

Indicator: The UMNWSR monitoring form will be used to track condition of riparian vegetation along the Missouri River.

Use Guidelines: Utilization of key, palatable, woody species such as Salix spp. (willows) and Populus spp. (cottonwoods) would be limited to light-to-moderate browsing as described in "Browse Evaluation By Analysis of Growth Form, Volume 1, Methods for Evaluating Condition and Trend" (Keigley and Frisina, 1998).

Utilization of key riparian grasses would be limited to an average 4" stubble height.

Rationale for Selecting the Monitoring Objective and Use Guidelines: The fore mentioned polygons were delineated by cover type during the inventory of the Upper Missouri River by the Montana Riparian Association. The idea is to track woody species establishment, recruitment, and/or mortality through time within a polygon. Although canopy cover values are ocular estimates rather than measurements, this method has value to the BLM in that is has been in use since 1990, which has created large, long-running data sets, and that it is relatively fast, allowing staff to look at lots of areas throughout the river.

Ocular estimates are gathered regarding tree species canopy cover class and age groups, shrub species canopy cover class and age groups, utilization of key woody species, noxious weeds, percent of polygon displaying pugging, and percent of polygon displaying ice/water scour. Qualitative information is gathered regarding disturbance of woody species, sediment deposition, livestock grazing, function evaluation, narrative comments, and a sketch of the polygon.

The BLM acknowledges the limitations with this methodology and that the objectives are bracketed

estimates of canopy coverage (i.e. 15% to 25%) and not quantitative measurements.

The BLM and USGS will continue to monitor the three permanent sites (9 transects) within the Woodhawk allotment. Vegetation sampling, stage/discharge relationship, and cross-section surveying will continue at these sites. Given staff and budget constraints though, this is an unreasonable method to use at multiple sites on the river.

The utilization of preferred woody species and key riparian grasses are not objectives, but rather they are indicators of impending resource damage and triggers for movement of livestock. If intense browse levels are noted on preferred woody species or the 4" stubble height requirement is met, it is time for livestock to be moved. The browse level on preferred woody species needs to be looked at where there are enough plants to conduct a browse survey. Widely spaced, individual plants are not appropriate.

Water Quality

Woodhawk Creek

Goal: The BLM's goal is to protect and improve water quality within Woodhawk Creek by focusing on the biological integrity because stream function/stability and ensuing water quality within Woodhawk Creek are strongly dependent on the presence and condition of riparian vegetation.

Broad Objectives: The broad objective is to maintain the 14.02 miles of Woodhawk Creek currently in PFC at or above PFC and to improve the 4.17 miles of Woodhawk Creek currently functional at risk (static trend) to PFC or above.

Quantitative Objectives:

-Increase the greenline stability rating at greenline transect 1 from 5.85 to 6 or above by 2012.

-Increase the greenline stability rating at greenline transect 2 from 5.91 to 6 or above by 2012.

-Increase the greenline stability rating at greenline transect 3 from 5.17 to 6 or above by 2012.

Indicator: Greenline transects will be used to determine if objectives are being met.

Use Guidelines: Maximum allowable streambank alteration will be 20%.

Rationale for Selecting the Monitoring Objective and Use Guidelines: Given the stream type that Woodhawk Creek is and the landscape through which it flows, water quality is strongly dependent on the presence and condition of riparian vegetation. By attaining all areas of Woodhawk Creek being in PFC and good condition of riparian vegetation being present in the riparian zone, it implies that cows are spending an appropriate length of time in the riparian area and that adequate buffer strips of vegetation exist to trap and filter sediment and decrease the amount of fecal coliform and nitrates entering the water body. Therefore, a monitoring objective was chosen to quantitatively track the stability rating of vegetation along Woodhawk Creek. The stability rating rates its ability to buffer the forces of moving water. By providing adequate vegetation, the BLM hopes to decrease erosion and subsequent sediment yield into the stream.

Streambank alteration is not a monitoring objective, but rather it is an indicator of impending resource damage. Woodhawk Creek has a slope between 0.5 and 2.0% and has a significant portion of non-consolidated silts, clays, and sands. Therefore, it falls into riparian capability group IV in Winward's Monitoring the Vegetation Resources in Riparian Areas. Eighty-five percent of the greenline in Group IV should be represented by late seral community types or anchored rock when functioning properly. Since Woodhawk Creek is a resource level II stream, which means that it is not inhabited by any known endangered or sensitive species, an alteration factor of 0.80 percent of the potentially stable stream banks remaining unaltered should be adequate to meet objectives (Cowley, 2002). The allowable alteration comes from the following calculation: (85-(85*.80))=17%. The 17% was rounded to 20% because streambank alteration is difficult to measure to that level of accuracy.

Missouri River

Goal: The BLM's goal is to address the water quality concerns on the Missouri River, primarily where the BLM's permitted activities may be impacting water quality. The Missouri River from Bullwhacker Creek to Fort Peck Reservoir is listed as water quality impaired by the State of Montana, and one of the probable causes/sources is alteration in streamside or littoral vegetative covers/grazing in riparian shoreline zones.

Broad Objective: The broad objective is to maintain the 12.47 miles of Missouri River currently in PFC at or above PFC and to improve the 5.81 miles of

Missouri River currently functional at risk to PFC or above. This implies that Best Management Practices for livestock grazing are being followed and that adequate buffer strips of vegetation exist to trap and filter sediment and decrease the amount of fecal coliform and nitrates entering the water body.

Quantitative Objectives: See riparian objectives for Missouri River.

Indicator: The PFC assessment methodology will be used as a first tier approach to evaluating the riparian area grazing and its contributions to nonpoint source pollution.

Use Guidelines: Utilization of key, palatable, woody species such as Salix spp. (willows) and Populus spp. (cottonwoods) would be limited to light-to-moderate browsing as described in "Browse Evaluation By Analysis of Growth Form, Volume 1, Methods for Evaluating Condition and Trend" (Keigley and Frisina, 1998).

Utilization of key riparian grasses would be limited to an average 4" stubble height.

Rationale for Selecting the Monitoring Objective and Use Guidelines: The Missouri River is a large river with many sources and contributors of pollutants. The BLM plans to address the parameters that we have the most control over, which is the condition of streamside vegetation. Not that BLM-permitted activities are not contributing pollutants and affecting other water quality parameters, but it would be difficult to distinguish pollutants from BLM-permitted activities from the many, many other sources of pollutants on the Missouri River. The BLM is assuming that by protecting our healthy riparian areas and generating improving trends in degraded areas, we are limiting the amount of pollutants (sediment, fecal coliform, nitrates, etc.) entering the water body.

The BLM is considering PFC to be an acceptable level of impacts and an evaluation technique for identifying areas of nonpoint source pollution. This is supported by the Montana Nonpoint Source Management Plan developed by Montana Department of Environmental Quality. MDEQ's goal for sustainable range land management is to support the long term ecological health of grazing resources and meet water body beneficial uses. Their objective 6.1 is to "support PFC, as a first tier assessment approach for riparian grazing management and monitoring, on private, state, and federal riparian areas in Montana.

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Appendix B

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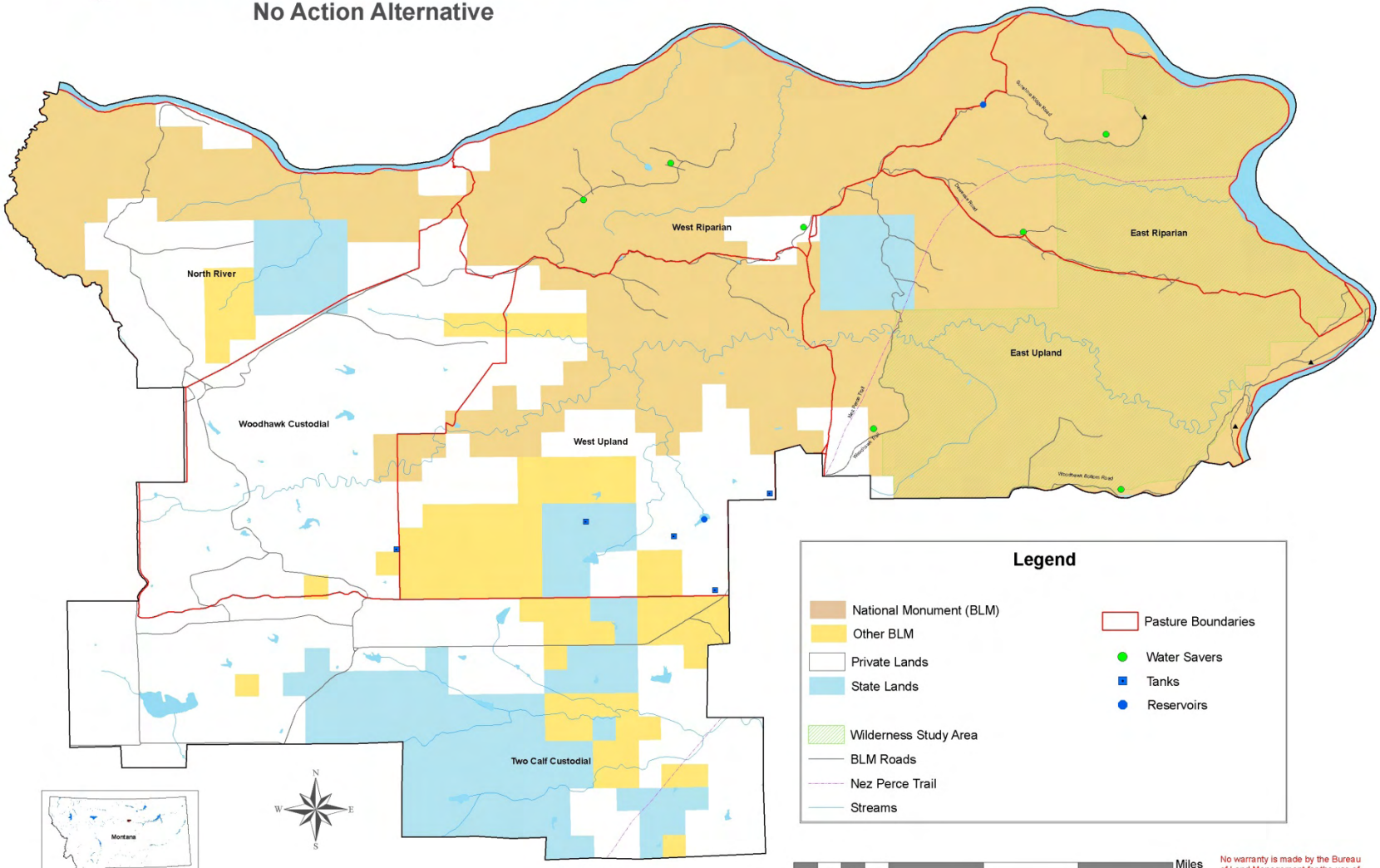
Woodhawk Allotment 2008

No Action Alternative

Map #1



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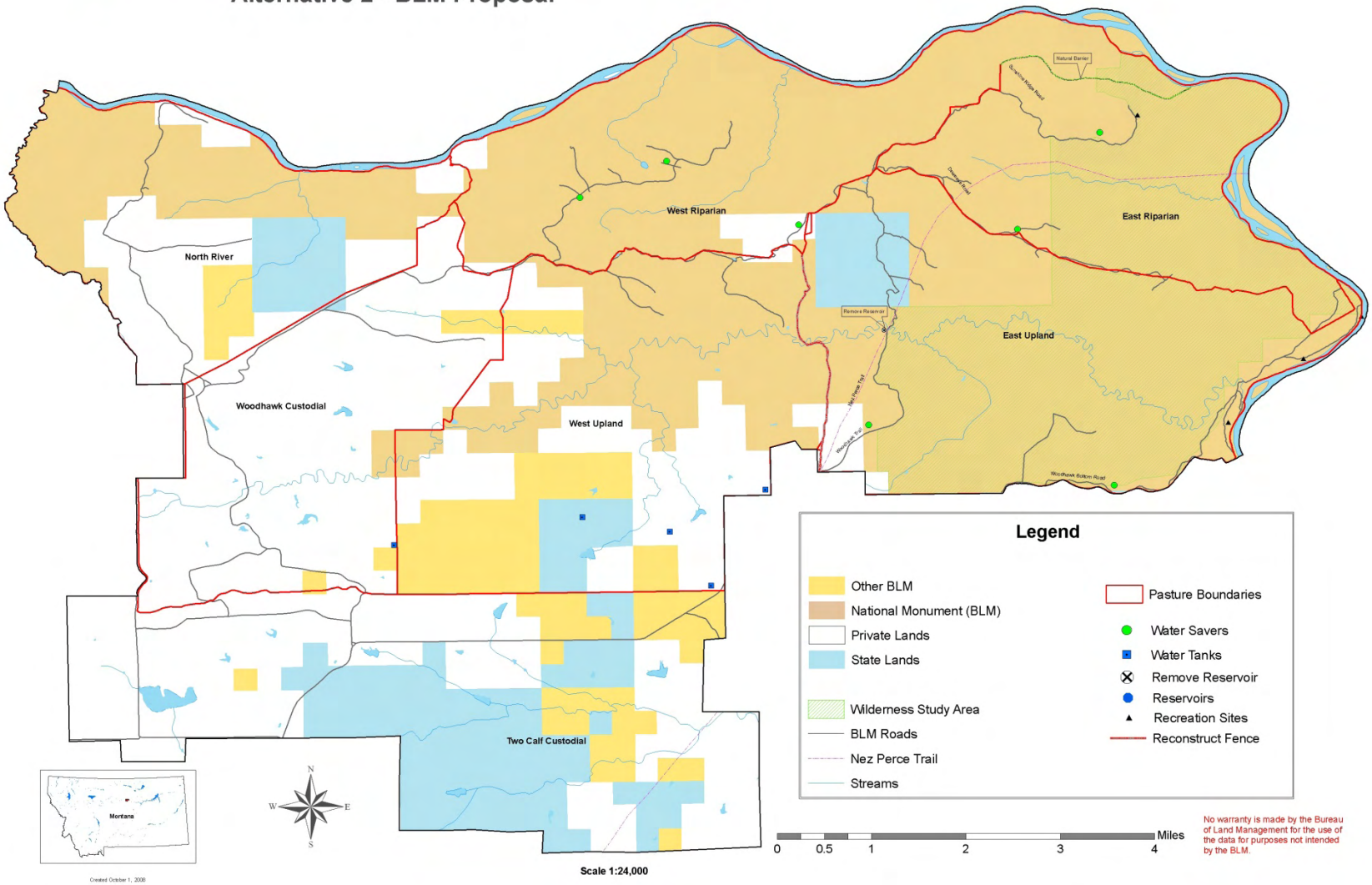
Woodhawk Allotment 2008

Alternative 2 - BLM Proposal

Map #2



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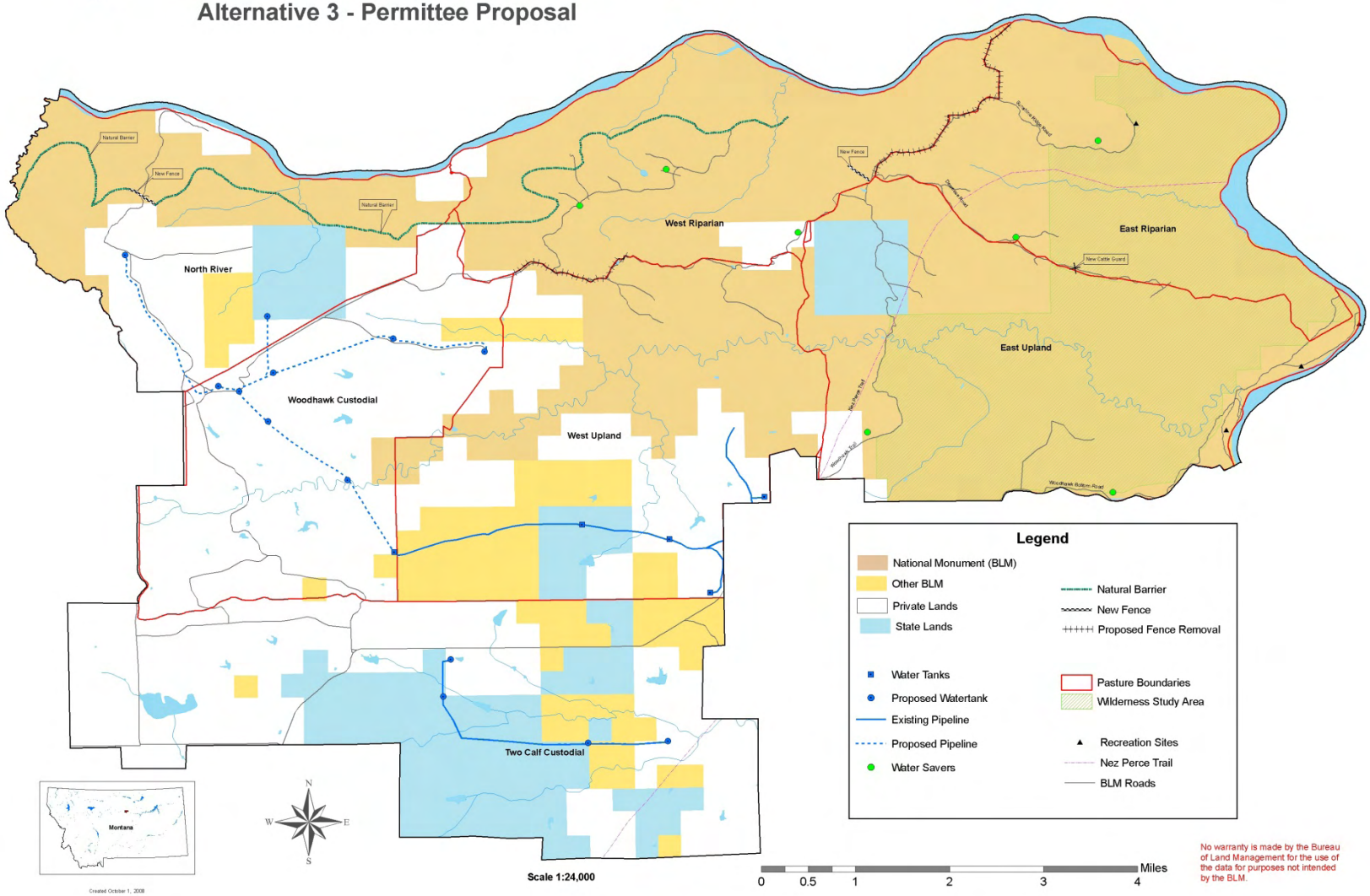
Woodhawk Allotment 2008

Alternative 3 - Permittee Proposal

Map #3



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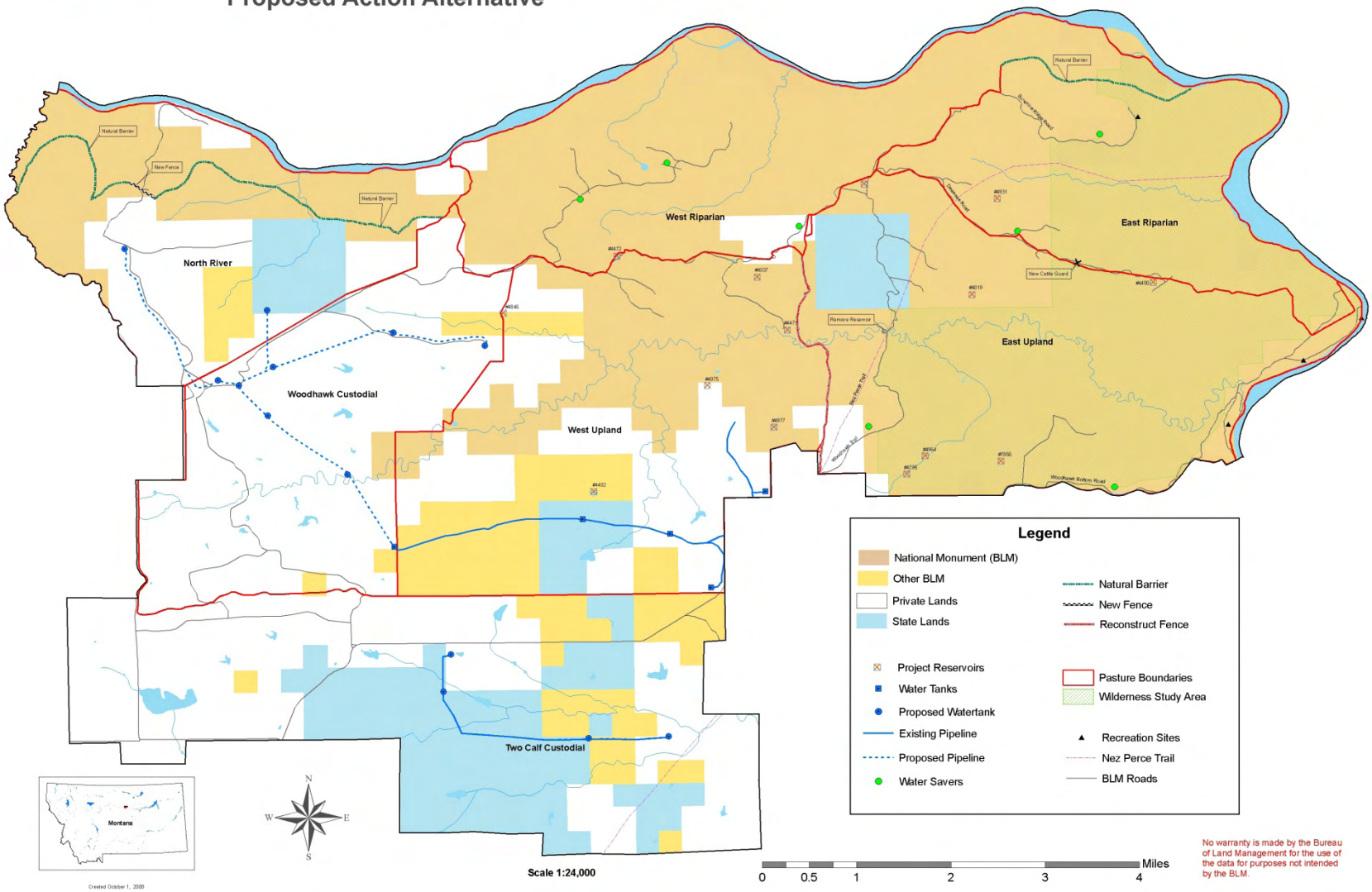
Woodhawk Allotment 2008

Proposed Action Alternative

Map #4



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