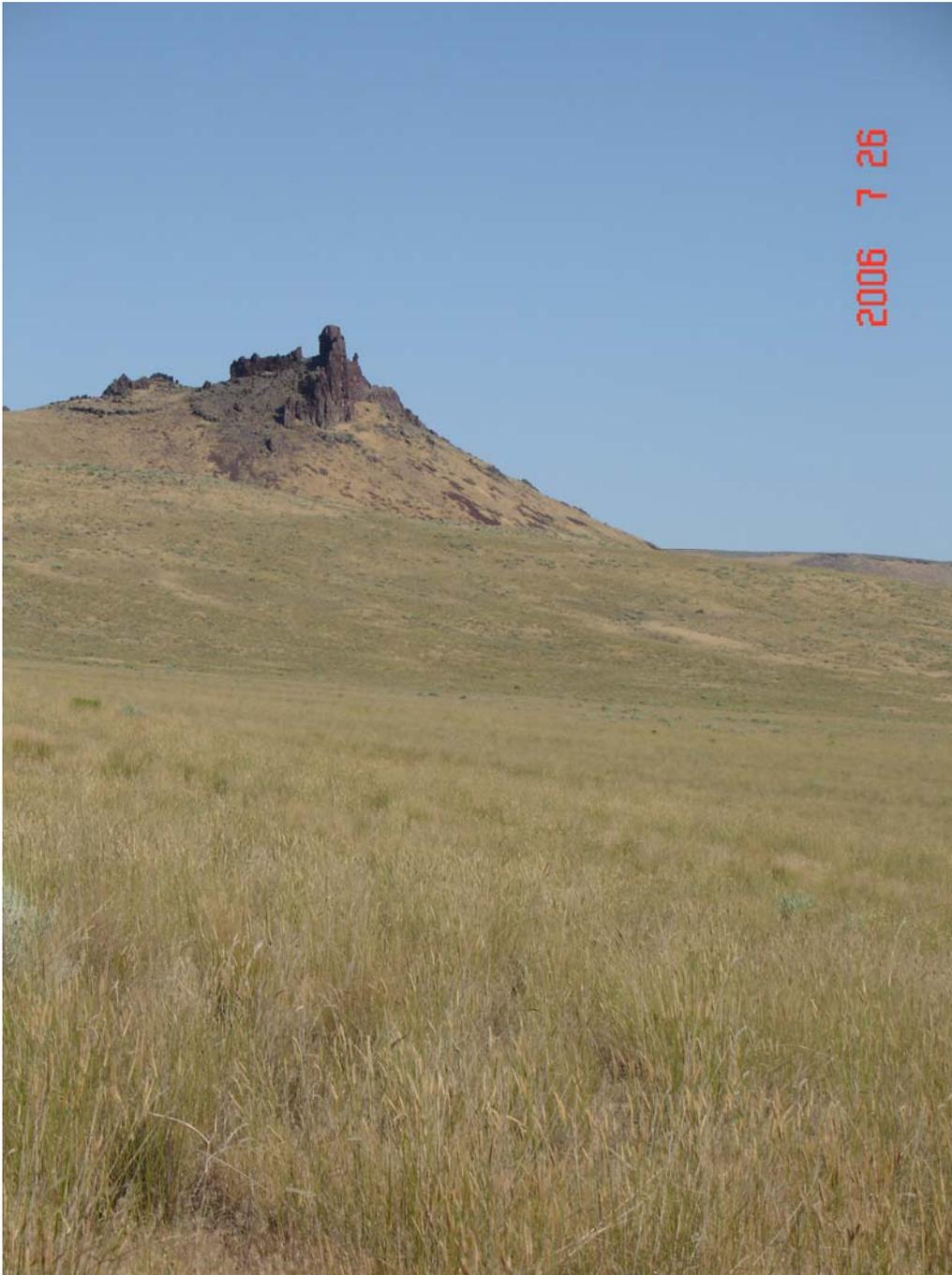


**Dry Creek  
Geographic Management Area  
Evaluation/Assessment  
Malheur Resource Area  
Vale District**



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# **Dry Creek Geographic Management Area Assessment/Evaluation**

## **Introduction**

Periodic evaluation of management actions implemented was identified in the management framework of the Southeastern Oregon Resource Management Plan (SEORMP) and Record of Decision (ROD) (September 2002), the land use planning document for all public lands within Malheur Resource Area (MRA) of the Vale Bureau of Land Management (BLM) District. Fine scale assessments and evaluations occur at the geographic management area scale. Based on recommendations from these assessments and evaluations, existing activity plans are revised/rewritten or new plans are developed and implemented to ensure consistency with all land use plan objectives.

A ten year schedule for initiation of evaluations/assessments within GMAs of MRA was established in 1996 and coordinated with interested publics in a mailing with wide distribution. That schedule was restated in the SEORMP.

## **Description of Dry Creek Geographic Management Area**

Dry Creek Geographic Management Area (GMA) is the third of nine geographic management acres in Malheur Resource Area for which management actions defined in activity plans and other authorized activities will be evaluated to identify conformance with the current land use plan and compliance with its management objectives. At the same time, compliance with Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the BLM in the States of Oregon and Washington will be assessed. Dry Creek GMA includes eight grazing allotments and 379,128 acres of public domain lands. Two of the eight grazing allotments, Chalk Butte and Mitchell Butte allotments, include significant private land and are managed custodially, without livestock numbers or seasons of authorized use defined, so long as damage to public land resources does not occur. The remaining six allotments, Nyssa, Wallrock, Dry Creek, Sourdough, Keeney Creek, and Butte allotments, are managed as “improve” or “maintain” category allotments with terms and conditions of permits defining livestock numbers and seasons of use authorized. Map 1 identifies the location of the eight allotments in Dry Creek GMA.

## **Management Objectives**

Management objectives for upland vegetation communities in pastures of Dry Creek Geographic Management Area were established in 1984, with decisions of the Southern Malheur Rangeland Program Summary (RPS). Following completion of the RPS, allotment management plans (AMPs) were developed and implemented for Butte Allotment (1985), Wallrock Allotment (1990), Nyssa Allotment (1984, revised in 1999), and Freezeout Allotment (1984, revised in 1989). Freezeout Allotment was divided in 2002 to create Sourdough and Dry Creek allotments. The 1989 Freezeout AMP continues to be incorporated as a term of grazing permits in Sourdough Allotment, while Dry Creek AMP was implemented in 2002. Management objectives were restated and/or

refined in the AMPs developed since 1984, while remaining allotments in Dry Creek GMA have the RPS objectives carried forward and have been managed with permit terms and conditions other than an allotment management plan. Ecological and seeding condition determinations for pastures in Dry Creek GMA and management objectives identified in the RMP and subsequent decisions are presented in Table 1.

Table 1: Dry Creek GMA pasture management objectives carried forward from the Southern Malheur Rangeland Program Summary<sup>1</sup>, allotment management plans<sup>2</sup>, and other sources<sup>3</sup> into the Southeastern Oregon Resource Management Plan

Allotment	Pasture	Condition	Primary Objective
Chalk Butte (10128)	All pastures	<sup>1</sup> unknown	<sup>1</sup> Improve ecological condition
Butte (00308)	North Racehorse	<sup>1</sup> Middle Native <sup>2</sup> Early Native	<sup>1,2</sup> Improve ecological condition
	South Racehorse	<sup>1</sup> Middle Native <sup>2</sup> Early Native	<sup>1,2</sup> Improve ecological condition <sup>2</sup> Improve riparian habitat for wildlife
	North Butte	<sup>1</sup> Middle Native <sup>2</sup> Late Native	<sup>1</sup> Improve ecological condition <sup>2</sup> Maintain ecological condition
	Middle Butte	<sup>1</sup> Middle Native <sup>2</sup> Late Native	<sup>1</sup> Improve ecological condition <sup>2</sup> Maintain ecological condition
	South Butte	<sup>1,2</sup> Late Native	<sup>1</sup> Improve ecological condition <sup>2</sup> Maintain ecological condition
Wallrock (00405)	Dry Creek Buttes	<sup>1</sup> Middle Native <sup>2</sup> Late Native	<sup>1</sup> Improve ecological condition <sup>2</sup> Maintain ecological condition
	West Juniper	<sup>1,2</sup> Middle Native	<sup>1</sup> Maintain/improve deer/antelope winter range <sup>2</sup> Improve ecological condition for pronghorn
	Schaeffer	<sup>1,2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition
	North McNulty	<sup>1</sup> Early Native <sup>2</sup> Middle Native	<sup>1</sup> Maintain/improve deer/antelope winter range <sup>2</sup> Improve ecological condition for pronghorn
	Hub	<sup>1,2</sup> Middle Native	<sup>1,2</sup> Improve ecological condition
	Antelope Flat Seeding	<sup>1</sup> Fair Seeding <sup>2</sup> Late Native	<sup>1</sup> Maintain/improve deer/antelope winter range <sup>2</sup> Maintain ecological condition <sup>2</sup> Improve seeding condition
Keeney Creek (10401)	Callahan	<sup>1</sup> Late Native	<sup>1</sup> Maintain/improve deer/antelope winter range
	Little Valley Seeding	<sup>1</sup> Excellent Seeding	<sup>1</sup> Maintain Seeding Condition
	Winter Spring Seeding North	<sup>1</sup> Excellent Seeding	<sup>1</sup> Maintain/improve deer/antelope winter range
	Winter Spring Seeding South	<sup>1</sup> Excellent Seeding	<sup>1</sup> Maintain/improve deer/antelope winter range
	Hunter	<sup>1</sup> Late Native	<sup>1</sup> Maintain ecological condition
	East Hunter	<sup>1</sup> Late Native	<sup>1</sup> Maintain ecological condition
	Freezeout	<sup>1</sup> Late Native	<sup>1</sup> Maintain/improve deer/antelope winter range
	Drip Spring	<sup>1</sup> Middle Native	<sup>1</sup> Improve ecological condition
	Chukar	<sup>1</sup> Late Native	<sup>1</sup> Improve ecological condition
	Keeney Creek Riparian	<sup>1</sup> Late Native	<sup>1</sup> Maintain Ecological condition <sup>3</sup> Improve riparian habitat
	Quicksand	<sup>1</sup> Late Native	<sup>1</sup> Maintain/improve deer/antelope winter range
Nyssa (10403)	North Mud Spring	<sup>1</sup> Excellent Seeding <sup>2</sup> Good Seeding	<sup>1,2</sup> Maintain seeding condition <sup>2</sup> Maintain ecological condition

Allotment	Pasture	Condition	Primary Objective
	South Mud Spring	<sup>1</sup> Excellent Seeding <sup>1</sup> Good Seeding	<sup>1,2</sup> Maintain seeding condition <sup>2</sup> Maintain ecological condition
	North Rock Creek	<sup>1</sup> Middle Native <sup>2</sup> Early Native	<sup>1,2</sup> Improve ecological condition, <sup>2</sup> Improve riparian habitat
	Sagebrush	<sup>1,2</sup> Middle Native	<sup>1,2</sup> Improve ecological condition
	Ryefield Seeding	<sup>1</sup> Excellent Native <sup>2</sup> Good Seeding	<sup>1</sup> Maintain/improve deer/antelope winter range <sup>2</sup> Maintain seeding condition
	Grassy Mountain Seeding	<sup>1</sup> Excellent Native <sup>2</sup> Good Seeding	<sup>1,2</sup> Maintain ecological condition <sup>2</sup> Maintain seeding condition
	Grassy Mountain	<sup>1,2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition
	South Rock Creek	<sup>1</sup> Middle Native <sup>2</sup> Early Native	<sup>1,2</sup> Improve ecological condition, <sup>2</sup> Improve riparian habitat
	Schweizer FFR	<sup>1</sup> Unknown	<sup>1,2</sup> Improve ecological condition
	Rock Creek Riparian Stream Exclosure (Owyhee River)	<sup>1</sup> Late Native	<sup>1,2</sup> Maintain ecological condition <sup>2</sup> Improve riparian conditions
Sourdough (10404)	Sand Hollow Seeding	<sup>1</sup> Good Seeding <sup>2</sup> Late Native	<sup>1</sup> Maintain/improve deer/antelope winter range <sup>2</sup> Maintain ecological condition
	West Sand Hollow Seeding	<sup>1</sup> Good Seeding <sup>2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition
	Double Mountain Seeding	<sup>1,2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition
	Canyon	<sup>1,2</sup> Middle Native	<sup>1,2</sup> Improve ecological condition
	North Kane Spring	<sup>1,2</sup> Middle Native	<sup>1,2</sup> Improve ecological condition
	South Kane Spring	<sup>1,2</sup> Middle Native	<sup>1,2</sup> Improve ecological condition
	Freezeout Lake	<sup>1,2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition
Mitchell Butte (10408)	All pastures	<sup>1</sup> Middle Native	<sup>1</sup> Improve ecological condition <sup>1</sup> Improve riparian habitat
Dry Creek (10411)	Cow Hollow Seeding	<sup>1,2</sup> Good Seeding	<sup>1</sup> Maintain ecological condition <sup>2</sup> Maintain seeding condition and productivity
	Double Mountain	<sup>1,2</sup> Middle Native <sup>2</sup> Goods Seeding	<sup>1,2</sup> Improve ecological condition
	South Freezeout	<sup>1</sup> Late Native <sup>2</sup> Middle Native	<sup>1</sup> Maintain ecological condition <sup>2</sup> Improve ecological condition
	Hurley Spring	<sup>1,2</sup> Late Native	<sup>1,2</sup> Maintain ecological condition

Vegetation condition classification, as completed during the OASIS inventories in the late 1970's for public lands included in Dry Creek GMA, is based on the similarity of inventoried vegetation composition to the potential natural community for the site in equilibrium with the environment, soils, climate, topography and other landscape characteristics of the site. Rangeland can be described as being in "potential natural condition", "late", "middle", or "early", depending on how closely the inventoried composition and production of the vegetation on a site resembles the potential vegetation defined for the site. For native pastures, the condition class designated in Table 1 is the ecological condition class representing the majority of the pasture. Similar classifications for areas seeded to nonnative species have been implemented to identify how closely the current composition of the seeding vegetation is to potential for the site, including the seeded species as a substitute for native species. The condition of pastures seeded to

introduced nonnative species such as crested wheatgrass were designated “excellent,” “good,” “fair,” or “poor” in the Southern Malheur RPS.

Management objectives to improve ecological condition stated in the RPS and AMPs are based on the Clemensian model of secondary succession within arid lands. These objectives may not be realistic as interpreted by more recent state and transition models of vegetation succession, especially within some of the altered vegetation communities which include nonnative annual species. As a result, management objectives to improve ecological condition in some pastures of Dry Creek GMA may need to be considered in light of current thinking and modified as appropriate. A brief description of these two models of vegetation succession is presented in Appendix A.

## **Monitoring, Evaluation, and Resource Information**

Evaluation/assessment within “intensive” managed allotments was scheduled every five years, whereas evaluation/assessment within “maintain” managed allotments was scheduled every ten year, prior to the introduction of the evaluation/ assessment and associated determination of meeting standards for rangeland health (43 CFR 4180) within geographic management areas. This schedule for allotment evaluations was shifted in March 1999 with the mailing of a letter to livestock operators and other interested publics outlining a ten-year process for implementing the Standards for Rangeland Health and Guidelines for Grazing Management for Oregon and Washington.

Changes in authorized uses within grazing allotments may be made periodically as supported by monitoring over time in accordance with procedures identified in regulation (43 CFR § 4110.3 and 43 CFR § 4180). BLM data and monitoring used to provide information for the evaluation/assessment for Dry Creek GMA includes livestock use records, utilization, climatic data, upland vegetation trend, riparian data, wildlife habitat information, special status fish and aquatic species information, weeds data, recreation use information, special management designation information, land tenure, and rangeland health assessments.

### ***Livestock Actual Use***

Actual use records by pasture are kept by the operators on forms furnished by BLM. These records are submitted to BLM within 15 days of the close of the authorized grazing season. Data are used in the calculation of average annual carrying capacity and for the computation of billings as appropriate.

### ***Upland Utilization***

Upland utilization data are gathered annually on the key forage species in each grazed pasture after livestock are removed. The Key Forage Plant Method (superseded by the Landscape Appearance Method – Utilization Studies and Residual Measurements, Interagency Technical Reference, 1996) is used and appropriate records maintained to provide a portion of data utilized to calculate average annual carrying capacity. Utilization limits set in the Southern Malheur RPS (1984) were carried forward into the Southeastern Oregon Resource Management Plan and Record of Decision (2002), pending the development of site specific utilization limits. A maximum allowable utilization level on native range of 50 percent and a maximum allowable utilization limit

of 50-65 percent on seeded range will not be exceeded in any year and may be adjusted as the result of monitoring to ensure management objectives will be met.

### ***Climate***

The Owyhee Dam National Oceanic & Atmospheric Administration (NOAA) weather station is the source of climate data used in allotment evaluations for Dry Creek GMA. A forage crop index was calculated annually using the regression relationship between crop year precipitation and herbaceous production published by the Oregon Agricultural Experiment Station (Station Publication 659). These data indicate below median crop year precipitation through the late 1980s and early 1990s, above median crop year precipitation through the mid to late 1990, a return to below median crop year precipitation through 2004 and a return to above median crop year precipitation in 2005.

### ***Trend***

Upland trend data were gathered from permanently established line intercept studies, photographed 3X3 trend plots, carrying capacity calculated from actual use and utilization data, and/or professional judgment in each pasture. Measurement of trend toward meeting ecological condition classification objectives was assessed based on the assumption that an increase in the dominance and cover of late seral native bunch grass species, primarily bluebunch wheatgrass, Thurber's needlegrass, and/or squirreltail, will indicate improvement in ecological condition. Similarly, recorded increase in crested wheatgrass dominance and cover will indicate trend toward condition change in seedings. These data indicate whether observed change is toward or away from ecological condition or seeding condition objectives. In order to determine if a pasture has met a condition class management objective when management of the allotment is evaluated, the condition class for each range site in the pasture will have to be determined again using appropriate methodology. The current technique used by BLM for vegetation inventory is the ecological site inventory protocol identified in BLM Technical Reference 1734-7.

### ***Riparian***

Riparian system function was determined according to accepted BLM standards as outlined in Technical Reference 1737-9 (1993). Pastures managed for riparian objectives and enclosures were monitored using low level color infra-red imagery, ground photographic plots, and/or water quality samples. Data derived from these studies were used to determine riparian site trend and function.

### ***Wildlife Habitat***

Wildlife upland-habitat effectiveness was determined utilizing methods detailed in BLM Technical Note 417 (2005), summary information from trend studies, and professional judgment. Riparian wildlife habitat effectiveness was determined as a surrogate of riparian system function information.

Overall conclusions in this document pertaining to sagebrush habitat health and suitability for wildlife are based on a comparison of Dry Creek GMA conditions with

current wildlife habitat management literature related to greater sage-grouse, sagebrush steppe land-birds other than sage-grouse, and habitat relationships information described in “Wildlife Habitats in Managed Rangelands; The Great Basin of Southeastern Oregon” (Maser *et al.* 1984). Evaluation narratives are derived from field estimates of resource attributes, quantitative field data, and professional judgment.

The topics and the desired conditions for communities of wildlife on public land addressed in this evaluation are also based on the SEORMP (Chapter 2 and Appendix F).

Map 5 provides locations within the GMA of special status species.

### ***Special Status Fish and Aquatic Species***

Beginning in May of 2001, MRA has, through contractual agreement with US Fish and Wildlife Service (USFWS) and their staff, conducted annual monitoring of the Columbia spotted frog population that occurs in Dry Creek. The objective of this monitoring is to assess long-term population trends as part of an effort to maintain and improve spotted frog habitat through adjustments in land use activities as warranted. Continuation of this monitoring will provide information to make land use decisions that will not imperil this federal candidate species.

Generally, aquatic habitats that are in proper functioning condition provide the minimum conditions necessary to ensure the continuation of healthy and sustainable populations of special status fish and aquatic species. Actions occurring on public lands that provide or allow habitat to progress to proper functioning condition are considered to be meeting standard 5 (locally important species).

Map 5 provides locations within the GMA of special status fish and aquatic species.

### ***Special Status Plants***

Specific inventories for special status plants have proceeded over the last 20 years in the areas deemed most likely to support these species. Frequently, specific habitat characteristics have defined search parameters, particularly on the sand and ash deposits known to support populations of specific species. A habitat management plan (HMP) was written for Cronquist’s stickseed in the Vale District in 1987. Monitoring requirements of that plan led to construction of a small enclosure in the Double Mountain Allotment with paired plots inside and outside the enclosure consisting of line intercepts and 3’X3’ study plots. Monitoring transects have also been established and read for Oregon princesplume in the Butte Allotment. These transects are part of a challenge cost share project between the Vale District and Dr. Robert Meinke of Oregon State University which is on-going (2006). Reports and summaries of data collected from both projects are on file with the Vale District BLM.

Map 5 provides locations within the GMA of special status plant species.

## ***Recreation and Visual Resources***

Within the Dry Creek GMA, dispersed hunting of game and non-game mammals and birds and associated motorized vehicle-supported camping are apparent outdoor recreation activities. Other popular recreational activities include but are not limited to driving for pleasure, day and overnight hiking, horseback riding, photography, wildlife viewing, and fishing on the Owyhee River below Owyhee Reservoir. The area's diverse topography and expansive landscapes of varied canyon-cut terrain dissected by a mixed density of networked dirt roads offers recreating visitors a plurality of outdoor recreation settings and experiences. Within much of the area a person can readily experience a sense of aloneness in substantially unaltered natural settings.

While a short segment of U.S. Highway 20 neighbors the GMA, the sole asphalt road within the Dry Creek GMA is Malheur County's Owyhee Canyon Road, paralleling the Owyhee River below the Owyhee Reservoir. Where not limited to driving on existing or designated routes, much of the recreational off-road motorized vehicle driving is incidental to hunting activities in the designated "Open" Off-Highway Vehicle (OHV) use areas within the Dry Creek GMA. Locations of designated motorized vehicle route travel include the Dry Creek and Dry Creek Buttes WSAs, the area's ACECs, and within the interim management corridor of both the Dry Creek and Owyhee River administratively suitable waterway segments (see Wild and Scenic Rivers section). Public lands associated with the U.S. Highway 20 travel corridor is the single location within the Dry Creek GMA where motorized vehicles are limited to using the existing roads within that area. Refer to the SEORMP ROD, Off-Highway Vehicles, pgs 65 – 67, and Map OHV of Appendix X of the SEORMP ROD for additional information.

Existing developed recreation sites of the Dry Creek GMA are Twin Springs campground, Snively Hot Springs day use site, and the Lower Owyhee Canyon Watchable Wildlife Area (LOCWA) day use interpretive site. Administrative signs, a bulletin board, and entry roads and parking areas are at each of these sites. A vault toilet and 3 tables and grills constitute Twin Springs; a vault toilet and one picnic table is at Snively Hot Springs, and LOCWA has an asphalted walking path with a vault toilet, 2 picnic tables and an interpretive sign. The Vale District office has visitation data for these sites. Potential improvements for these sites described in the SEORMP ROD include: (1) Twin Springs -- enlarge the recreation site, improve the potable water system, and increase overnight camping facilities; (2) Snively Hot Springs – improve/provide the site's day and/or overnight facilities, water system, parking, interpretation, enclosure fencing, and trails/trailheads; and (3) LOCWA interpretive site – enhance the site with additional interpretation, a site enclosure fence, and a trailhead.

All potential new developed recreation improvements within the Dry Creek GMA, as described in the SEORMP ROD, are associated with the Owyhee River Below the Dam Special Recreation Management Area. This SRMA has the same boundary as the Owyhee River Below the Dam ACEC, and includes the administratively suitable Owyhee River segment below the Owyhee Reservoir (see Wild and Scenic Rivers), and the Lower Owyhee Canyon Watchable Wildlife Area. The potential improvements include but are not limited to a Lower Owyhee Trail system along the river; designated hardened day use

parking and of overnight camping sites/locations; additional toilets, and expanded interpretation amenities. A final decision on what developed recreation facilities and other recreation use enhancements for the SRMA/ACEC will be made in Vale District's forthcoming Owyhee Below the Dam Area Management Plan, an interdisciplinary activity plan tiered from the SEORMP ROD.

Public lands of the SEORMP are managed in accordance with designated visual resource management (VRM) Class I, II, III, and IV area objectives. Basically, VRM Class I areas possess the highest and most sensitive esthetic qualities, compared to visual values of public lands designated as VRM Class IV. Refer to the SEORMP ROD, Map VRM (Appendix X) and Appendix J, for displaying the VRM classes and a management objective description for each of these VRM classes. To maintain the management objective of a VRM class, the BLM's visual contrast rating system is employed as appropriate for proposed individual projects and activities to analyze and mitigate visual impacts to the existing landscape.

The Dry Creek and Dry Creek Buttes WSAs, the Owyhee Views ACEC, and the administratively suitable segment of the Dry Creek study waterway are managed in accordance with the VRM Class I objective. The Dry Creek Gorge ACEC has VRM Class I and Class II designations associated with it, while the Owyhee River Below the Dam ACEC and associated administratively suitable segment of the Owyhee River study waterway is managed in accordance with the VRM Class II objective. Certain public lands associated with Mitchell Butte, the Grassy Mountain area, U.S. Highway 20, and the Hammond Hill Sand Hills ACEC/RNA and its vicinity are within VRM Class III areas. The remainder of the Dry Creek GMA is managed in accordance with the VRM Class IV objective.

## ***Special Management Designations***

### **Areas of Critical Environmental Concern (ACEC)**

All or portions of four ACECs were established in the Dry Creek GMA with the signing of the Record of Decision (ROD) for the SEORMP. Map 2 identifies the location of Dry Creek Gorge ACEC, Hammond Hill Sand Hills ACEC/RNA, Owyhee River Below the Dam ACEC, and Owyhee Views ACEC. These four are described below, along with the relevant and important values identified for the areas in the SEORMP. Further information regarding these ACECs and their management prescriptions can be found in the SEORMP.

Dry Creek Gorge ACEC comprises 16,082 acres west of Owyhee Reservoir along the Dry Creek drainage from its confluence with Owyhee Reservoir and upstream approximately 15 miles. Relevant and important values in this deep canyon include scenery, special status fish (redband trout) and amphibian species (Columbia spotted frog) and associated habitat, and rare geologic features. The entire ACEC is within the Dry Creek GMA.

Hammond Hill Sand Hills ACEC/RNA (Research Natural Area) was designated on 3,712 acres to protect several vegetation cells identified by Oregon Natural Heritage Advisory Council (1998). These relevant and important values include two plant communities: big sagebrush-antelope bitterbrush/Indian ricegrass and big sagebrush-greasewood/Indian ricegrass. This relatively undisturbed area would provide excellent opportunities for research within these two unusual plant communities. The entire ACEC is within the Dry Creek GMA.

The 11,239-acre Owyhee River Below the Dam ACEC includes public land of the Owyhee River canyon and its associated viewshed located just north of the Owyhee Dam. The ACEC includes the viewshed of BLM-administered land from near the dam to downstream approximately 13 road miles to near the siphon site. The relevant and important values for which this ACEC was designated include high scenic values of diverse landscape elements in a substantially natural setting, a special status plant species (Mulford's milkvetch), the rare presence of a black cottonwood gallery in a riverine system, and the combined wildlife values of diverse habitat types supporting a large number of wildlife species and an important migratory corridor for neotropical birds. The portion of this ACEC west of the river lies within the Dry Creek GMA.

Owyhee Views ACEC includes 52,506 acres of public land adjacent to BOR's 53-mile long Owyhee Reservoir and certain land adjacent to the lower most portion of the congressionally designated Owyhee NWSR. The ACEC consists of the landscape as observed from the reservoir and certain maintained roads in the area. Relevant and important values for which the ACEC was designated include the high scenic properties associated with the area's virtually unaltered landscape, special status bighorn sheep and habitat, and special status plant species (sterile milkvetch, Ertter's senecio, and Owyhee clover). Another special status plant species (Cusick's chaenactis) is suspected to grow in the area. The northwest portion of this ACEC west of the Owyhee Reservoir and north of Quartz Mountain Allotment lies within the Dry Creek GMA.

### **Wilderness Study Areas (WSA)**

WSAs were designated by the BLM in 1980 as a result of a congressionally mandated wilderness review program under the Federal Land Policy and Management Act. Until Congress decides to designate WSAs as Wilderness Area or release all or a portion of a WSA from further wilderness consideration, BLM manages WSAs in accordance with the agency's *Interim Management Policy for Land Under Wilderness Review* (IMP, USDI/BLM 1995) so as not to impair their suitability for preservation as wilderness.

Two WSAs overlap portions of two grazing allotments of the Dry Creek GMA; the entire 23,350 acre Dry Creek WSA (OR-3-53), and approximately 23,584 acres of the northern portion of the 51,800 acre Dry Creek Buttes WSA (OR-3-56). The Dry Creek WSA overlaps 5,383 acres of the South Freezeout Pasture and 12,234 acres of the Hurley Spring Pasture of the Dry Creek Allotment, and 5,207 acres of the Dry Creek Butte Pasture of the Wallrock Allotment. In addition, 526 acres of the Dry Creek WSA occurs within the Freezeout Fenced Federal Range (FFR) pasture and Dry Creek enclosure. The northern portion of the 51,800 acre Dry Creek Buttes WSA (OR-3-56) overlaps a portion

of Dry Creek Buttes Pasture of Wallrock Allotment. Map 2 identifies the location of both WSAs.

If designated a Wilderness Area, the primary and secondary wilderness characteristics of a WSA would be preserved and protected. Both WSAs possess the primary wilderness characteristics of naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, and are at least 5,000 acres in size. The secondary, or special feature wilderness characteristics of Dry Creek WSA include the presence of inland redband trout ( a BLM special status animal species); Columbia spotted frog (a Federal candidate for listing under the Endangered Species); weak-stemmed milkvetch (a BLM listed sensitive plant species); sterile milkvetch (an Oregon State listed threatened plant species); and the complexity and diversity of the natural community enhanced by the presence of year-round water in Dry Creek, which provides aquatic and riparian habitats that contrast dramatically with the surrounding semi-desert environment. A special feature wilderness characteristic of that portion of the Dry Creek Buttes WSA within the Dry Creek GMA is the presence of the Northern bald eagle, listed as a Federal threatened species in Oregon under the Endangered Species Act (ESA). The northern half of the WSA also includes opportunities for educational and scientific study of the area's geology, wildlife and distinctive ecological interrelationships. The geologic Deer Butte formation, within both WSAs, is an excellent example of sandstone and shale strata with noted fossilized fauna.

Under current BLM management direction, livestock grazing would continue in a WSA or Wilderness Area. Existing rangeland developments within Dry Creek WSA include 9 miles of 5 fences, two springs, three earthen reservoirs, and one corral. The WSA also has 8 miles of motorized vehicular ways. Rangeland developments within that portion of Dry Creek Buttes WSA of the GMA include 4 miles of fence and one earthen reservoir. Motorized equipment is permitted for maintenance of developed springs and reservoirs within the WSAs if determined by BLM to be the minimum tool necessary to accomplish the work. Additional and more specific information regarding the two WSAs can be found in the *Oregon Wilderness Final Environmental Impact Statement* (USDI/BLM 1989), the *Oregon Wilderness Study Report* (USDI/BLM 1991), and the SEORMP ROD (pgs. 14-15, and Map WSA-1 of Appendix X).

### **Wild and Scenic Study Rivers (WRS)**

In compliance with the National Wild and Scenic Rivers Act and BLM's land use planning requirements, during development of the SEORMP the Vale District conducted eligibility and suitability evaluations of free-flowing waterways. The SEORMP ROD (pgs.102-104, and Map WSR-1 of Appendix X) determined that 16.8 miles of Dry Creek and 13.5 miles of the Owyhee River downstream of Owyhee Reservoir are eligible and administratively suitable for, and respectively recommends both of the suitable waterway segments for inclusion in, the National Wild and Scenic Rivers System (NWSRS). BLM's recommended tentative classification of the Dry Creek segment is "wild", and is "recreational" for the Owyhee River segment. Until Congress takes action on the BLM's recommendations, BLM is required to manage the administratively suitable waterway corridors (half mile wide, quarter mile either side of the river on federal lands) in a

manner to protect and, to the extent practicable, enhance their identified outstandingly remarkable values in accordance with managerial direction for the waterways' respective interim tentative classification. The SEORMP ROD's interim management corridor of public lands for the Dry Creek segment is 5,344 acres, and 3,973 acres for the Owyhee River segment. The determined outstandingly remarkable values of the Dry Creek segment are geology, fish, hydrology, and wildlife; for the Owyhee River segment they are scenery, recreation, geology, fish, wildlife, and plants.

Support information of the eligibility evaluation and suitability determination for each waterway is at the Vale District office. Also refer to the SEORMP ROD. Information on management direction for each of the tentative river classifications is in BLM Manual 8351, *Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation and Management*.

### ***Wilderness Characteristics Identified by the Public***

On February 13, 2004 the Oregon Natural Desert Association (ONDA) requested the Vale District BLM to initiate an amendment to the Southeast Oregon Resource Management Plan to consider new information provided by the organization regarding wilderness values and characteristics on public lands in the Vale District. ONDA's information included proposed new Wilderness Study Areas (WSAs) or wilderness Areas of Critical Environmental Concern (ACEC). In their request, ONDA recognized that the Department of the Interior has instructed the BLM that it can no longer establish new WSAs. Therefore, ONDA requested their proposed WSAs be reviewed as wilderness ACECs. On July 30, 2004, BLM responded to ONDA's request by stating that given limited planning and NEPA resources, BLM could not immediately amend the Southeastern Oregon Resource Management Plan completed in 2002. BLM did state that it has the authority to consider characteristics associated with the concept of wilderness during land use planning, but consideration of public input during the recently completed planning process included ACEC proposals which were timely received from various organizations. Therefore, ONDA's information would be retained by BLM for consideration in future land use planning efforts.

ONDA inventoried over 2.2 million acres and has recommended 42 wilderness ACECs totaling more than 1.3 million acres, either wholly or partially within the Vale District. Within the Dry Creek GMA, approximately 400,000 acres were inventoried by ONDA staff and volunteers documenting wilderness characteristics (Map 2). ONDA included detailed maps, narratives, and photos for each of the proposed wilderness ACECs in their proposal. ONDA's proposal included the following acreage of wilderness ACECs within allotments of the Dry Creek GMA:

Butte Allotment	23,824 acres
Dry Creek Allotment	59,328 acres
Keeney Creek Allotment	66,737 acres
Nyssa Allotment	69,556 acres
Sourdough Allotment	80,119 acres
Wallrock Allotment	96,349 acres

Mitchell Butte Allotment        2,819 acres

GMA Total                        398,732 acres

### ***Oregon-Washington Standards for Rangeland Health***

Assessments of rangeland health was completed to assure that management actions are consistent with the Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington, implemented in 1997 in accordance with regulations for the administration of grazing on the public lands (43 CFR § 4180). Standards for Rangeland Health (SRH) were assessed in pastures of Dry Creek GMA between spring 2002 and fall 2004. Determinations are summarized in Appendix B and within text for the assessment of each pasture.

#### **Standard 1 - Watershed Function: Uplands**

*Upland soils exhibit infiltration and permeability rates, moisture storage, and stability that are appropriate to soil, climate and landform.*

#### **Rationale and Intent**

This standard focuses on the basic physical functions of upland soils that support plant growth, the maintenance or development of plant populations and communities, and promote dependable flows of quality water from the watershed.

To achieve and sustain rangeland health, watersheds must function properly. Watersheds consist of three principle components: the uplands, riparian/wetland areas and the aquatic zone. This standard addresses the upland component of the watershed. When functioning properly, within its potential, a watershed captures, stores and safely releases the moisture associated with normal precipitation events (equal to or less than the 25 year, 5 hour event) that falls within its boundaries. Uplands make up the largest part of the watershed and are where most of the moisture received during precipitation events is captured and stored.

While all watersheds consist of similar components and processes, each is unique in its individual makeup. Each watershed displays its own pattern of landform and soil, its unique climate and weather patterns, and its own history of use and current condition. In directing management toward achieving this standard, it is essential to treat each unit of the landscape (soil, ecological site, and watershed) according to its own capability and how it fits with both smaller and larger units of the landscape.

A set of potential indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The appropriate indicators to be used in determining attainment of the standard should be drawn from the following list.

## **Potential Indicators**

Protection of the soil surface from raindrop impact; detention of overland flow; maintenance of infiltration and permeability, and protection of the soil surface from erosion, consistent with the potential/capability of the site, as evidenced by the:

- amount and distribution of plant cover (including forest canopy cover);
- amount and distribution of plant litter;
- accumulation/incorporation of organic matter;
- amount and distribution of bare ground;
- amount and distribution of rock, stone, and gravel;
- plant composition and community structure;
- thickness and continuity of A horizon;
- character of microrelief;
- presence and integrity of biotic crusts;
- root occupancy of the soil profile;
- biological activity (plant, animal, and insect); and
- absence of accelerated erosion and overland flow.

Soil and plant conditions promote moisture storage as evidenced by:

- amount and distribution of plant cover (including forest canopy cover);
- amount and distribution of plant litter;
- plant composition and community structure; and
- accumulation/incorporation of organic matter.

## **Dry Creek GMA Upland Watershed Function Assessment**

Upland rangeland health assessment, consistent with Technical Reference 1734-6 version 3, was completed for Standard 1 at key areas representing the vegetation communities in each pasture of Dry Creek GMA. Indicators at key areas were compared with those within ecological site descriptions or reference areas for communities represented by each assessment area to determine whether departure was none to slight, slight to moderate, moderate, moderate to extreme, or extreme. A preponderance of the evidence was used to indicate an overall departure from ecological site description/reference area conditions and lead to a determination of whether the standard was met. The following indicators were used:

- Rills
- Water flow patterns
- Pedestals and/or terrecettes
- Bare ground
- Gullies
- Wind scoured blowouts and/or deposition areas
- Litter Movement
- Reduction of soil surface resistance to erosion
- Soil surface loss or degradation

- Problems with plant community composition and distribution relative to infiltration and runoff
- Compaction layer
- Deviation of litter amount from expected

## **Standard 2 – Watershed Function: Riparian/Wetland Areas**

*Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.*

### **Rationale and Intent**

Riparian-wetland areas are grouped into two major categories: 1. lentic, or standing water systems such as lakes, ponds, seeps, bogs, and meadows; and 2. lotic, or moving water systems such as rivers, streams, and springs. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and which under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Riparian areas commonly occupy the transition zone between the uplands and surface water bodies (the aquatic zone) or permanently saturated wetlands.

Properly functioning condition of riparian and wetland areas describes the degree of physical function of these components of the watershed. Their functionality is important to water quality in the capture and retention of sediment and debris, the detention and detoxification of pollutants, and in moderating seasonal extremes of water temperature. Properly functioning riparian areas and wetlands enhance the timing and duration of streamflow through dissipation of flood energy, improved bank storage, and ground water recharge. Properly functioning condition should not be confused with the Desired Plant Community (DPC) or the Desired Future Condition (DFC) since, in most cases, it is the precursor to these levels of resource condition and is required for their attainment.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met. The criteria are based upon the potential (or upon the capability where potential cannot be achieved) of individual sites or land forms.

### **Potential Indicators**

Hydrologic, vegetative, and erosional/depositional processes interact in supporting physical function, consistent with the potential or capability of the site, as evidenced by:

- frequency of floodplain/wetland inundation;
- plant composition, age class distribution, and community structure;
- root mass;
- point bars revegetating;
- streambank/shoreline stability;
- riparian area width;
- sediment deposition;
- active/stable beaver dams;

- coarse/large woody debris;
- upland watershed conditions;
- frequency/duration of soil saturation; and
- water table fluctuation.

Stream channel characteristics are appropriate for landscape position as evidenced by:

- channel width/depth ratio;
- channel sinuosity;
- gradient;
- rocks and coarse and/or large woody debris;
- overhanging banks;
- pool/riffle ratio;
- pool size and frequency; and
- stream embeddedness.

### **Dry Creek GMA Riparian/Wetland Function Assessment**

Riparian/wetland function, consistent with Technical Reference 1737-15 and/or 1737-16, was completed for Standard 2 at key areas representing the riparian sites along stream reaches and wetlands in each pasture of Dry Creek GMA.

### **Standard 3 – Ecological Processes**

*Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.*

#### **Rationale and Intent**

This standard addresses the ecological processes of energy flow and nutrient cycling as influenced by existing and desired plant and animal communities without establishing the kinds, amounts or proportions of plant and animal community compositions. While emphasis may be on native species, an ecological site may be capable of supporting a number of different native and introduced plant and animal populations and communities while meeting this standard. This standard also addresses the hydrologic cycle which is essential for plant growth and appropriate levels of energy flow and nutrient cycling. Standards 1 and 2 address the watershed aspects of the hydrologic cycle.

With few exceptions, all life on earth is supported by the energy supplied by the sun and captured by plants in the process of photosynthesis. This energy enters the food chain when plants are consumed by insects and herbivores and passes upward through the food chain to the carnivores. Eventually, the energy reaches the decomposers and is released as the thermal output of decomposition or through oxidation.

The ability of plants to capture sunlight energy, to grow and develop, to play a role in soil development and watershed function, to provide habitat for wildlife and to support economic uses depends on the availability of nutrients and moisture. Nutrients necessary

for plant growth are made available to plants through the decomposition and metabolization of organic matter by insects, bacteria and fungi, the weathering of rocks and extraction from the atmosphere. Nutrients are transported through the soil by plant uptake, leaching and by rodent, insect and microbial activity. They follow cyclical patterns as they are used and reused by living organisms.

The ability of rangelands to supply resources and satisfy social and economic needs depends on the buildup and cycling of nutrients over time. Interrupting or slowing nutrient cycling can lead to site degradation, as these lands become increasingly deficient in the nutrients plants require.

Some plant communities, because of past use, frequent fire or other histories of extreme or continued disturbance, are incapable of meeting this standard. For example, shallow-rooted winter-annual grasses that completely dominate some sites do not fully occupy the potential rooting depth of some soils, thereby reducing nutrient cycling well below optimum levels. In addition, these plants have a relatively short growth period and thus capture less sunlight than more diverse plant communities. Plant communities like those cited in this example are considered to have crossed the threshold of recovery and often require great expense to be recovered. The cost of recovery must be weighed against the site's potential ecological/economic value in establishing treatment priorities.

The role of fire in natural ecosystems should be considered, whether it acts as a primary driver or only as one of many factors. It may play a significant role in both nutrient cycling and energy flows.

A set of indicators has been identified for which site-specific criteria will be used to determine if this standard is being met.

### **Potential Indicators**

Photosynthesis is effectively occurring throughout the potential growing season, consistent with the potential/capability of the site, as evidenced by plant composition and community structure.

Nutrient cycling is occurring effectively, consistent with the potential/capability of the site, as evidenced by:

- plant composition and community structure;
- accumulation, distribution, incorporation of plant litter and organic matter into the soil;
- animal community structure and composition;
- root occupancy in the soil profile; and
- biological activity including plant growth, herbivory, and rodent, insect and microbial activity.

## **Dry Creek GMA Upland Ecological Process Assessment**

Upland rangeland health assessment, consistent with Technical Reference 1734-6 version 3, was completed for Standard 3 at key areas representing the vegetation communities in each pasture of Dry Creek GMA. Indicators at key areas were compared with those within ecological site descriptions or reference areas for communities represented by each assessment area to determine whether departure was none to slight, slight to moderate, moderate, moderate to extreme, or extreme. A preponderance of the evidence was used to indicate an overall departure from ecological site description/reference area conditions and lead to a determination of whether the standard was met. The following indicators were used:

- Reduction of soil surface resistance to erosion
- Soil surface loss or degradation
- Problems with plant community composition and distribution relative to infiltration and runoff
- Departure of functional structural groups from site potential
- Plant mortality/decadence
- Deviation of litter amount from expected
- Annual production
- Invasive plants
- Reduction reproductive capability of perennial plants

## **Standard 4 – Water Quality**

*Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.*

### **Rationale and Intent**

The quality of the water yielded by a watershed is determined by the physical and chemical properties of the geology and soils unique to the watershed, the prevailing climate and weather patterns, current resource conditions, the uses to which the land is put and the quality of the management of those uses. Standards 1, 2 and 3 contribute to attaining this standard.

States are legally required to establish water quality standards and Federal land management agencies are to comply with those standards. In mixed ownership watersheds, agencies, like any other land owners, have limited influence on the quality of the water yielded by the watershed. The actions taken by the agency will contribute to meeting State water quality standards during the period that water crosses agency administered holdings.

### **Potential Indicators**

Water quality meets applicable water quality standards as evidenced by:

- water temperature;
- dissolved oxygen;
- fecal coliform;
- turbidity;

- pH;
- populations of aquatic organisms; and
- effects on beneficial uses (i.e., effects of management activities on beneficial uses as defined under the Clean Water Act and State implementing regulations).

### **Dry Creek GMA Water Quality Assessment**

Rangeland health standards one, two and three were used as surrogates to determine if water quality standards were met. With stability of vegetation and soil resources in upland and riparian vegetation communities at or near potential, indicators are likely met leading to water quality standards.

### **Standard 5 – Native, Threatened & Endangered, and Locally Important Species**

*Habitats support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform.*

#### **Rationale and Intent**

Federal agencies are mandated to protect threatened and endangered species and will take appropriate action to avoid the listing of any species. This standard focuses on retaining and restoring native plant and animal (including fish) species, populations and communities (including threatened, endangered and other special status species and species of local importance). In meeting the standard, native plant communities and animal habitats would be spatially distributed across the landscape with a density and frequency of species suitable to ensure reproductive capability and sustainability. Plant populations and communities would exhibit a range of age classes necessary to sustain recruitment and mortality fluctuations.

#### **Potential Indicators**

Essential habitat elements for species, populations and communities are present and available, consistent with the potential/capability of the landscape, as evidenced by:

- plant community composition, age class distribution, productivity;
- animal community composition, productivity;
- habitat elements;
- spatial distribution of habitat;
- habitat connectivity;
- population stability/resilience.

### **Dry Creek GMA Native, Threatened & Endangered, and Locally Important Species Assessment**

Upland rangeland health assessment, consistent with Technical Reference 1734-6 version 3, was completed for standard five at key areas representing the vegetation communities

in each pasture of Dry Creek GMA. Indicators at key areas were compared with those within ecological site descriptions or reference areas for communities represented by each assessment area to determine whether departure was none to slight, slight to moderate, moderate, moderate to extreme, or extreme. A preponderance of the evidence was used to indicate an overall departure from ecological site description/reference area conditions and lead to a determination of whether the standard was met. The following indicators were used:

- Plant community composition and distribution relative to infiltration and runoff.
- Departure of functional structural groups from site potential.
- Plant mortality/decadence.
- Annual production.
- Invasive plants.
- Reduction in the reproductive capability of perennial plants.

## Evaluation, Assessment and Determinations

### *Grazing Allotments*

#### **Chalk Butte Allotment (10128)**

Chalk Butte Allotment is managed custodially and includes 769 acres of public land enclosed with 1703 acres of private land in the four pastures currently recognized. Although the allotment was assigned allotment number 0412 in the Southern Malheur RPS with a management objective to improve ecological conditions, the allotment number was not assigned in the billing system and the allotment number 10128 was subsequently assigned in the Rangeland Administrative System (RAS). Prior to initiation of Rangeland Health Assessments in Dry Creek GMA, one pasture was recognized in this allotment. However, during the rangeland health data collection period in 2003, boundaries of four pastures (more pastures may exist on private portions of the BLM recognized land unit) were determined using the global positioning system (GPS) within the allotment. The location of Chalk Butte Allotment is provided in Figure 1, while pasture acreage within Chalk Butte Allotment is provided in Table 2.

Table 2: Chalk Butte Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Chalk Butte West	1,395	457			938	
Chalk Butte North	403	11	Trace		392	
Chalk Butte Middle	221	221			Trace	
Chalk Butte East	453	80			373	

One livestock operator, Curtis Sauret, is authorized to graze cattle (65 Animal Unit Months (AUMs)) annually in Chalk Butte Allotment. Seasons of use and livestock numbers can vary from those stated on the permit, so long as damage to the public land resources does not occur.

## Chalk Butte West Pasture (10128\_01)

### Management Setting

Chalk Butte West Pasture is primarily private land. The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies no dominant shrub or grass species within the inventory unit which includes Chalk Butte West Pasture. The entire pasture burned during the 1996 Cow Hollow Fire. The eastern portion of Chalk Butte West Pasture was seeded to crested wheatgrass following the fire, while the western portion of the pasture is native perennial grassland dominated by annual species. The pasture includes riparian vegetation communities downstream of Schweizer Spring.

The management objective for Chalk Butte Allotment carried forward from the Southern Malheur RPS is to improve ecological condition.

### Evaluation of Monitoring Data

No long term monitoring studies have been established within Chalk Butte West Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were documented for Standards 1 and 3 in Chalk Butte West Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bunchgrass range site dominated by cheatgrass, while the second represents those portions of the pasture which were seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 within the cheatgrass dominated vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrass range site dominated by cheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<i>Moderate to extreme departure from site description/reference area</i>	
	Plant mortality/decadence
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	

Departure of functional structural groups from site potential
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The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and meeting Standard 3 within areas seeded to crested wheatgrass, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrasses range site seeded to crested wheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Gullies
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were primarily related to historic grazing, impacts of the Cow Hollow Fire in 1996, and subsequent rehabilitation seeding of a nonnative species. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related significantly to current livestock management practices. Potential shrub and forb components in the vegetation community are not present and scotch thistle is present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

One riparian assessment was completed within the allotment. The standard was not being met on the drainage below Schweizer Spring (Cow Hollow tributary 6.0). This is a perennial water source for this pasture with only herbaceous riparian vegetation. The riparian soils were compacted due to livestock trampling, and bank sloughing was occurring on the banks and terraces due to trailing. There was not any perennial pepperweed although it exists in drainages nearby. Contributing factors to not meeting the standard were current and historic livestock grazing and trailing and improper spring development design upstream above fenceline.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the cheatgrass dominated vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrasses range site dominated by cheatgrass</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
<i>Moderate to extreme departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within areas seeded to crested wheatgrass, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrasses range site seeded to crested wheatgrass</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants
	Plant mortality/decadence
<i>Extreme departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential.

Departures from desired conditions were primarily related to historic grazing, impacts of the Cow Hollow Fire in 1996, and subsequent rehabilitation seeding of a nonnative species. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related significantly to current livestock management practices. Potential shrub and forb components in the vegetation community are not present, and scotch thistle is present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

### Findings

The following findings apply to all pastures of Chalk Butte Allotment.

- Rangeland Health Standard 1 was met in both the Wyoming big sagebrush/bunchgrass community dominated by annual and also in the area seeded to nonnative perennial grasses.
- Rangeland Health Standard 2 was not met in the drainage downstream of Schweizer Spring due to current livestock grazing and other issues.

- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities seeded to nonnative perennial species, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met due to impacts identified in the assessment of Standard 2.
- Rangeland Health Standard 5 for wildlife species was not met in either the Wyoming big sagebrush/bunchgrass community dominated by annual or in the area seeded to nonnative perennial grasses as a result of loss of potential vegetation structure and diversity caused by factors other than current livestock grazing practices.
- The RPS management objective to improve ecological conditions was not met with much of the allotment dominated by either annual species or seeded to nonnative perennial grass species with potential vegetation diversity limited by the loss of the shrub component and perennial herbaceous species.

### Recommendations

The following recommendations apply to the entire allotment.

- Continue custodial management of this allotment.
- Identify future management of Chalk Butte East Pasture, since it is currently utilized by someone other than the permittee.
- Address spring development design for riparian management at Schweizer Spring in accordance with BLM policy.
- Protect riparian resources from unacceptable livestock impacts downstream of Schweizer Spring.

### **Chalk Butte North Pasture (10128\_02)**

#### Management Setting

Chalk Butte North Pasture is primarily private land, although includes minor corners of public domain parcels. The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as modified for fire since 1979, identifies no dominant shrub or grass species within the inventory unit which includes Chalk Butte North Pasture. The Cow Hollow Fire did not burn within this pasture which includes the home-place of the permittee.

#### Evaluation of Monitoring Data

No long term monitoring studies have been established within Chalk Butte North Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected.

#### Rangeland Health Assessments and Determinations

Due to the dominance of this pasture by private land, no rangeland health assessments were completed. The minimal acreage of public land in Chalk Butte North Pasture would likely be assessed consistent with adjoining pastures in the allotment.

### Additional Issues

No riparian resources are identified in this pasture.

### Findings and Recommendations

Findings and recommendations for all pastures within Chalk Butte Allotment are presented above under the heading for Chalk Butte North Pasture.

## **Chalk Butte Middle Pasture (10128\_03)**

### Management Setting

Chalk Butte Middle Pasture is entirely public domain lands. The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies no dominant shrub or grass species within the inventory unit which includes Chalk Butte Middle Pasture. Chalk Butte Middle Pasture was seeded to crested wheatgrass following the 1996 Cow Hollow Fire.

### Evaluation of Monitoring Data

No long term monitoring studies have been established within Chalk Butte Middle Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Chalk Butte Middle Pasture are consistent with those presented for sites seeded to crested wheatgrass in Chalk Butte North Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and meeting Standard 3. Departures from desired conditions were primarily related to historic grazing, impacts of the Cow Hollow Fire in 1996, and subsequent rehabilitation seeding of a nonnative species. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related significantly to current livestock management practices. Potential shrub and forb components in the vegetation community are not present, and scotch thistle is present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within

the perennial bunchgrass community, with departures of indicators from potential as described above for the Chalk Butte North Pasture.

#### Additional Issues

No riparian resources are identified in this pasture.

#### Findings and Recommendations

Findings and recommendations for all pastures within Chalk Butte Allotment are presented above under the heading for Chalk Butte North Pasture.

### **Chalk Butte East Pasture (10128\_04)**

#### Management Setting

Chalk Butte East Pasture is primarily private land with approximately eighty acres of public domain in the northwest portion. The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies no dominant shrub or grass species within the inventory unit which includes Chalk Butte East Pasture.

Private land within Chalk Butte East Pasture is currently owned by someone other than the permitted livestock operator for this allotment. Additionally, in recent years the pasture has been rented to Mark Morton for winter feeding of cattle. Although no winter feeding has been observed on the public domain, cattle use it to some degree. The fenceline on the west boundary of this pasture are in poor condition and allow cattle movement onto the east slope of Chalk Butte within Nyssa Allotment, the upper portion of which is public land.

#### Evaluation of Monitoring Data

No long term monitoring studies have been established within Chalk Butte East Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected, especially since the operator authorized to graze cattle in Chalk Butte Allotment does not use this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Chalk Butte East Pasture are consistent with those presented for sites dominated by cheatgrass in Chalk Butte North Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and not meeting Standard 3. Departures from desired conditions were primarily related to historic grazing. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related significantly to current livestock management practices. Potential shrub and forb components in the vegetation community are not present and scotch thistle is present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the perennial bunchgrass community, with departures of indicators from potential as described above for the Chalk Butte North Pasture.

Additional Issues

No riparian resources are identified in this pasture.

Findings and Recommendations

Findings and recommendations for all pastures within Chalk Butte Allotment are presented above under the heading for Chalk Butte North Pasture.

**Butte Allotment (00308)**

Butte Allotment is managed as an “M” (Maintain) category allotment and includes five pastures identified in the grazing schedule and a number of enclosures and exclosures. An allotment management plan was implemented in 1985 with annual spring use of North and South Racehorse pastures and a two year deferred rotation grazing schedule in North, Middle, and South Butte pastures. The location of Butte Allotment is provided in Figure 1, while pasture acreage within Butte Allotment is provided in Table 3.

Table 3: Butte Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres
North Racehorse	4,474	4,158		30	286
South Racehorse	7,629	7,369		70	190
North Butte Creek	4,229	3,892		12	325
Middle Butte Creek	6,904	6,877		Trace	27
South Butte Creek	4,732	4,625			107
Harper Junction	1,391	1,271			120
Robinson Reservoir Enclosure	18	18			
Robinson Reservoir Branding	0.3	0.3			
East Copeland Reservoir Enclosure	13	13			
King Brown Enclosure	300	211		20	69
Racehorse Well Enclosure	96	96			
Racehorse Test Plot	2	2			

The current grazing schedule was implemented with the 1985 allotment management plan and is presented in Table 4.

Table 4: Butte Allotment grazing schedule implemented in the 1985 AMP

Pasture	Year 1 (2005, 2007, ...)	Year 2 (2006, 2008, ...)
North Racehorse	4/1 to 5/15	4/1 to 5/15
South Racehorse	4/1 to 5/15	4/1 to 5/15
North Butte	5/16 to 7/15	9/1 to 11/7
Middle Butte	7/16 to 8/31	7/16 to 8/31
South Butte	9/1 to 11/7	5/16 to 7/15
King Brown Cabin Excl.	Short term gathering	Short term gathering

One livestock operator is permitted to graze cattle in Butte Allotment between April 1 and November 7 annually within pastures identified in the grazing schedule. One additional livestock operator is permitted to graze sheep in Butte Allotment. Butte Allotment grazing authorizations are listed in Table 5.

Table 5: Butte Allotment grazing authorization summary

Permittee	AUMs from pastures identified in the grazing schedule	AUMs from custodial pastures	AUMs active authorization
Gerald and Evelyn Butler (cattle)	1,740	0	1,740
Frank Shirts, Jr. (sheep)	316	0	316
		Total	2,056

The following summary lists the percent of cattle grazing authorization reported used in Butte Allotment during the past five years:

2005	99 percent
2004	100 percent
2003	96 percent
2002	98 percent
2001	95 percent

Actual use reported by the sheep operator, with grazing schedules being less defined by pasture fences and allotment boundaries is less accurate on an allotment basis.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

### **North Racehorse Pasture (00308\_01)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes North Racehorse Pasture. Dominant shrubs identified include bitter-brush and horse-brush, while the dominant grass identified was bluebunch wheatgrass. Observations indicate North Racehorse Pasture is native rangeland dominated by native perennials with an overstory of Wyoming big sagebrush, bitterbrush, and salt desert shrubs. Annual grasses and forbs dominate in the understory of shrubs or are the only vegetation cover adjacent to Crowley Road, where significant trailing has occurred. Cheatgrass also dominates other areas

historically grazed more heavy by livestock. Although a crested wheatgrass seeding test plot was planted and excluded from livestock use in the northeast portion of the pasture, records do not list any nonnative seeding in North Racehorse Pasture. The pasture is grazed annually between 4/1 and 5/15, in accordance with the 1985 AMP.

The Southern Malheur RPS identified a management objective for North Racehorse Pasture to improve ecological conditions. This objective was restated in the 1985 allotment management plan.

#### Evaluation of Monitoring Data

Actual use and utilization data for North Racehorse Pasture (Appendix E) indicate that the AMP grazing schedule, with planned spring grazing, has been followed since AMP implementation in 1985. Although use extended into June a number of years prior to 1989, the scheduled May 15 off date for this pasture has been followed with minor flexibility in recent years. The maximum allowable utilization level of 50% within native range has not been exceeded in recent years.

Upland vegetation trend data for North Racehorse Pastures were analyzed and summarized. One 3X3 trend plot was located in and baseline photo were established in a healthy native portion of the pasture in 1971. No transect for line cover data has been established in this pasture. The 3X3 plot was photographed again and mapped in subsequent years, including 1988 prior to the most recent allotment evaluation and in 2003 in preparation for this GMA assessment. The long term trend based on photos and the mapped 3X3 plot indicate an upward trend with static trend in recent years. Annual vegetation in the interspaces of perennial grasses and shrubs was greater in 2003, a year with above average spring precipitation. Trend over the past fifteen years, based on professional judgment, suggests a static to upward trend in native portions of the pasture and static trend in portion of the pasture dominated by cheatgrass, with or without a shrub overstory. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in North Racehorse Pasture. One assessment area was a key area representing the Wyoming big sagebrush/bluebunch wheatgrass range site with little loss of native species and is present in approximately 80 percent of the pasture. The other was the same range site dominated by cheatgrass and other annual species with little or no shrub overstory and is dominant on the remaining 20 percent of the pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species, although with a loss of some structural diversity due to a limited shrub component. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site</b>
<b>Standard 1: Upland watershed function</b>

<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<i>Moderate to extreme departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected
	Annual production

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departure of indicators from potential conditions in annual dominated communities is primarily related to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing and other historic events which resulted in the loss of native perennial species and are little related to current management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 in the portion of the pasture dominated by native perennial species, although with a loss of some structural diversity due to a limited shrub component. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/bunchgrasses range site</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community (approximately 80% of the pasture acreage), with departures of indicators from potential as compared to ecological site descriptions/reference areas as described below for the Callahan Pasture of the Keeney Creek Allotment.

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grass community (approximately 20% of the pasture acreage), with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Callahan Pasture of the Keeney Creek Allotment.

Departures from desired conditions were primarily related to wildfire and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass, forb, and shrub components within the vegetation community. Departures do not appear related to current livestock management practices. Greater than expected cover of annual grass limits the effectiveness of the understory for wildlife. Remaining shrubs in the area are at risk of loss with the susceptibility to wildfire.

Additional Issues

Cattle and sheep trailing along Crowley Road and though North Racehorse Pasture has remained with only limited control by BLM. Although sheep trailing tends to occur short duration as animals are moved from spring range to Harper Junction for shipping, cattle trailing occurs as animals are moved in the spring to pastures more distant from private land in Harper Valley. Cattle trailing home at the end of scheduled grazing at times tends to be more consistent with a drift, allowing cattle to move at their pace.

The two special status plant species, Malheur prince’s plume, a Bureau Sensitive (BS) species, and Malheur fiddleneck (state-listed threatened species), are found in the North Racehorse Pasture. The fiddleneck is restricted to a light yellowish ash substrate and is known globally only from this allotment and a small area north of Highway 20 and

northwest of Harper. Unauthorized OHV use on the fragile ash hills has severely disturbed several sites near Harper at the northern end of the pasture. While the plant has not appeared to be palatable to any animal, hoof action on the fragile ash cobbles can displace plants and cause considerable habitat disturbance. However, only one known site of this species has been observed to have such disturbance from domestic livestock, and it is not considered a threat to the species at this time.

The prince's plume is a biennial species on clay ash soils. This species is frequently nipped by ungulates in the years when blooms are present, and hoof action of livestock on the vulnerable clay soils has resulted in considerable habitat disturbance in several areas; the impact of these disturbances on perpetration of the species is under study through a challenge cost share project with Dr. Robert Meinke which will be completed in 2007. One site along the Crowley Road approximately two miles south of Harper Junction is particularly vulnerable to hoof action, and plants have been observed to be sparse and weak at this site. Another site near the southern end of the pasture supports what appears to be a strong, stable population, although considerable utilization of buds and leaves, as well as hoof action in the clay soils, has been observed on site.

#### Findings

- Rangeland Health Standard 1 was met in both the Wyoming big sagebrush/bunchgrass and the annual rangeland vegetation communities.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities but not in the annual rangeland vegetation communities, due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was met for Malheur fiddleneck, a special status plant species, and is still under evaluation for Malheur prince's plume, a special status plant species, with regard to impacts of livestock.
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend recorded.

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Implement appropriate livestock trailing along the Crowley Road.

## **South Racehorse Pasture (00308\_02)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes South Racehorse Pasture. Dominant shrubs included bitter-brush and big sagebrush while dominant grasses included bluebunch wheatgrass. Observations indicate South Racehorse Pasture is native rangeland dominated by annual species adjacent to Squaw Creek Road, benches west of Squaw Creek, and adjacent to Crowley Road with more healthy and more diverse native bunchgrass vegetation communities and an overstory of Wyoming big sagebrush and salt desert shrubs more distance from areas of historic livestock use. The pasture is grazed annually between 4/1 and 5/15, in accordance with the 1985 AMP. The pasture includes Squaw Creek from the confluence of the north and south forks downstream to its discharge into Malheur River and a short reach of Cottonwood Creek at the Crowley Road Crossing.

The Southern Malheur RPS identified a management objective for South Racehorse Pasture to improve ecological conditions. This objective was restated in the 1985 allotment management plan with an additional objective to improve riparian habitat for wildlife adjacent to Squaw Creek and Cottonwood Creek.

### Evaluation of Monitoring Data

Actual use and utilization data for South Racehorse Pasture (Appendix E) indicate that the AMP grazing schedule, with planned spring grazing, has been followed since AMP implementation in 1985. Although use extended into June a number of years prior to 1989, the scheduled May 15 off date for this pasture has been followed with minor flexibility in recent years. The maximum allowable utilization level of 50 percent within native range has not been exceeded in recent years.

No upland vegetation trend plot has been established in South Racehorse pasture. Planned grazing use of South Racehorse Pasture has been consistent with use of North Racehorse Pastures since implementation of the allotment management plan in 1985. Upland trend is expected to be similar to that in North Racehorse Pasture, although actual use variation between North and South Racehorse pastures has occurred due to livestock management associated with livestock moves and availability of water. Trend over the past fifteen years, based on professional judgment and like that in North Racehorse Pasture, suggests a static to upward trend in native portions of the pasture and static trend in portion of the pasture dominated by cheatgrass, with or without a shrub overstory. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Historical riparian monitoring photo points were established in 1989 on Cottonwood Creek. There is a slight long-term upward trend at the monitoring points due to a slight increase in willows along the channel. Based on professional judgment, this creek began improving approximately ten years ago with conscientious riparian management in this pasture.

Historical riparian monitoring photo points were established in 1985 on Squaw Creek. There is a slight long-term upward trend at the monitoring points due to a slight increase in riparian woody vegetation. Based on professional judgment, this creek began improving approximately ten years ago with conscientious riparian management in this pasture. The potential exists for cottonwood stands along portions of this stream, but their regeneration is most likely limited due to a lack of scouring events to prepare a proper seedbed for regeneration.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Rangeland health assessments and determinations for Standards 1 and 3 in South Racehorse Pasture are consistent with those presented for North Racehorse Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species, although with a loss of some structural diversity due to a limited shrub component. At the same time, the indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species, due to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing and other historic events which resulted in the loss of native perennial species and are little related to current livestock management actions.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Cottonwood Creek which flows through this pasture for approximately 1.5 miles. Cottonwood Creek is contained in a very large valley consisting of many braided channel in remnants of soils from the historic floodplain and terraces. The stream is mostly a perennial, interrupted system in a cobble/boulder bed due to severe headcutting that occurred historically in this drainage. Channel characteristics, including sinuosity, width/depth ratio, and gradient are not functioning properly in this stream. Willows make up most of the riparian vegetation indicating subsurface water throughout the year. Herbaceous vegetation is limited to small patches where soil has been retained near perennial surface water. Although this stream was not meeting the standard, it has been improving over the past decade. There has been an increase in woody vegetation size and regeneration. Contributing factors to not meeting the standard were historic livestock grazing and trailing (including sheep), homestead and cow camp settlements, shearing plant, irrigation ditches, road encroachment and crossings, and diversions upstream and downstream causing the stream to be in poor condition.

Standard 2 was not met on Squaw Creek which flows through this pasture for approximately 3.5 miles. Squaw Creek is a similar system to Cottonwood Creek although somewhat smaller geologically and hydrologically. The lower portion of this stream is a perennial, interrupted system with almost ephemeral characteristics at the very

bottom of the reach. There are more fines present in Squaw Creek compared to Cottonwood Creek so the woody regeneration is somewhat less here. This is probably due to less scouring action preparing an adequate seedbed for woody regeneration. There are remnants of cottonwood stands in this drainage with very little regeneration. Some of the regeneration is being browsed by wildlife with a few surviving to become middle aged trees. Although the stream segment was not meeting the standard, it has been improving over the past two decades by increasing the size of the riparian area and amount of riparian herbaceous and woody vegetation. These improvements contribute to improving channel characteristics and hydrologic function of the system. Contributing factors to not meeting the standard were historic livestock grazing and trailing, homestead and cow camp settlements, road encroachment and crossings, large reservoir development upstream, and overland flow events on volcanic soils.

Standard 2 was not met on a very small segment of North Fork Squaw Creek. It is very similar to Squaw Creek although it had slightly better riparian woody vegetation regeneration and riparian functionality improvement over the past twenty years. This is probably due to the geology in this segment creating more surface accessible water to riparian vegetation. Assessment and contributing factors are the same as Squaw Creek.

Standard 2 was not met on a very small segment of South Fork Squaw Creek. The same discussion applies here as the North Fork Squaw Creek.

Standard 2 was not met on the developed Tunnel Spring (JDR #1136). This development is located in the bottom of a small drainage below a couple of old dead/decadent tree sized willows. No water is present in the trough, flow pipe, or on the soil surface in the drainage. This spring is no longer functioning as a development or a riparian area. There is very little riparian herbaceous vegetation present with no young or middle aged willows. There are some livestock trails around the historic riparian area, but no severe impacts. The site is being invaded by upland vegetation and perennial pepperweed. Although this site is assessed as a non-functioning riparian area, there may not be potential for it to improve its riparian condition. Reasons for the loss of this water source and riparian area are not known, but could include drought conditions over the last decade or dewatering of the site by the spring development. No clear contributing factors to not meeting the standard were identified although if water becomes available again, the spring development design would need to be done properly.

The standard was met at undeveloped Show Spring and the riparian area near Tumbleweed Spring. Show Spring is large spring source with an abundance of herbaceous and woody riparian vegetation. There are livestock trails and loafing areas on the upper end of this riparian area that have caused some sloughing, but not enough to put the system at risk. There is some woody mortality on the fringes of the riparian area that may be a result of drought conditions the past few years. The lack of weed species at this riparian area is unusual in this GMA. The Tumbleweed Spring area is located in a tight, rocky canyon so has limited livestock access and impacts. The BLM identified project could not be located.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2, although upward trends in the riparian areas indicate that progress is being made toward achieving the standard.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community (approximately 75% of the pasture acreage). Departures of indicators from potential as compared to ecological site descriptions/reference areas are similar to those described above for the Callahan Pasture of the Keeney Creek Allotment (at trend plot # 1).

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grass community (approximately 25% of the pasture acreage), with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Callahan Pasture of the Keeney Creek Allotment.

Departures from desired conditions were primarily related to wildfire and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass, forb, and shrub components within the vegetation community. Departures do not appear related to current livestock management practices. Greater than expected cover of annual grass limits the effectiveness of the understory for wildlife. Remaining shrubs in the area are at risk of loss with the susceptibility to wildfire.

#### Additional Issues

Medusahead ryegrass has increased in dominance on annual rangeland benches between Squaw Creek and the west boundary of the pasture over the past fifteen years.

Cattle and sheep trailing along Crowley Road and Squaw Creek Road and though South Racehorse Pasture has remained with only limited control by BLM. Although sheep trailing tends to occur short duration as animals are moved from spring range to Harper Junction for shipping, cattle trailing occurs as animals are moved in the spring to pastures more distant from private land in Harper Valley. Cattle trailing home at the end of scheduled grazing at times tends be more consistent with a drift, allowing cattle to move at their pace.

Improvement in Cottonwood Creek will be very slow due to the large amounts of water this system has to handle. Improving conditions upstream and downstream and continuing current management will assist this segment's functionality.

Malheur fiddleneck, a state-listed threatened species, is the only special status plant species found in the South Racehorse Pasture. Sites for this species are near hill summits and are not vulnerable to most disturbances, including OHV use and livestock churning of the soils.

### Findings

- Rangeland Health Standard 1 was met in both the Wyoming big sagebrush/bunchgrass and the annual rangeland vegetation communities.
- Rangeland Health Standard 2 was not met at Cottonwood Creek, Squaw Creek, North Fork Squaw Creek, South Fork Squaw Creek and a number of developed and undeveloped springs, due to factors other than current livestock grazing practices.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture as a result of not meeting Standard 2, although upward trend in lotic riparian communities indicates progress toward meeting standard four.
- Rangeland Health Standard 5 for wildlife species was not met in the Wyoming big sagebrush/bunchgrass vegetation communities or in the annual rangeland vegetation communities due to the loss of perennial species diversity from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was met for Malheur fiddleneck, a special status plant species.
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend identified.

### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Implement appropriate livestock trailing along the Crowley Road.
- Establish an upland trend plot in this pasture.
- Add riparian management objectives for Cottonwood Creek, Squaw Creek, North Fork Squaw Creek, South Fork Squaw Creek, and springs in this pasture.
- Address spring development design and/or abandon for riparian management at Tunnel and Tumbleweed Springs in accordance with BLM policy.

### **North Butte Pasture (00308\_03)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies three inventory units in the area which includes North Butte Pasture. Dominant shrubs in the largest unit included Wyoming big sagebrush while dominant grasses included bluebunch wheatgrass. Minor inclusions of perennial grassland and shrub/annual grassland are recorded. The pasture is grazed in a two year

deferred rotation schedule between 5/16 and 7/15 one year and between 9/1 and 10/31 the following year, in accordance with the 1985 AMP. A reach of Dry Creek (mostly privately owned) was removed from the pasture with the construction of King Brown Fence in 1995. Most of Butte Creek to its confluence with Dry Creek and a short reach of Dry Creek remain within the pasture and available for livestock use.

The Southern Malheur RPS identified a management objective for North Butte Pasture to improve ecological conditions. This objective was modified in the 1985 allotment management plan to maintain ecological conditions.

Evaluation of Monitoring Data

Actual use and utilization data for North Butte Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year growing season and deferred grazing, has been followed since AMP implementation in 1985, with the exception of a few years in the late 1980s. The maximum allowable utilization level of 50 percent within native range was exceeded a number of years prior to 1990 and again in recent years as water in other pastures has become limited.

Upland vegetation trend data for North Butte Pastures are analyzed and summarized. One 3X3 trend plot with a 100 foot cover line was established and baseline photo were taken in a healthy native portion of the pasture in 1983. The 3X3 plot was photographed again and mapped in 1988 prior to the most recent allotment evaluation, and in 2003 in preparation for this GMA assessment. Line cover data were also collected in these years. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1983	1.58	27	0.0585	0.0765
1988	2.34	20	0.117	0.0985
2003	6.34	31	0.2045	0.2037

Recorded basal cover of bluebunch wheatgrass has increased during the twenty year period between 1983 and 2003, with both long term and short term increases recorded. These data indicate an increase in average plant size but greater variability in size. Although the mapped 3X3 plot and photo do not identify as clear of an increase in cover of desirable perennial vegetation, these data do not conflict with the findings along the line. The photos identify little change in sagebrush cover. Professional judgment concerning vegetation trend in North Butte Pasture during the past fifteen years are consistent with the finding of static to upward trend based on the 100 foot line and the 3X3 plot. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Aerial photo monitoring has been sporadically conducted on Dry Creek over the past twenty years. The earliest aerial photos in the portion of Dry Creek in this pasture are from 1997. They indicate a short-term upward trend due to increasing the riparian vegetated area and narrowing the channel. There is still a concern about the creek in this pasture as management has not changed, and there is still hot season use. Part of the

trend seen in the photos could be due to a large flush in 1997 dumping silts in the creek prior to the photos being taken and droughty conditions in the 2002 photos causing the channel to narrow.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in North Butte Pasture. The assessment area at the trend plot was a key area representing the Wyoming big sagebrush/bluebunch wheatgrass range site with little loss of native species and is present in the majority of the pasture not immediately adjacent to water sources. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>None to slight departure from site description/reference area for all indicators</i>	
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Plant mortality/decadence

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Dry Creek which flows through this pasture for approximately 0.5 miles. In this pasture, Dry Creek is a large, perennial stream system located in a fairly open, accessible valley. The channel was too wide and too shallow for the geological setting. Most of the woody riparian vegetation component has historically been lost in this system. There is some regeneration, but none is surviving wildlife and livestock browsing. There are late seral herbaceous riparian species present, but portions of it have lost contact with the water table due to historic headcuts draining the system. There are still 6 – 8 foot active headcuts upstream of this segment. Upland vegetation species have been invading portions of the historic floodplain. This stream receives large flushes of water during high precipitation events and spring runoff. Contributing factors to not meeting the standard were current and historic livestock grazing, homestead and cow camp settlements, historic and current headcuts, limited seasonlong wild horse use, and large seasonal flushes in system that cannot handle the energy.

Standard 2 was met on Butte Creek which flows through this pasture for approximately 3.5 miles. Butte Creek is an interrupted perennial system with narrow canyons creating a pool system in the middle of this segment. The lower end of the stream is braided with no defined channel. Flow is more interrupted at the lower end with upland species dominating the vegetation. Historically, this stream has downcut, probably as a result of cutting in Dry Creek. The canyon/pool areas are protected from livestock access and are functioning properly. In areas more accessible to livestock, there are some impacts evident, but not enough to put the system at risk. There is some wild horse use evident on the middle portion of the stream. Of concern while assessing this stream in 2003, was

the sheep use observed on the riparian area. The sheep created a very denuded riparian area while loafing on the creek during the day. If this is a common practice with the bands of sheep, the livestock impacts observed in the more accessible areas could be a result of sheep in addition to or instead of cattle.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identify the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located near Big Bend and Windy reservoirs and south of Skull Springs, riparian and meadow habitats adjacent to Dry Creek and Butte Creek have the potential to be important for sage-grouse.

#### Findings

- Rangeland Health Standard 1 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 2 was not met on the short reach of Dry Creek in the pasture due to current livestock grazing practices and other factors. Rangeland Health Standard 2 was met on Butte Creek, although livestock impacts were noted.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 4 was not met as a result of not meeting Standard 2 on Dry Creek.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- The AMP management objective to improve ecological conditions was met with overall static to upward trend recorded.

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Butte Creek and Dry Creek in this pasture.
- Address sheep use and loafing areas on Butte Creek.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe

Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

### **Middle Butte Pasture (00308\_04)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Middle Butte Pasture. Dominant shrubs included bitter-brush and big sagebrush while dominant grasses included bluebunch wheatgrass. Minor inclusions of perennial grasslands were present in the pasture. The pasture is grazed annually between 7/16 and 8/31, in accordance with the 1985 AMP.

The Southern Malheur RPS identified a management objective for Middle Butte Pasture to improve ecological conditions. This objective was modified in the 1985 allotment management plan to maintain ecological conditions.

#### Evaluation of Monitoring Data

Actual use and utilization data for Middle Butte Pasture (Appendix E) indicate that the AMP grazing schedule, with planned Mid-summer grazing, has been followed since AMP implementation in 1985, with periodic exception when flexibility for growing season use is implemented to make grazing use in years when livestock water is limited in adjoining pastures. The maximum allowable utilization level of 50 percent within native range has not been exceeded in the past twenty years.

One 3X3 trend plot with a 100 foot cover line was established for Middle Butte Pasture in 1968 with photos. A 100 foot line intercept was added to the 3X3 plot in 1983. The line was measured again in 1988 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1983	2.40	29	0.0828	0.0840
1988	3.15	24	0.1313	0.1643
2003	4.94	24	0.2058	0.1333

Recorded basal cover of bluebunch wheatgrass has increased during the twenty year period between 1983 and 2003, with both long term and short term increases recorded. These data indicate an increase in average plant size but greater variability in size. Although the mapped 3X3 plot and photo do not identify as clear of an increase in cover of desirable perennial vegetation, some long term increase may be validated. Short term trend is less evident in photo and mapped 3X3 information with variability dependent between successive years likely due to differences in total production and utilization levels. Comparison of successive photos identify some increase in sagebrush cover as does the recorded line increase from 2.27% in 1983 to 4.15% in 2003. Professional judgment concerning vegetation trend in Middle Butte Pasture during the past fifteen years is consistent with the finding of static to upward trend based on the 100 foot line

and the 3X3 plot. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Rangeland health assessments and determinations for Standards 1 and 3 in Middle Butte Pasture are consistent with those presented for North Butte Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

##### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

##### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

#### Findings

- Rangeland Health Standard 1 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 4 was met in the pasture with Standards 1 and 3 met.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- The AMP management objective to improve ecological conditions was met with overall static to upward trend recorded.

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## South Butte Pasture (00308\_05)

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes South Butte Pasture. Dominant shrubs included bitter-brush and big sagebrush while dominant grasses included bluebunch wheatgrass. The pasture is grazed in a two year deferred rotation schedule between 9/1 and 10/31 one year and between 5/16 and 7/15 the following year, in accordance with the 1985 AMP.

The Southern Malheur RPS identified a management objective for South Butte Pasture to improve ecological condition. This objective was modified in the 1985 allotment management plan to maintain ecological condition.

### Evaluation of Monitoring Data

Actual use and utilization data for South Butte Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year deferment of cattle grazing until after seed-set, has been followed since AMP implementation in 1985, with periodic exception implementing more frequent deferment due to limited water in reservoirs. The maximum allowable utilization level of 50 percent within native range has not been exceeded in recent years, although was exceeded in the late 1980s and early 1990s.

One 3X3 trend plot was established for South Butte Pastures in 1968 with photos. A 100 foot line intercept was added to the 3X3 plot in 1983. The line was measured again in 1988 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1983	1.59	29	0.0548	0.0489
1988	3.30	26	0.1269	0.1202
2003	7.07	33	0.2142	0.2006

Recorded basal cover of bluebunch wheatgrass has increased during the twenty year period between 1983 and 2003, with both long term and short term increases recorded. These data indicate an increase in average plant size but greater variability in the size of individual plants. Although the mapped 3X3 plot and photo do not identify as clear of an increase in cover of desirable perennial vegetation, the long term increase in recorded basal cover appears validated. Comparison of successive photos identify some increase in sagebrush cover, primarily due to increased size of individual shrubs, as does the recorded line increase from 0.25% in 1983 to 4.57% in 2003. Professional judgment concerning vegetation trend in South Butte Pasture during the past fifteen years is consistent with the finding of upward trend based on the 100 foot line and the 3X3 plot. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Rangeland health assessments and determinations for Standards 1 and 3 in South Butte Pasture are consistent with those presented for North Butte Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Findings

- Rangeland Health Standard 1 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 4 was met in the pasture with Standards 1 and 3 met.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- The AMP management objective to improve ecological conditions was met with overall static to upward trend recorded.

Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

**Harper Junction Pasture (00308\_06)**

Management Setting

Harper Junction Pasture is native rangeland dominated by perennials with an overstory of Wyoming big sagebrush and salt desert shrubs. Annual grasses and forbs dominate in the understory adjacent to Crowley Road, where significant livestock trailing and other

historic disturbances have occurred. Areas more distant from the route of historic trailing have a moderate representation of potential perennial herbaceous vegetation. The eastern portion of the pasture burned in recent years, but received no rehabilitation seeding. The pasture was not recognized in the 1985 allotment management plan and has been grazed consistent with the schedule identified for North and South Racehorse pastures (annual use between 4/1 and 5/15) in recent years.

The Southern Malheur RPS identified no management objective for this pasture although was likely considered a portion of North Racehorse Pasture. North Racehorse Pasture has a management objective to improve ecological condition.

#### Evaluation of Monitoring Data

No long term monitoring studies have been established within Harper Junction Pasture. Similarly, no annual actual use or utilization data are collected. Professional judgment is that trend in upland vegetation in Harper Junction Pasture is static.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
No rangeland health assessment and determination was completed for Harper Junction Pasture. Annual rangeland in this pasture is similar to that found adjacent to Crowley Road in North and South Racehorse pastures. As a result, portions of the pasture dominated by annual species are likely meeting Standard 1, but not meeting Standard 3 as a result of historic grazing/trailing and other historic activities which have displaced perennial species.

#### *Standard 2 - Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

#### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

#### *Standard 5 - locally important species*

The standard was likely not met due to dominance of annual grasses and associated lack of desired forb and shrub components as described above for Standards 1 and 3.

#### Findings

- Rangeland Health Standard 1 was met in Harper Junction Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the perennial vegetative communities and not met in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in the perennial vegetative communities and not met in the annual rangeland vegetation

communities due to the loss of perennial species from historic grazing and other surface disturbing activities.

- AMP management objective to improve ecological conditions was likely met with overall static to upward trend determined from professional judgment.

#### Recommendations

- Implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH, and incorporate into the allotment management plan.

### **Robinson Reservoir Enclosure (00308\_07)**

#### Management Setting

Robinson Reservoir Enclosure provides access to water in Robinson Reservoir when either North Butte Pasture or Middle Butte Pasture is scheduled for use. The reservoir was constructed in 1969 to hold winter and spring runoff for mid-summer livestock water and has not been managed for riparian values. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

#### Recommendations

- Maintain the reservoir enclosure as originally designed.

### **Robinson Reservoir Branding Pen (00308\_08)**

#### Management Setting

Robinson Reservoir Branding Pen is in the northwest corner of Robinson Reservoir Enclosure. It is not recorded in the JDR project files and is poorly maintained. Due to the small size of the pen and the objective for construction of the pen, no periodic monitoring of upland has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

#### Recommendation

- Determine the need for this livestock handling facility and abandon if it is no longer needed.

### **East Copeland Reservoir Enclosure (00308\_09)**

#### Management Setting

East Copeland Reservoir Enclosure is a 13 acre enclosure between North and Middle Butte pastures, providing access to water in East Copeland Reservoir when each of these pastures is scheduled for use. The reservoir was constructed in 1948 to hold winter and spring runoff for mid-summer livestock water and has not been managed for riparian values. Due to the small size of the enclosure and the objective for construction of the

enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Recommendations

- Maintain the reservoir enclosure between two pastures as originally designed.

### **King Brown Enclosure (00308\_10)**

#### Management Setting

King Brown Enclosure encompasses a portion of Dry Creek and includes a significant portion of riparian communities adjacent to the perennial stream. King Brown Fence was constructed in 1995 to exclude cattle from Dry Creek during periods of scheduled use of North Butte Pasture. Authorized use in the enclosure is limited to overnight holding of cattle in alternate years when being moved from the Racehorse pastures to South Butte Pasture and for short term gathering and holding prior to moving cattle to private land at the end of the grazing season. At the time of construction of fencing to separate this area from North Butte Pasture, the management objective was implied to improve riparian conditions.

#### Evaluation of Monitoring Data

No long term monitoring studies have been established within King Brown Enclosure. Similarly, no annual actual use or utilization data are collected.

Aerial photo monitoring has been sporadically conducted on Dry Creek over the past twenty years. The earliest aerial photos in the portion of Dry Creek in this pasture are from 1997. They indicate a short-term upward trend that is increasing the riparian vegetated area and narrowing the channel. Management of this area has changed to limit hot season use, but professional judgment is still concerned about the condition of the creek in this pasture due to the occurrence of some unauthorized hot season use. Part of the trend seen in the photos could be due to a large flush in 1997 dumping silts in the creek prior to the photos being taken and droughty conditions in the 2002 photos causing the channel to narrow.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No upland rangeland health assessment and determination was completed for King Brown Enclosure. Perennial rangeland in this pasture is similar to that found in North Butte Pasture from which this enclosure was separated in 1995. As a result, upland portions of the pasture are likely meeting Standard 1 and meeting Standard 3.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Dry Creek which flows through this pasture for approximately 0.25 miles on federal lands. In this pasture, Dry Creek is a large, perennial stream system located in a fairly open, accessible valley. The channel was too wide and too shallow for the geological setting. Most of the woody riparian vegetation component has historically

been lost in this system. There is some regeneration, but none is surviving wildlife and livestock browsing. There are late seral herbaceous riparian species present, but portions of it have lost contact with the water table due to historic headcuts draining the system. There are still 6 – 8 foot active headcuts upstream of this segment. Upland vegetation species have been invading portions of the historic floodplain. This stream receives large flushes of water during high precipitation events and spring runoff. Contributing factors to not meeting the standard were current and historic livestock grazing, homestead and cow camp settlements, historic and current headcuts, and large seasonal flushes in a system that cannot handle the energy.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standards 1, 2, and 3.

#### *Standard 5 - Locally Important Species*

Perennial rangeland in this pasture is similar to that found in North Butte Pasture from which this enclosure was separated in 1995. As a result, upland portions of the pasture are likely meeting Standard 5.

#### Additional Issues

Future management of a small parcel of public land and riparian resources downstream of King Brown Enclosure that is fenced in conjunction with state lands needs to be addressed.

#### Findings

- Rangeland Health Standard 1 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 2 was not met on the short reach of Dry Creek in the enclosure due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- Rangeland Health Standard 4 was not met in the pasture with Standard 2 not met.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities.
- The implied management objective to improve riparian conditions was marginally met with concerns remaining about unauthorized hot season use.

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Dry Creek in this pasture.
- Coordinate with Division of State Lands and the livestock operators to incorporate public lands downstream into the enclosure.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe

Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

### **Racehorse Well Enclosure (00308\_11)**

#### Management Setting

Racehorse Well Enclosure shares its western boundary fence with North Racehorse Pasture and has a trough from Racehorse Well located in the fenceline. With the exception of a small inaccessible wash, it was seeded to crested wheatgrass and four-wing saltbush in 1985. Livestock management in this small enclosure is not identified in the allotment management plan or in the JDR project file. No management objective has been developed for this enclosure and it has not been used by cattle or sheep to any significant degree in recent years.

#### Evaluation of Monitoring Data

No long term monitoring studies have been established within Racehorse Well Enclosure. Similarly, no annual actual use or utilization data are collected.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands, Standard 3 - Ecological Processes, and Standard 5 - Locally Important Species*

No rangeland health assessment and determination was completed for Racehorse Well Enclosure. Annual rangeland in this pasture was seeded to crested wheatgrass twenty years ago with minimal success. As a result, the enclosure dominated by annual species and minor occurrence of introduced perennial grass is likely meeting Standard 1, but not meeting Standard 3 or Standard 5 as a result of historic grazing/trailing and other historic activities which have displaced native perennial species.

#### Recommendations

- Coordinate with permittees to consider use of this pasture as a short term livestock handling facility used in association with Racehorse Corral.

### **Racehorse Test Plot (00308\_12)**

#### Management Setting

Racehorse Test Plot is within North Racehorse Pasture. It was established as a seeding test plot during the Vale Project and a portion of it was seeded with crested wheatgrass. Woven wire fence with chicken wire on the lower portion excluded livestock and rabbits when it was constructed. The enclosure continues to function to exclude livestock and the enclosed stand of crested wheatgrass appears vigorous. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Recommendations

- Maintain Racehorse test plot for its original purpose including a reference area seeded to nonnative species.

### **Racehorse Corral (not entered in Geographic Information System)**

#### Management Setting

Racehorse Corral is located in the northeast corner of North Racehorse Pasture, entirely on public land. It is not listed as a project in the JDR project files, but is maintained and used annually, especially during the return to private land at the end of the grazing season by a number of livestock operators grazing in allotments adjacent to Crowley Road, a traditional trailing route. Due to the small size of the corrals and the objective for construction of the corrals, no periodic monitoring of upland vegetation has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Recommendations

- Add to district administrative files and implement cooperative agreement with livestock operators.

### **Wallrock Allotment (00405)**

Wallrock Allotment is managed as an “M” category allotment and includes six pastures identified in the grazing schedule and a number of enclosures and exclosures. An allotment management plan was implemented in 1984 with winter/early spring use scheduled for Dry Creek Buttes Pasture and a summer rotation planned for remaining pastures. The grazing schedule was further refined following allotment evaluation with implementation in 1990 of a revised AMP. The location of Wallrock Allotment is provided in Figure 1, while pasture acreage within Wallrock Allotment is provided in Table 6.

Table 6: Wallrock Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Dry Creek Buttes	49,282	44,719	4,185	81	127	170
West Juniper	15,837	15,470		8	359	
Schaeffer	17,150	17,063		trace	87	
North McNulty	4,358	4,334			24	
Hub	2,076	2,016			60	
Page Place FFR	294	119			175	
Antelope Flat Seeding	3,238	3,238				
Page Place State Block	4,002	Trace		3966	36	
West Page Place FFR	118	62			56	

The current grazing schedule was implemented with the 1990 allotment management plan and is presented in Table 7.

Table 7: Wallrock Allotment grazing schedule implemented in the 1990 AMP

Pasture	Year 1 (2005, 2008)	Year 2 (2006, 2009)	Year 3 (2007, 2010)
Dry Creek Buttes	11/1 to 4/15	11/1 to 4/15	11/1 to 4/15
Hub	Gathering	Gathering	Gathering
Antelope Flat Seeding	4/16 to 5/31	7/1 to 7/30	8/16 to 9/16
North McNulty	4/16 to 5/31	7/1 to 7/30	8/16 to 9/16
State Block	6/1 to 7/15	8/1 to 9/15	7/1 to 8/15
West Juniper	7/16 to 9/15	9/16 to 10/31	4/16 to 6/30
Schaeffer	9/16 to 10/31	4/15 to 6/30	9/16 to 10/31
Hub	Gathering	Gathering	Gathering
Dry Creek Buttes	11/1 to 4/15	11/1 to 4/15	11/1 to 4/15

One livestock operator is permitted to graze cattle in Wallrock Allotment within pastures identified in the AMP in a year-round schedule which includes the State Block and Private land at the Page Place. Tree Top Ranches – Oregon is authorized to graze 6,656 AUMs annually.

The following summary lists the percent of grazing authorization reported used in Wallrock Allotment during the past five years:

2004 through out date from winter range 2005	72 percent
2003 through out date from winter range 2004	63 percent
2002 through out date from winter range 2003	100 percent
2001 through out date from winter range 2002	100 percent

Special management areas within Wallrock Allotment include Dry Creek Gorge, Owyhee Views, and Hammond Hill Sand Hills ACECs and Dry Creek administratively suitable National Wild and Scenic River. Portions of Dry Creek and Dry Creek Buttes Wilderness Study Areas are also within the allotment.

Special status plants present within Wallrock Allotment include sterile milkvetch and Cusick’s chaenactis.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

**Dry Creek Buttes (00405\_01)**

Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Dry Creek Buttes Pasture. Dominant shrubs in the southern portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. The northern portion of the pasture is primarily salt desert shrub grassland communities. The pasture is grazed annually between 11/1 and 4/15, in accordance with the 1990 AMP.

The Southern Malheur RPS identified a management objective for Dry Creek Buttes Pasture to improve ecological condition. This objective was modified in the 1990 allotment management plan to maintain ecological conditions.

Evaluation of Monitoring Data

Actual use and utilization data for Dry Creek Buttes Pasture (Appendix E) indicate that the AMP grazing schedule, with planned winter grazing, has been followed through the entire 23 year period. The maximum allowable utilization level of 50 percent within native range has not been exceeded in the past twenty years.

One photo point was established for Dry Creek Buttes Pasture in 1966, but not relocated in subsequent years. A permanent 3X3 trend plot with a 100 foot cover intercept line was established in 1985 with photos. The line was measured again in 1989 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	1.30	11	0.1182	0.1100
1989	1.49	10	0.1490	0.1301
2003	2.94	10	0.3940	0.2949

Needle-and-thread grass is co-dominant with bluebunch wheatgrass at this site. Statistical analysis of the recorded basal cover of needle-and-thread grass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	1.13	12	0.0942	0.0974
1989	3.59	16	0.2244	0.1990
2003	3.42	13	0.2850	0.1993

Recorded basal cover of bluebunch wheatgrass and needle-and-thread grass has increased during the eighteen year period between 1985 and 2003, with both long term and short term increases recorded. These data indicate an increase in average plant size but greater variability in size. Both the mapped 3X3 plot and photo identify a similar long term increase in perennial grass cover. Short term trend is less evident in photo and mapped 3X3 information with variability dependent between successive years likely due to differences in total production and utilization levels. Comparison of successive photos identifies little change in sagebrush cover. No cover of sagebrush was recorded along the line in 1985 and only one intercept was measured in each of 1989 and 2003. Professional judgment concerning vegetation trend in Dry Creek Buttes Pasture during the past fifteen years is consistent with the finding of upward trend at the key area. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture. An assessment of the spring developments in this pasture during the 1980's provided some photos of the associated riparian areas. These photos were used where possible to compare to 2002-2003 photos and assessments to professionally judge a general riparian

trend. Historical photos of Cherry, Burnt, Eddy, and Ferguson Springs showed no change in the riparian area around the development over the past twenty years. Photos of East Wallrock, Lower Burnt, Little Mattingly, Mattingly, and Y Springs showed a downward trend in the riparian areas around the development due to a loss of the riparian vegetation which could indicate less water available at the spring source.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Dry Creek Buttes Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site with a co-dominant of needle-and-thread grass, while the second represents those portions of the pasture which tend toward the salt desert shrub communities. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 within both of these native range vegetation communities, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site with needle-and-thread grass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production
	Reduction reproductive capability of perennial plants

<b>Salt Desert Shrub Communities</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Gullies
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants

The few departures of indicators from potential conditions, being slight to moderate do not impair meeting standards and are likely related to historic use of vegetation communities in a low precipitation zone. Winter cattle use in this pasture appears consistent with meeting standards of rangeland health.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Acton Gulch, an intermittent system with perennial areas where springs and seeps contribute water to the channel. Most of this drainage has

ephemeral flow although historically there may have been more intermittent flow. The channel was too wide and too shallow for the geological setting. Historic downcutting has ripped most of the soil out of the channel leaving a cobble/boulder bed. Upland and nonnative vegetation species have been invading portions of the riparian channel. Contributing factors to not meeting the standard were historic livestock grazing, historic headcuts, historic roads along drainage, reservoir development, invasion of saltcedar, and large seasonal flushes in a system that cannot handle the energy.

Standard 2 was not met on Dead Horse Canyon and spring which is a tributary of Dry Creek. This system is perennial from the spring source downstream. Historic downcutting has occurred in relation to Dry Creek causing the loss of some of the hydric soils from the channel. Upland and nonnative vegetation species have been invading portions of the riparian channel. There is a remnant cottonwood tree in the channel with no regeneration occurring. The road along the drainage is negatively impacting the functionality of the stream by trapping water and diverting water from the drainage. There are numerous crossings located upstream of the perennial portion of the drainage that contribute to sloughing and excessive erosion. Recreational vehicles are also a factor in the ephemeral portions of the drainage as they are being driven down the drainage bottom creating further erosion, sloughing, and channelization. Contributing factors to not meeting the standard were historic livestock grazing, historic headcuts from Dry Creek, roads constraining the drainage, invasion of saltcedar and perennial pepperweed, and large seasonal flushes in a system that cannot handle the energy.

There are twelve developed springs in this pasture in BLM's project files. Starting at Eddy Spring and running north is Cow Camp, Mattingly, Little Mattingly, Y, Diamond, Lower Burnt, Burnt, Cherry, East Wallrock, and McNulty Springs.

Cow Camp Spring was not assessed as it is located on private land. McNulty and Diamond Springs were not assessed as they were not located. In 2004, field personnel did find these springs, and verbally communicated that both developments were functioning properly. A riparian assessment was not completed, although verbal communication indicated that the riparian areas were functioning in some aspects.

In the 1980's there was an assessment done of the developed spring projects in this allotment. During this assessment Cherry and Burnt Springs were identified as non-functioning spring developments. Both of these sites have very little riparian indicators remaining, including vegetation and inundated soils.

Standard 2 was not met at Eddy Spring which had been recently reconstructed and maintained prior to the assessment. The development is fully functional although the recent reconstruction work has excessively disturbed the riparian area. Placement of the pipeline to the trough along the drainage has created an unnatural flow pattern along the pipeline that could excessively dewater the spring. Overflow from the trough and headbox needs to be correctly rerouted to the drainage and not allowed to run along the surface of the upland areas. Contributing factors to not meeting the standard were current

and historic livestock grazing, homestead and cow camp settlements, invasion of weeds, improper spring design for resource protection, and recreational use.

Standard 2 was not met on Mattingly, Little Mattingly, Y, East Wallrock, and Lower Burnt Springs. All of these projects, which were functional in the 1980's assessment, were no longer functional in the 2002-2003 Dry Creek GMA assessment. Lower Burnt Spring had very little water or riparian vegetation during the 1980's assessment. The riparian areas associated with the rest of these developments had historic downcutting that drained a large portion of the historic hydric soils. This downcutting is directly related to the headcuts that have traveled up the main drainage all of these springs flow into. Wildlife and livestock are trailing into these spring areas to water in perennial pool areas, but very little perennial water flows into the main drainage. Contributing factors to not meeting the standard were historic and current livestock grazing, the proximity of homesteads, historic headcutting in main channel, and improper spring design.

Standard 2 was not met at Ferguson Spring which had been recently reconstructed and maintained prior to the assessment. The development is fully functional, although the work has excessively disturbed the riparian drainage area by digging two pits to capture runoff water along the drainage. The overflow from the trough was not correctly returned to the channel. The headbox area is devoid of riparian vegetation, so most of the water in the system is being captured by the development and moved downstream to the trough and pit location. Contributing factors to not meeting the standard were current and historic livestock grazing, homestead and cow camp settlements, invasion of noxious weeds (knapweed), and improper spring design for resource protection.

There were several seep areas near all of these developed springs that were assessed as a group. Standard 2 was not met on these riparian areas with impacts being similar to those observed at the developed spring sites. Contributing factors to not meeting the standard included historic and current livestock grazing, the proximity of homesteads, historic headcutting in main channels, and weed invasion.

There were several small drainage segments throughout the pasture that were assessed as a group. Standard 2 was met on these riparian areas. There were indicators of wildlife and livestock use, but the impacts to the riparian functionality were much less than in similar areas in pastures with summer use.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/ bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>
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<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>
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<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production
	Reduction in the reproductive capability of perennial plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the salt-desert shrub community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Departures from the indicators are primarily a result of historic livestock grazing use. Perennial forbs were lacking in the Wyoming big sagebrush community. Departures do not appear to be related to current livestock grazing practices. Important winter browse for mule deer occurs in this community, and current livestock grazing is maintaining cover and forage values for wildlife.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Wallrock Ridge, riparian and meadow habitats in the vicinity springs in the western portion of Dry Creek Buttes Pasture have the potential to be important habitat.

Acton Canyon pipeline was constructed in 1970 with a water source on private land near Page Place and extending into Dry Creek Buttes Pasture. Troughs 3 through 9 and associated parts of this pipeline in Dry Creek Buttes Pasture have not been maintained in at least the past twenty years due to management of the pasture for winter range and extreme difficulty maintaining the system during freezing conditions. The livestock operators have inquired into the possibility to reconstruct/maintain the pipeline to supply water to the first trough in Dry Creek Buttes Winter Range, at least during spring gathering of cattle.

Sterile milkvetch, a state-listed threatened species, grows on barren, brown ash outcrops in steep and rugged country generally inaccessible to livestock and OHVs in Dry Creek Butte and West Juniper Pastures. Numerous new sightings were made for this species during intensive inventory activities in 2002 and 2003. All sites appear stable and without threats as of these inventory dates. The rhizomatous habit of this species aids in promoting stable, long-term populations on the firm ash substrates it occupies. The fairly widespread but still rare Cusick's chaenactis, a Bureau Tracking (BT) species, is also found sporadically in this pasture on white ash outcrops which to date have maintained their integrity and do not appear to be impacted extensively by OHVs. Malheur penstemon, a BT species, occurs in the Dry Creek Butte Pasture generally on mid to upper slope positions where it is not vulnerable to trampling. It does not appear palatable to any species.

## Findings

- Rangeland Health Standard 1 was met in upland vegetation communities of Dry Creek Buttes Pasture.
- Rangeland Health Standard 2 was not met in one intermittent and one perennial lotic system and was also not met at a number of developed springs. In addition to not meeting the standard at a number of springs due to current livestock management practices, other factors contributed.
- Rangeland Health Standard 3 was met in upland vegetation communities of Dry Creek Buttes Pasture.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2 at a number of sites.
- Rangeland Health Standard 5 for wildlife species was met in upland vegetation communities of Dry Creek Buttes Pasture.
- Rangeland Health Standard 5 was met for the three special status plant species.
- The AMP management objective to maintain ecological conditions was met with overall upward trend recorded.

## Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Acton Gulch, Deadhorse Canyon, Deadhorse Canyon Tributary, and springs in this pasture.
- Address spring development design for riparian management at Eddy, Ferguson, Diamond, Mattingly, Little Mattingly, East Wallrock, Y, and McNulty Springs in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk in Dead Horse Canyon and Acton Gulch; knapweed in Ferguson Spring) consistent with the district plan and BLM policy.
- Address road alignment which is impacting Dead Horse Canyon.
- Abandon Cherry, Lower Burnt, and Burnt Springs.
- Address Cow Camp Spring on private land.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **West Juniper (00405\_02)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes West Juniper Pasture. Dominant shrubs included big sagebrush while dominant grasses included bluebunch wheatgrass. West Juniper Pasture is native rangeland dominated by perennial bunchgrasses, forbs, and Wyoming big sagebrush. The pasture is grazed annually with a three year deferred rotation grazing schedule, in accordance with the 1990 AMP.

The Southern Malheur RPS identified a management objective for West Juniper Pasture to maintain/improve deer/antelope winter range. This objective was modified in the 1990 allotment management plan to include an objective to improve ecological conditions.

Evaluation of Monitoring Data

Actual use and utilization data for West Juniper Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment of use until after the growing season in two of every three years, has been followed since 1990. The maximum allowable utilization level of 50 percent within native range has only been exceeded in one of the past 15 years when utilization was recorded at 51 percent in 2004.

Two 3X3 trend photo points were established for West Juniper Pasture in 1984, plot two with an associated line intercept. The line was measured again in 1989 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	3.02	22	0.1373	0.1483
1989	2.80	18	0.1556	0.1086
2003	4.37	15	0.2913	0.1490

Recorded basal cover of bluebunch wheatgrass and needle-and-thread grass appears to have decreased in the late 1980's but has regained cover in the 14 years between 1989 and 2003. These data indicate a decrease in the number of plants recorded and an associated increase in average plant size through the entire 19 years. The variability in plant size decreased between 1984 and 1989, but returned to 1984 levels by 2003. Both the mapped 3X3 plot and photo identify a long and short term static trend with fewer plants, although larger plants. Comparison of successive photos at both trend plots identifies a slight increase in sagebrush cover. Cover data for sagebrush along the line at plot two has been consistent near five percent at all measurements. Professional judgment concerning vegetation trend in West Juniper Pasture during the past fifteen years is consistent with the finding of static trend at the key areas. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

This pasture has at least four water access points to Dry Creek. Aerial photo monitoring has been sporadically conducted on Dry Creek over the past twenty-five years. The earliest aerial photos at one of these access points are from 1991 with other segments only going back to 1996 or 1997. All of the photos indicate a short-term and long-term trend of static in a functioning at risk condition. There appears to be a slight increase in vegetation between some of the 1991 and 1997 photos, but that increase is not apparent in the 2002 photos. This may be attributed to light livestock use in this part of the pasture during that period of time. Due to a change of permittees, this portion of the pasture has been used regularly during the last several years.

There is one historical riparian photo monitoring point located within this pasture on Dry Creek. It is located at the large water access point just downstream of the Dry Creek

Gorge. It was established in 1989 with retakes occurring in 1995 and 2003. This monitoring point also indicates a static trend in a functioning at risk condition.

There are five historical riparian photo monitoring points located within this pasture on Juniper Creek. These photo points established in 1989 were taken during the 2003 assessments. No change in the condition of the riparian area and stream could be determined leading to a static trend in a functioning at risk condition.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Rangeland health assessments and determinations for Standards 1 and 3 in West Juniper Pasture are consistent with those presented for North Butte Pasture of Butte Allotment. The pasture has a rich forb community associated with healthy perennial grasses in the portion more distant from water. The eastern portion of the pasture adjacent to Juniper Creek also remains intact. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Dry Creek in the Dry Creek Gorge area. Historically this area was fenced off to prevent livestock use of the Gorge, but the fence has not been recently maintained. This segment of the creek was similar to the watergap located downstream.

Standard 2 was met on Dry Creek in the watergap at Indian Trails. In this area, Dry Creek is a steep, rock walled canyon with large boulders limiting livestock access.

Standard 2 was not met on Black Bull Spring. The troughs are located outside of the riparian area and were recently replaced. The overflow needs to be piped back to the channel instead of allowed to flow near the troughs. The spring source has an old fence around it, but it is in disrepair allowing summer use of the area by livestock. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of enclosure fence, and invasion of weed species.

Standard 2 was met on Ivers Spring. The water source at this spring appears to be limiting riparian vegetation.

Standard 2 was not met on Juniper Creek. There is compaction, trampling, and bank shearing occurring in the lower portion of this segment. Browse on the woody vegetation is heavy. The upper portion of the riparian segment is rock armored and impacts from livestock are less here than downstream. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing, historic homestead site, and invasion of weed species.

##### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Wallrock Ridge, riparian and meadow habitats associated with springs in the eastern portion of West Juniper Pasture and adjacent to Juniper Creek and Dry Creek have the potential to be important habitat.

Sterile milkvetch, a state-listed threatened species, grows on barren, brown ash outcrops in steep and rugged country generally inaccessible to livestock and OHVs in Dry Creek Butte and West Juniper Pastures. Numerous new sightings were made for this species during intensive inventory activities in 2002 and 2003. All sites appear stable and without threats as of these inventory dates. The rhizomatous habit of this species aids in promoting stable, long-term populations on the firm ash substrates it occupies.

### Findings

- Rangeland Health Standard 1 was met in the upland rangeland vegetation communities in West Juniper Pasture.
- Rangeland Health Standard 2 was not met on reaches of Dry Creek, Juniper Creek, and a developed spring due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the upland rangeland vegetation communities in West Juniper Pasture.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 for wildlife species was met in the upland rangeland vegetation communities in West Juniper Pasture.
- Rangeland Health Standard 5 was met for sterile milkvetch, a special status plant species.
- The AMP management objective to improve ecological conditions was not met with overall static trend recorded. The ability to assess meeting the RPS objective to maintain/improve deer/antelope winter range is less clear and can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species. Although no management objective has been established for riparian function on gaps to Dry Creek or on Juniper Creek, all were determined to be functioning at risk condition.

## Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Juniper Creek, Dry Creek watergaps, and springs in this pasture.
- Address spring development design on Ivers Spring for riparian management in accordance with BLM policy.
- Repair/replace watergap fences in Dry Creek.
- Repair/replace enclosure fence at Black Bull Spring.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **Schaeffer (00405\_03)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Schaeffer Pasture. Dominant shrubs included big sagebrush while dominant grasses included bluebunch wheatgrass. The pasture is grazed annually with a three year deferred rotation grazing schedule, in accordance with the 1990 AMP.

The Southern Malheur RPS identified a management objective for Schaeffer Pasture to maintain ecological condition. This objective was carried forward into the 1990 allotment management plan.

### Evaluation of Monitoring Data

Actual use and utilization data for Schaeffer Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment of use until after the growing season in two of every three years, has been followed nearly consistently over the past twenty years. The maximum allowable utilization level of 50 percent within native range has not been exceeded in any of the years data were collected.

One photo point was established for Schaeffer Pasture in 1967, but not relocated in subsequent years. A permanent 3X3 trend plot with a 100 foot cover intercept line was established in 1984 with photos. The line was measured again in 1989 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

<u>Year</u>	<u>Recorded Cover</u>	<u>Number of Plants</u>	<u>Average Intercept</u>	<u>Standard Deviation</u>
1984	1.99	24	0.08290	0.0846
1989	2.97	22	0.1350	0.1184
2003	5.69	30	0.1897	0.1909

Recorded basal cover of bluebunch wheatgrass has increased in the short term and long term. These data also indicate an increase in the number of plants and in plant size, although with greater variation in plant size through time. The mapped 3X3 plot and photo do not indicate the same upward trend in perennial grass cover which is recorded by the line intercept. Comparison of successive photos at the trend plot identifies a slight decrease in sagebrush cover over the past 14 years, primarily a loss of canopy and foliage on some of the shrubs. This observation conflicts with a comparison of cover data for sagebrush along the line intercept indicating a slight increase from 3.07 percent in 1989 to 3.95 percent in 2003. Professional judgment concerning vegetation trend in Schaeffer Pasture during the past fifteen years is consistent with the finding of static to upward trend at the key areas. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

There is one historical riparian photo monitoring point located within this pasture on Juniper Creek. This photo point was established in 1989, and was retaken during the 2003 assessments. No change in the condition of the riparian area and stream could be determined leading to a static trend in a functioning at risk condition.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments were completed for Standards 1 and 3 in Schaeffer Pasture at trend plot number 2. This key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site which is the dominant vegetation association in this pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 within this native range vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Plant mortality/decadence
	Deviation of litter amount from expected

Departure of indicators from potential conditions in these native shrub steppe communities is primarily related to the reduced vigor of perennial grasses and the lack of forbs. These slight to moderate departures are the result of historic livestock grazing and other surface disturbing activities and only related to current grazing immediately adjacent to water sources.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Juniper Creek. There is compaction, trampling, trailing, hummocking, sloughing, and excessive bank shearing occurring in this segment. Browse on the woody vegetation is heavy with the woody population lacking older or middle age classes. There has been historic downcutting of this stream that has made the historic floodplain into a terrace. These terraces have become livestock loafing areas due to Juniper Creek being a water source for this pasture. Some of these terraces were also farmed or used somehow in conjunction with the old homestead. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing, historic homestead site, wildlife browse (mostly deer), and invasion of weed species.

Standard 2 was not met on the tributary to Red Butte Canyon. There is compaction and trailing occurring in this segment. This is an important wildlife watering source due to the amount of sign observed. Historically, this tributary has downcut. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse (mostly deer), and invasion of weed species.

Standard 2 was not met on a tributary of Dead Horse. There is some trailing, compaction, and bank shearing occurring in this segment. Contributing factors to not meeting the standard were historic and current livestock grazing, reservoir development upstream controlling flows, and invasion of weed species.

Standard 2 was not met on Quartz Mountain Spring. The spring development is not functioning due to a lack of maintenance. Livestock and wildlife are watering out of the riparian area due to the loss of the development. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, lack of maintenance of spring development, and wildlife browse.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/ bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

	Departure of functional structural groups from site potential
<i>Slight to moderate departure from site description/reference area</i>	
	Plant mortality/decadence

Departures from the indicators are primarily a result of historic livestock grazing use. Perennial forbs and grasses were lacking in the Wyoming big sagebrush community. Departures do not appear to be related to current livestock grazing practices.

#### Additional Issues

The storage tank for Action Canyon Pipeline in the northern portion of Schaeffer Pasture has met its expected service life. At thirty-six years of service, the storage tank has a number of leaks and is in need of replacement.

#### Findings

- Rangeland Health Standard 1 was met in the upland rangeland vegetation communities in Schaeffer Pasture.
- Rangeland Health Standard 2 was not met on Juniper Creek, various riparian areas, and a developed spring due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was met in the upland rangeland vegetation communities in Schaeffer Pasture.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in the upland rangeland vegetation communities in Schaeffer Pasture.
- The AMP management objective to maintain ecological conditions was met with overall static to upward trend recorded.

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Red Butte Canyon Tributary, Juniper Creek and springs in this pasture.
- Address spring development design on Quartz Mountain Spring for riparian management in accordance with BLM policy.
- Realign fence to protect Deadhorse Canyon Tributary that is located upstream of Eddy Cow Camp from livestock impacts.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

#### **North McNulty (00405\_04)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes North McNulty Pasture. Dominant shrubs included big sagebrush while dominant grasses included

bluebunch wheatgrass. McNulty Pasture was divided by McNulty Boundary Fence in 1988 to create a north and south pasture. North McNulty Pasture was placed in Wallrock Allotment, while South McNulty Pasture was placed in Quartz Mountain Pasture with the range-line agreement which divided Harper Basin into allotments in 1985. North McNulty Pasture is grazed annually with a three year deferred rotation grazing schedule, in accordance with the 1990 AMP.

The Southern Malheur RPS identified a management objective for McNulty Pasture to maintain/improve deer/antelope winter range. This objective was modified in the 1990 allotment management plan to include an objective to improve ecological conditions.

Evaluation of Monitoring Data

Actual use and utilization data for North McNulty Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment of use until after the growing season in two of every three years, has been followed consistently over the past twenty years. The maximum allowable utilization level of 50 percent within native range has not been exceeded during the past twenty years except for 2002 and 2003, two years with below average precipitation.

A permanent 3X3 trend plot with a 100 foot cover intercept line was established in 1985 with photos. The line was measured again in 1989 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	3.64	19	0.1916	0.1836
1989	3.66	30	0.1220	0.1496
2003	4.21	22	0.1914	0.1949

Recorded basal cover of bluebunch wheatgrass has remained relatively static in the short term and long term. These data also indicate little change in the number of plants, average plant size or variability in the size of plants. The mapped 3X3 plot and photos also indicate a static trend in the short term and long term. Comparison of successive photos at the trend plot identifies an increase in sagebrush cover over the 19 year period between 1984 and 2003 years, primarily an increase in the number of shrubs. This observation is supported by a comparison of cover data for sagebrush along the line intercept indicating a consistent increase from 1.68 percent in 198 to 3.27 percent in 1989 to 8.00 percent in 2003. Professional judgment concerning vegetation trend in North McNulty Pasture during the past fifteen years is consistent with the finding of static trend at the key areas. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
 Rangeland health assessments and determinations for Standards 1 and 3 in North McNulty Pasture are consistent with those presented for North Butte Pasture of Butte

Allotment. Inclusions of deposited clay soils support earlier seral vegetation communities in draws adjacent to stock water reservoirs. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was met on Juniper Creek. This is an intermittent system with perennial seep areas. The streambed is controlled mostly by cobbles and boulders.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Findings

- Rangeland Health Standard 1 was met in the upland rangeland vegetation communities in North McNulty Pasture.
- Rangeland Health Standard 2 was met on Juniper Creek.
- Rangeland Health Standard 3 was met in the upland rangeland vegetation communities in North McNulty Pasture.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met for wildlife species in the upland rangeland vegetation communities in Schaeffer Pasture.
- The AMP management objective to improve ecological conditions was not met with overall static trend recorded. The ability to assess meeting the RPS objective to maintain/improve deer/antelope winter range is less clear and can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species.

Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## Hub (00405\_05)

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Hub Pasture. Dominant shrubs included big sagebrush while dominant grasses included bluebunch wheatgrass. The pasture is scheduled for use annually in late March and early April during the gathering of cattle from winter range when livestock are processed for turnout onto summer range. The pasture is available again in the fall for similar purposes prior to turnout onto winter range. Use should not exceed twenty days during spring gathering and is limited to 40 percent utilization.

The Southern Malheur RPS identified a management objective for Hub Pasture to improve ecological condition.

### Evaluation of Monitoring Data

Actual use and utilization data for Hub Pasture (Appendix E) indicate that the AMP grazing schedule, with spring use limited to 20 days between 4/1 and 4/20 and fall for gathering prior to turnout onto winter range, has been loosely followed with no data reported from 1990 to 1998. The maximum allowable utilization level of 40 percent with spring use set in the allotment management plan has not been monitored consistently.

A permanent 3X3 trend plot with a 100 foot cover intercept line was established in 1984 with photos. The line was measured again in 1989 and 2003. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	1.06	14	0.0757	0.1212
1989	0.80	10	0.0800	0.0668
2003	1.94	10	0.1940	0.1800

Recorded basal cover of bluebunch wheatgrass has increased slightly in the short term and long term, although these data indicate that the short term increase may be simply an increase in size of existing plants and not recruitment of new plants in what appears to be an area of poor plant density. The mapped 3X3 plot and photos do not identify a change in grass cover or density at the site of this trend plot. Similarly, comparison of successive photos at the trend plot identifies little change in sagebrush cover. A comparison of cover data for sagebrush along the line intercept indicates a decline from 2.32 percent in 1984 to 0.8 percent in 1989. Sagebrush cover under the line recovered to 2.75 percent by 2003. Professional judgment concerning vegetation trend in Hub Pasture during the past fifteen years is consistent with the finding of static to upward trend at the key areas. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Hub Pasture are consistent with those presented for Schaeffer Pasture above. The indicators of upland

watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as described below for the Schaeffer Pasture of the Wallrock Allotment.

Findings

- Rangeland Health Standard 1 was met in the upland rangeland vegetation communities in Hub Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the upland rangeland vegetation communities in Hub Pasture.
- Rangeland Health Standard 4 was met in the pasture with Standards 1 and 3 met.
- Rangeland Health Standard 5 for wildlife species was met in the upland rangeland vegetation communities in Hub Pasture
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend recorded.

Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

**Page Place FFR (00405\_06)**

Management Setting

Page Place FFR includes the private land used by the livestock operator authorized to graze livestock in Wallrock Allotment. The pasture is not identified in the allotment management plan grazing schedule. The pasture includes a water trough available for cattle when adjoining pastures identified in the grazing schedule are used.

No long term monitoring studies have been established within Page Place FFR, since it is managed custodially. Similarly, no annual actual use or utilization data are collected. Standards assessments for the minimal acreage within Page Place FFR were not completed.

#### Additional Issues

Page Cabin Spring (JDR 1698) is a BLM project located on private land through the grant of an easement/right-of-way to the agency. Additionally, the water source for Acton Canyon Pipeline is a well at Mineral Spring on private land which is used through a grant of easement/right-of-way.

#### Recommendations

- Maintain custodial management, which continues to meet upland pasture objectives.

### **Antelope Flat Seeding (00405\_07)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Antelope Flat Pasture. Dominant shrubs included big sagebrush while dominant grasses included bluebunch wheatgrass in upland communities. The second unit is within an internally drained basin which supports silver sagebrush and associated grass species able to withstand periodically saturated soils. The majority of the internally drained basin (1,313 acres) was seeded to crested wheatgrass in 1967 as part of the Vale Project. Antelope Flat Seeding Pasture is grazed annually with a three year deferred rotation grazing schedule, in accordance with the 1990 AMP.

The Southern Malheur RPS identified a management objective for Antelope Flat Seeding to maintain/improve deer/antelope winter range. This objective was modified in the 1990 allotment management plan to include an objective to maintain the ecological conditions of native upland vegetation communities and to improve the condition of nonnative seedings.

#### Evaluation of Monitoring Data

Actual use and utilization data for Antelope Flat Seeding Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment of use until after the growing season in two of every three years, has been followed nearly consistently over the past twenty years. The maximum allowable utilization level of 50 to 65 percent within nonnative seedings has not been exceeded in any of the years data were collected.

Trend plot number one was established in 1969. Upon not locating trend plot number one in 1984, trend plot number two was established in the same location within the seeded portion of the basin. Line intercept data were collected in 1984 and 1989, while the plot has been photographed and mapped in 1984, 1989, and 2003. Statistical analysis of the recorded basal covers of crested wheatgrass data are as follows:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	4.83	30	0.1610	0.2359
1989	2.83	15	0.1887	0.2229

Trend plot number three was established on the margins of the playa in 1990 in an areas with Wyoming big sagebrush, although within the area seeded to crested wheatgrass, to better assess the impacts of grazing practices on the seeding as compared to the major influence of annual flooding impacting the seeding at trend plot number two. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1990	3.65	25	0.1460	0.1050
2003	0.60	10	0.0600	0.0508

Recorded basal cover of crested wheatgrass indicates a long term and a short term decline in crested wheatgrass cover. These data also indicate a decrease in the number of plants through the long term and in plant size in the short term. The mapped 3X3 plot and photo indicate the same downward trend in seeded grass cover which is recorded by the line intercept. Comparison of successive photos at the trend plot identifies an increase in silver sagebrush cover at trend plot number two over the past 20 years and an increase in Wyoming big sagebrush cover at trend plot 3 over the past 13 years. These observations are consistent with a comparison of cover data for silver sagebrush along the line intercept indicating a major increase from 1.15 percent in 1984 to 28.39 percent in 1989. Similarly, Wyoming big sagebrush increased from 0.87 percent cover under the line in 1990 to 5.45 percent in 2003. Professional judgment concerning vegetation trend in Antelope Flat Seeding Pasture during the past fifteen years is consistent with the finding of downward trend at the key areas with a decline in crested wheatgrass production in the seeded portion of the pasture. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments were completed for Standards 1 and 3 in the seeded portion of Antelope Flat Seeding Pasture at trend plot number two. The big sagebrush/bunchgrass community is a less dominant portion of the pasture and was not assessed. The key area assessed represents the vegetation communities in a silver sagebrush/bunchgrass range site seeded to crested wheatgrass which is the dominant vegetation association in this pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 within this seeded vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Deviation of litter amount from expected

<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Plant mortality/decadence

Departure of indicators from potential conditions in these seeded communities is primarily related to the reduced vigor of perennial grasses and the lack of forbs. The recovery of silver sagebrush and the concomitant reduction of seeded crested wheatgrass dominance has allowed this site to recover toward meeting standards. These slight to moderate departures are primarily the result of historic livestock grazing and other surface disturbing activities.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide a preponderance of evidence supporting a finding of meeting Standard 5 within the silver sagebrush/ bunchgrass community seeded to non-native perennial grass, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Silver sagebrush/ Seeded bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Schaeffer Pasture of the Wallrock Allotment.

Departures from the indicators are primarily a result of vegetation treatment and historic livestock grazing use. Perennial forbs and grasses were lacking in this community. Departures do not appear to be related to current livestock grazing practices. While this area was seeded with crested wheatgrass, it currently supports primarily native species of grasses and shrubs.

## Findings

- Rangeland Health Standard 1 was met in the upland rangeland vegetation communities in Antelope Flat Seeding Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in the upland rangeland vegetation communities in Antelope Flat Seeding Pasture.
- Rangeland Health Standard 4 was met in the pasture as a result of meeting Standards 1 and 3.
- Rangeland Health Standard 5 for wildlife species was met in the upland rangeland vegetation communities in Antelope Flat Seeding Pasture.
- The AMP management objective to maintain the ecological conditions of native upland vegetation communities and to improve the condition of nonnative seedings was not met with overall downward trend recorded in the seeding portions of the pasture. The ability to assess meeting the RPS objective to maintain/improve deer/antelope winter range is less clear and can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species.

## Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).
- Soils/ecological site on Antelope Flat does not support crested wheatgrass.

## **Page Place State Block (00405\_08)**

### Management Setting

Grazing within Page Place State Block is authorized by Oregon State Lands Division, but the pasture was included in the grazing schedule for Wallrock Allotment identified in the 1990 allotment management plan. The plan identifies deferment of grazing use until after the critical growing season in two of every three years. BLM has established no monitoring within the pasture. Similarly, no standards of rangeland health assessments were completed in preparation for this evaluation.

### Additional Issues

Although on state land, livestock have access to Dry Creek at watergaps in the north and northwest portions of the pasture. Dry Creek at these locations is occupied habitat for Columbia spotted frogs.

Recommendations

- Continue to coordinate management with the Division of State Lands and the livestock operator to maintain/implement a grazing schedule compatible with meeting management objectives for Wallrock Allotment.

**West Page Place FFR (00405\_09)**

Management Setting

West Page Place FFR includes the private land used by the livestock operator authorized to graze livestock in Wallrock Allotment. The pasture is not identified in the allotment management plan grazing schedule. The pasture encloses West Page Cabin Spring on private land which provides water available for cattle when adjoining pastures identified in the grazing schedule are used.

No long term monitoring studies have been established within West Page Place FFR, since it is managed custodially. Similarly, no annual actual use or utilization data are collected. Standards assessments for the minimal acreage within West Page Place FFR were not completed.

Additional Issues

West Page Cabin Spring (JDR 1956) is a BLM project located on private land through the grant of an easement/right-of-way to the agency.

Recommendations

- Maintain custodial management, so long as it continues to meet RMP objectives.

**Keeney Creek Allotment (10401)**

Keeney Creek Allotment is managed as an “I” (Intensive) category allotment and includes eleven pastures identified in the grazing schedule and a number of enclosures, exclosures and custodially management pastures. Nonnative seeding portions of the allotment include the 2,222 acre Winter Springs Seeding (Vale Project; 1964) and the 691 acre Little Valley Seeding (Vale Project; 1965). The location of Keeney Creek Allotment is provided in Figure 1, while pasture acreage within Keeney Creek Allotment is provided in Table 8.

Table 8: Keeney Creek Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Callahan	10,616	10,616				
Little Valley Seeding	2,095	2,095				
Winter Springs Seeding North	1,277	1,277				
Winter Springs Seeding South	861	827			34	
Hunter	11,044	1084			204	
East Hunter	4,460	4,433		27		
Freezeout	6,334	6,301		trace	33	
Drip Springs	4,389	4,087		18	284	

Chukar	1,721	1,721			
Keeney Creek Riparian	3,416	3,405			11
Winters Place FFR	6,594	1,859		1,924	2,811
Stacey Cabin Stream Enclosure	1	1			
Sagehen Pen Enclosure	2	2			
Callahan Stream Enclosure	14	14			
Marsters Spring Enclosure East	4	4			
Riley Place State Block	2,659	1		2,658	Trace
Quicksand	10,041	9,933		3	105
Marsters Spring Enclosure West	9	9			
Cabin Creek Enclosure	3	3			
Stacey Reservoir #3 Enclosure	5	5			
Hunter Spring Enclosure	7	7			
Drip Spring Watergap	773	621			152
Fenceline Spring Enclosure	396	396			
Riley Spring Enclosure	7	7			
Riley Place FFR #1	991	314		Trace	676
Riley Spring Enclosure #2	10	10		Trace	Trace
Riley Place FFR #3	7	Trace			7
Riley Place FFR #2	185	174		Trace	11

No allotment management plan has been implemented for Keeney Creek Allotment. The grazing schedule for Keeney Creek Allotment is developed annually in cooperation with livestock operators, based on management objectives for each pasture.

Four livestock operators are permitted to graze cattle in Keeney Creek Allotment within pastures identified in the grazing schedule between April 1 and October 31 annually and within custodially managed pastures without a defined season of use so long as damage to public land resources does not occur. Keeney Creek Allotment grazing authorizations are listed in Table 9.

Table 9: Keeney Creek Allotment grazing authorization summary

Permittee	AUMs from pastures identified in the grazing schedule	AUMs from custodial pastures	AUMs active authorization
Carroll Palmer (cattle)	1,679		1,679
Donald and Susan Coleman (cattle)	1,121		1,121
Marchek and Son, Inc. (cattle)	4,305		4,305
Brett & Kerry Marchek (cattle)	16	59	75
		Total	7,180

Beginning in 2005, Susan and Donald Coleman leased base property from Carroll Palmer and Carroll's authorization was transferred. A three year permit for 1,679 AUMs was authorized for Donald and Susan Coleman.

The following summary lists the percent of grazing authorization reported used in Keeney Creek Allotment during the past five years:

2005 74 percent

2004	55 percent
2003	55 percent
2002	Incomplete data
2001	69 percent

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

**Callahan (10401\_01)**

Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Callahan Pasture. Dominant shrubs included big sagebrush while dominant grasses included bluebunch wheatgrass in the western portion of the pasture. Perennial grasslands dominate the eastern portion of the pasture. In addition, much of the eastern portion supports dense stands of cheatgrass and other annual species. Fire records from 1980 identify a fire in the east quarter of the pasture with more than 60 percent of the eastern portion of the pasture within the boundaries of this and other historic fires. The 11,070 acre Callahan Brush Control completed in 1965 as part of the Vale Project occurred in most of Callahan Pasture (Heady and Bartolome, 1977). Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Callahan Pasture to maintain or improve deer and antelope winter range.

Evaluation of Monitoring Data

Actual use and utilization data for Callahan Pasture (Appendix E) identify alternate year use during the active growing season during the past ten years. The maximum allowable utilization level of 50 percent within native rangeland was not exceeded in recent years, with the exception being 2004 when 62 percent was recorded following growing season use.

Upland vegetation trend data for Callahan Pasture were analyzed and summarized. Two trend plots were located and photographed in the pasture in 1967. A line intercept was added to plot one in 1984. Plot two remains only as a photo point. Line intercept at plot one was measured again in 2002. Data between 1984 and 2002 do not appear consistent. Cover of bluebunch wheatgrass decreased from 2.1 percent cover in 1984 to 0.44 percent cover in 2002, while cover of Thurber’s needlegrass increased from 0.87 percent to 3.29 percent over the same period. As a result, statistical analysis of the recorded basal cover of both bluebunch wheatgrass and Thurber’s needlegrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	2.97	14	0.2121	0.2454
2002	3.73	21	0.1776	0.1247

Recorded basal cover of the two native bunchgrasses has increased during the eighteen year period between 1984 and 2002, along with the number of plants recorded. At the same time, variability of plant size has decreased with more large plants measured in 1984 than in 2002. The mapped 3X3 plot and photo indicate a static trend in the long term, although with the plot mapped and photographed in 1984, 1988, 1993, and 2002, short term trend appeared downward in 1993 and recovered by 2002. Photographs of the trend plot in the late 1960's show a static trend following the 1965 brush control.

The mapped 3X3 plot and photo at plot number two indicate a downward trend between 1984 and 1993 with some recovery by 2002.

Professional judgment concerning trend in the brush control portion of Callahan Pasture in recent years is consistent with the finding of static to upward conclusion based on data and photographs. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Three upland rangeland health assessments were completed for Standards 1 and 3 in Callahan Pasture. One assessment area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site with little loss of native species and near potential shrub composition, a second represents a similar community lacking potential shrub cover, while the third was the same range site dominated by cheatgrass and other annual species with little or no shrub overstory. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species with potential shrub composition. The key area used for this write-up approaches the potential for this ecological site. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site with potential shrubs</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<b>Standard 3: Ecological processes</b>	
<i>None to slight departure from site description/reference area for all indicators</i>	

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by native perennial species, although with a loss of some structural diversity due to a limited shrub component.

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site lacking shrubs</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<i>Moderate to extreme departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected
	Annual production

Departure of indicators from potential conditions in vegetation communities lacking potential sagebrush is primarily related to the lack of forbs and shrubs. These departures are the result of historic livestock grazing and other historic events, including frequent fires and shrub control.

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departure of indicators from potential conditions in annual dominated communities is primarily related to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing and other historic events, including frequent fires, which resulted in the loss of native perennial species and are little related to current management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Cabin Creek. There is compaction, trampling, hummocking, and bank shearing occurring. Willow regeneration is occurring, but is not surviving due to excessive browse. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. The lower portion of the riparian segment is rock armored and impacts from livestock are less as compared to upstream areas. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing (this was rock armored in 2005), and invasion of weed species.

Standard 2 was not met on the tributary to Vines Hill Reservoir. There is compaction, trailing, and excessive bare soils occurring. The channel has historically downcut and has left an open bottom shape that allows livestock trailing and loafing on the riparian area. Below this segment, the riparian area has severely downcut, but the headcut is controlled by the allotment fence. Contributing factors to not meeting the standard were historic and current livestock grazing, downstream mechanical disturbances creating a severe headcut, and invasion of weed species.

Standard 2 was not met on Uranium Spring and the associated drainage. There is compaction and trailing occurring. Willow regeneration is occurring, but is not surviving due to excessive browse. The trough from the spring development is placed approximately 10 feet from the drainage in the bottom of the small canyon. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on Little Valley Spring and the associated drainage. There is compaction, trampling, and trailing occurring. Willow regeneration is not occurring, and the surviving willows are browsed heavily. The trough from the spring development is placed approximately 10 feet from the drainage in the bottom of the small canyon. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on the unnamed spring in T20S R42E Sec. 13 NWNW. There is compaction, sloughing, and trailing occurring. There is one heavily browsed willow at this site. Most of the herbaceous riparian vegetation present is early seral. There is historic downcutting occurring in this channel. The elms and Russian olive trees here are being killed by porcupine use. A pipeline runs down the drainage bottom and is visible for portions of its length. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community (reference area write-up), with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas. This area represents approximately 30% of the pasture acreage.

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community (approximately 50% of the pasture acreage, at trend plot # 1) within the pasture, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive Plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grass community (approximately 20% of the pasture acreage) within the pasture, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Invasive Plants
	Reduction in the reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures from desired conditions were primarily related to vegetation treatment (brush control spray as part of the Vale Project in 1965), wildfire, and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass, forb, and shrub components within the vegetation community. Departures do appear related to current livestock management practices. Greater than expected cover of annual grass limits the effectiveness of the understory for wildlife.

## Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Callahan Pasture.
- Rangeland Health Standard 2 was not met at Cabin Creek, Little Valley Spring riparian, tributary to Vines Hill Reservoir, and a number of developed and undeveloped springs, due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was met in all vegetation communities in Callahan Pasture with the exception of the cheatgrass dominated. Current livestock grazing was not determined to be a factor in not meeting the standard.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in the Wyoming big sagebrush/bunchgrass vegetation communities and those dominated by annual species. Factors contributing toward not meeting the standard include vegetation treatment and historic livestock grazing.
- The data necessary to evaluate meeting the RPS objective to maintain/improve deer/antelope winter range can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species. Although no management objective has been established relative to the maintenance or improvement in ecological condition, the static to upward trend recorded supports future management actions similar to or more conservative than those which have recently occurred.

## Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Cabin Creek, other riparian areas, and springs in this pasture.
- Address spring development design for riparian management at Uranium, Marsters, Callahan, Fenceline, and Little Valley Springs in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **Little Valley Seeding (10401\_02)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Little Valley Seeding Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. The seeded portion of the pasture is dominated by crested wheatgrass. The 691 acre Little Valley Seeding was completed in 1965 as part of the Vale Project (Heady and Bartolome, 1977). Recorded historic fires do not identify recent fire activity in Little Valley Seeding. Recent grazing

schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Little Valley Seeding to maintain seeding conditions.

#### Evaluation of Monitoring Data

Actual use and utilization data for Little Valley Seeding Pasture (Appendix E) identify alternate year growing season use reported in recent years. Although the maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has not been exceeded in recent years, with the exception of 2004 when 66 percent utilization was recorded, in the four most recent years when utilization was measured, utilization levels were 60 percent or greater.

Upland vegetation trend data for Little Valley Seeding Pastures were analyzed and summarized. One photo trend plot was established in the pasture in 1968. A line intercept was added in 1984. The plot and line were measured again in 1988 and 1993, prior to the most recent allotment evaluation, and again in 2006 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	3.92	59	0.1173	0.1099
1988	5.82	66	0.0882	0.1038
1993	0.90	5	0.1800	0.0906
2006	1.45	18	0.0806	0.0757

Recorded basal cover of crested wheatgrass has increased slightly during the thirteen year period between 1993 and 2006, following a significant decline from the mid to late 1980s. A large number of seedling plants of crested wheatgrass were observed in 2006, perhaps a result of significant and timely spring rains in 2005. At the same time, the mapped 3X3 plot and photo indicate a similar increase in crested wheatgrass cover in recent years and a significant decline prior to that. These data and a summary of individual plants measured along the 100 foot line indicate a decline of crested wheatgrass vigor during periods of crop year precipitation below the median and an increase in crested wheatgrass vigor during periods of crop year precipitation above the median. Professional judgment concerning recent trend in the seeded portion of Little Valley Seeding Pasture is consistent with the finding of static to upward trend based on the 100 foot line and the 3X3 plot, but health of the stand remains questionable with significant cover by annual species and limited production from perennial herbaceous species. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in Little Valley Seeding Pasture. The assessment area, in the eastern portion of the pasture, represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass and dominated by cheatgrass and other annual species with little or no shrub overstory. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species and with limited or no shrub cover. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Deviation of litter amount from expected
	Annual production
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Invasive plants
	Reduction reproductive capability of perennial plants

Departure of indicators from potential conditions in annual dominated communities is primarily related to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing, below average precipitation in recent years, and other historic events which resulted in the loss of native perennial species and are little related to current management actions. This pasture also has a sagebrush/bunchgrass component that was not assessed. The native portion has many similarities to the assessment completed for native Wyoming big sagebrush/bunchgrass communities in Callahan Pasture where Standards 1 and 3 were met.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Juncus Spring and the associated drainage. There is compaction, bank shearing, and trailing occurring. The trough from the spring development is placed in the riparian area. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on Marsters Spring and the associated drainage. This development is actually located in an enclosure, but portions of the riparian area are

located in this pasture. There is compaction, sloughing, hummocking, and trailing occurring. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grassland community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Annual grassland</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production
	Reduction in the reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Plant mortality / decadence
	Invasive plants

Departures from desired conditions were primarily related to historic grazing, vegetation treatment (1965), and the fire that occurred in 2000. These disturbances resulted in a reduction in the potential expression of shrub, forb, and perennial grass components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb components in the vegetation community are not present. Cheatgrass and medusahead, introduced annual grasses, are present and dominate one community within the pasture. Adjacent areas with Wyoming big sagebrush and an understory of cheatgrass and/or Medusahead are at risk and are also not meeting Standard 5.

Findings and Determinations

The nonnative seeding in Little Valley Pasture was identified as an excellent seeding in the 1984 RPS. Today it is a seeding with reduced vigor and a high dominance by annual and early seral herbaceous species and limited sagebrush cover. The livestock carrying capacity has significantly declined since the vegetation inventory identified it as an excellent seeding.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Little Valley Seeding Pasture.

- Rangeland Health Standard 2 was not met at Juncus Spring and Marsters Spring riparian, due to livestock grazing practices and other factors.
- Rangeland Health Standard 3 was not met in the annual dominated and seeded portions of Little Valley Seeding Pasture due to historic livestock grazing practices and other factors.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in annual dominated vegetation communities as a result of factors other than current livestock grazing.
- The AMP management objective to maintain seeding conditions was marginally met with overall static to upward trend recorded. Seeding vigor remains low.

#### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for riparian areas and springs in this pasture.
- Address spring development design for riparian management at Marsters, Fenceline, and Juncus Springs in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Consider restoration seeding as funding becomes available and is cost effective.
- Maintain sagebrush shrub cover consistent with the landscape level recommendations presented at the end of this document.

#### **Winter Springs Seeding North (10401\_03) and Winter Spring Seeding South (10401\_04)**

##### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory units in the area which includes Winter Springs Seeding North and South pastures. No dominant shrub is identified while crested wheatgrass is the dominant grass species. Winter Springs Seeding North and Winter Spring Seeding South bound the 2,222 acre area seeded in 1964 as part of the Vale Project (Heady and Bartolome, 1977). Winter Springs Seeding was divided into two pastures with the construction of Winter Springs Division Fence in 1984. Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years. The nonnative seeding in Winter Springs Seeding North and Winter Springs Seeding South was identified as an excellent seeding in the 1984 RPS. Today it is a seeding with low vigor and the pasture is dominated by annual and early seral herbaceous species with very limited sagebrush cover. The livestock carrying capacity has significantly declined since the vegetation inventory identified it as an excellent seeding.

The Southern Malheur RPS identified a management objective for North and South Winter Springs Seeding to maintain/improve deer and antelope winter range in this seeded pasture.

### Evaluation of Monitoring Data

Actual use and utilization data for Winter Springs North and Winter Spring Seeding South (Appendix E) identify alternate year growing season use reported in recent years, with few AUMs reported in the past four years. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has been exceeded a number of times in recent years.

Upland vegetation trend data for Winter Springs Seeding North and Winter Spring Seeding South were analyzed and summarized. One trend plot was located and baseline data were collected in Winter Spring Seeding North in 1984. The plot was measured again in 1988, 1993, and again in 2004 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	1.92	30	0.0640	0.0687
1988	1.17	18	0.0650	0.0523
1993	0.85	7	0.1417	0.1114
2004	0	0	0	0

Recorded basal cover of crested wheatgrass has decreased consistently during the twenty year period between 1984 and 2004, arriving at no cover under the line in 2004. At the same time, the mapped 3X3 plot and photo indicate a similar decrease in crested wheatgrass cover leading to 2004 when no crested wheatgrass and only three plants of Sandberg bluegrass were recorded in the plot. Professional judgment concerning trend in the seeded portion of Winter Spring Seeding North and Winter Spring Seeding South during the past ten years is consistent with the finding of downward trend based on the 100 foot line and the 3X3 plot. Potential causes could include drought, horse trespass, cattle trespass, and continued livestock impacts. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in Winter Springs Seeding North. The rangeland health evaluation summary worksheet found Winter Springs Seeding South to be nearly identical to Winter Spring Seeding North. The assessment area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass and dominated by cheatgrass and other annual species with little or no shrub overstory. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species and limited or no shrub cover. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>
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<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Pedestals and/or terrecettes
<i>Moderate departure from site description/reference area</i>	
	Water flow patterns
	Bare ground
	Litter Movement
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
	Reduction reproductive capability of perennial plants

Departure of indicators from potential conditions in annual dominated communities is primarily related to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of current and historic livestock grazing with maximum allowable utilization limits exceeded a number of times in recent years, below average precipitation in recent years, and other historic events which resulted in the loss of native perennial species and are little related to current livestock management actions. The link to current livestock management is evident through the declining trend recorded in this pasture and utilization levels in excess of 50 to 65 percent in recent years in spite of limited actual use reported.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Cottonwood Creek. This is a BLM managed portion of stream privately managed up and downstream. The lower end of the BLM managed segment is controlled by an irrigation diversion. There is compaction, trailing, and bare banks occurring along a stream channel that is too wide and shallow. There are some excessive cut banks present with a partially channelized stream channel. Only early seral herbaceous riparian vegetation is present although the potential exists for mid and late seral vegetation. Willow regeneration is not occurring. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. The uplands surrounding this riparian area are in poor condition which is contributing an excessive amount of runoff. Contributing factors to not meeting the standard were historic and current livestock grazing, irrigation diversion, upstream conditions, upland conditions, and invasion of weed species.

Standard 2 was not met on Basin Creek. There is compaction, trailing, and bare banks occurring along a stream channel that is too wide and shallow. There are some excessive cut banks present with a partially channelized stream channel. Only early seral herbaceous riparian vegetation is present although the potential exists for mid and late seral vegetation. Willow regeneration is not occurring. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. The uplands surrounding this riparian area are in poor condition which is contributing an excessive amount of runoff. Contributing factors to not meeting the standard were historic and current livestock grazing, upland conditions, and invasion of weed species.

Standard 2 was not met on Long Creek in South Winter Spring Seeding Pasture. There is compaction, trailing, and bare banks occurring along a stream channel that is too wide and shallow. There are some excessive cut banks present with a partially channelized stream channel. Riparian vegetation along the stream in this pasture is slightly better than the vegetation upstream of the fence boundary. Willow regeneration is not occurring. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for later seral riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, upstream conditions, and invasion of weed species.

Standard 2 was not met on Winter Spring which is accessible from this pasture. There is compaction and trampling occurring. The trough from the spring development is placed in the riparian area. Saltcedar is invading the drainage channel below the spring. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

Wyoming big sagebrush/ bunchgrass community	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production
	Reduction in the reproductive capability of perennial plants

Departures from the indicators were primarily due to vegetation manipulation (plowed and seeded in 1964 as part of the Vale Project), and current and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of shrub and grass components within the vegetation community. Potential forb and perennial grass components in the vegetation community are lacking. Departures appear to be related to current livestock management practices. Cheatgrass, an introduced annual grass, is present and has the potential to dominate the area. Big sagebrush cover in the pasture is sufficient to provide cover for dependant species, but suitability is limited by the lack of perennial herbaceous vegetation in the understory.

### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Winter Springs Seeding North and South.
- Rangeland Health Standard 2 was not met at Cottonwood Creek, Long Creek, and Basin Creek, due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was not met in the annual dominated and seeded portions of Winter Springs Seeding North and South due to current livestock grazing practices and other factors.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in Wyoming big sagebrush/perennial bunchgrass community due to current and historic livestock grazing and other factors.
- The data necessary to evaluate meeting the RPS objective to maintain/improve deer/antelope winter range can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species. Although no management objective has been established relative to the maintenance or improvement in seeding condition, the downward trend indicates a need for management changes.

### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Cottonwood Creek, Basin Creek, Long Creek, and springs in this pasture.
- Address spring development design for riparian management at Winter Spring in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Consider restoration seeding as funding becomes available and is cost effective.

### **Hunter (10401\_05)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies three inventory units in the area which includes Hunter Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. Much of the northeast portion of the pasture is dominated by rabbitbrush and other low seral species. The southern portion of

the pasture is identified as perennial grassland. The 10,350 acre Hunter Brush Control completed in 1965 as part of the Vale Project was located in most of Hunter Pasture. (Heady and Bartolome, 1977). Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Hunter Pasture to maintain ecological condition.

Evaluation of Monitoring Data

Actual use and utilization data for Hunter Pasture (Appendix E) indicate that the pasture has received deferment of grazing in many recent years with frequent grazing use late in the growing season. The maximum allowable utilization level of 50 within native range has not been exceeded in recent years.

Upland vegetation trend data for Hunter Pastures were analyzed and summarized. One trend plot was established in 1969. A number of photos were recorded until 1984 when the plot was not located and a replacement plot was established with a line intercept. Monitoring data were also recorded in 1988 and in 1993, prior to the most recent allotment evaluation, and again in 2004 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	3.25	9	0.3611	0.2704
1988	4.73	11	0.4300	0.2812
1993	2.26	11	0.2055	0.1648
2004	2.37	13	0.1823	0.0727

Recorded basal cover of bluebunch wheatgrass has decreased over the past 20 years, but remained static in the short term. The long term decline in bluebunch cover appears to be a reduction in plant size with plant numbers remaining relatively consistent. At the same time, the mapped 3X3 plot and photo indicate a similar long term decrease in bunchgrass plants, but static trend in cover in the short term. Professional judgment concerning trend in Hunter Pasture during the past ten years is consistent with the short term trend identified above. The photo sequence identifies an increase in sagebrush cover as does the line intercept data which record three percent cover in 2004 and no sagebrush cover along the line during earlier records. Rabbitbrush cover along the line was 1.65 percent in 1993 and 1.04 percent in 2004. Professional judgment is a static trend in the majority of Hunter Pasture with areas of downward trend in the northern portion of the pasture and adjacent to water sources. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in native Wyoming big sagebrush/bunchgrass vegetation range site in Hunter Pasture. In addition, a rangeland health evaluation summary worksheet found sagebrush/annual and annual vegetation communities in the northern portion of Hunter Pasture to be nearly identical to these communities in Callahan Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in the portion of the pasture dominated by Wyoming big sagebrush/bunchgrass vegetation communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Pedestals and/or terrecettes
	Bare ground
	Litter Movement
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures of indicators from potential in the sagebrush /bunchgrass vegetation communities are primarily the result of the lack of forbs, reduced bunchgrass vigor, and the replacement of a portion of Wyoming big sagebrush with rabbitbrush.

As summarized in the rangeland health assessment for the annual and sagebrush/annual vegetation communities in Callahan Pasture, the indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in those portions of Hunter Pasture dominated by annual species. Deviation of indicators from potential was determined to be caused by historic grazing and other surface disturbing activities, including brush control associated with the Vale Project and wildland fire.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Long Creek. There is compaction, trailing, trampling, and some hummocking occurring along a stream channel that is too wide and shallow. Salts were observed accumulating on the tops of the hummocks. There are some excessive cut

banks present with a partially channelized stream channel. Willow regeneration is not occurring while the remaining live woody species are mostly decadent. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, irrigation diversion and invasion of weed species.

Standard 2 was not met on East Harper Basin, Refuge, and Harper Basin Springs. There is compaction and trampling occurring associated with use of the trough and the surrounding area as a livestock loafing area. The trough from the spring development is placed in the riparian area. Hummocking has created dried areas populated with cheatgrass and upland vegetation species. The hummocks have also allowed excessive frost heaving to occur at this spring. The slope the spring is located on is fairly steep which in combination with the trailing has caused sloughing of the riparian area. The sloughing areas are creating benches that drain the riparian area and create an environment for upland and weed species invasion. Only early seral herbaceous riparian vegetation is present although the potential exists for mid and late seral vegetation. Willow regeneration is not occurring. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on Hunter Spring. There is compaction, trailing, and trampling occurring. The trough from the spring development is placed in the riparian area. There is some sloughing in the greasewood community above the spring development. The spring development design looks to be proper due to placing the trough away from the riparian area and protecting the spring source, but due to lack of maintenance the project is not functioning. The pipeline from the headbox is flowing on the ground where it is broken creating some soil erosion and cutting outside of the historic riparian area. The enclosure area fence is not maintained. Contributing factors to not meeting the standard were historic and current livestock grazing, lack of maintenance, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within brush control and wildfire areas, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production

	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures from desired conditions were primarily related to historic grazing, impacts of the wildfire, and the brush control conducted in 1965. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential shrub and forb components in the vegetation community are not present. Cheatgrass and medusahead, introduced annual grasses, are present and have the potential to dominate in areas of reduced perennial grass composition.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge, riparian and meadow habitats in the vicinity of East Harper Basin Spring, Refuge Spring, Harper Basin Spring, and adjacent to Long Creek have the potential to be important habitat.

The only known site of Biddle's lupine in the Kenney Creek Allotment in Hunter Pasture has not been visited since its discovery date. It is a BT species and as such is of lower priority conservation concern; its populations are considered more widespread and stable than many other rare species. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this allotment is anticipated to be stable, or at least not impacted by livestock.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Hunter Pasture.
- Rangeland Health Standard 2 was not met at Long Creek and a number of developed springs, due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was not met in the annual dominated portions of Hunter Pasture due to factors other than current livestock grazing practices.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in the annual dominated portions of Hunter Pasture due to factors other than current livestock grazing practices.
- Rangeland Health Standard 5 for Biddle's lupine, a special status plant species, was not evaluated, although it is expected to be met for this species.
- The AMP management objective to maintain ecological conditions was marginally met with overall static trend recorded.

## Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Long Creek and springs in this pasture.
- Address spring development design for riparian management at East Harper, Harper Basin, East Harper Basin, Hunter, and Refuge Springs in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **East Hunter (10401\_06)**

### Management Setting

East Hunter Pasture was created in 1985 with the construction of Hunter Field Division Fence (JDR 5468). The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes East Hunter Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. A minor portion of the northwest portion of the pasture is dominated by perennial grassland. Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for East Hunter Pasture to maintain ecological condition.

### Evaluation of Monitoring Data

Actual use and utilization data for East Hunter Pasture (Appendix E) identify intermittent years of reported use, primarily due to the limited availability of water in stock-water reservoirs during the recent years of below average precipitation. Grazing use when it has occurred has been during the growing season in recent years, with no successive years of use. The maximum allowable utilization level of 50 percent within native range was slightly exceeded in 1998.

Upland vegetation trend data for East Hunter Pastures were analyzed and summarized. One photo trend plot was established in 1993 and recorded again in 2002. No line intercept data have been established. The mapped plot shows an increase in bluebunch wheatgrass cover, primarily due to an increase in plant size. Professional judgment is consistent with these records with healthy perennial bunchgrasses favored in recent years in the near absence of grazing. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in the East Hunter Pasture. One assessment area represents approximately one-quarter of the pasture in the northwest portion adjacent to Callahan Pasture and is a Wyoming big sagebrush/ bunchgrass community with significant cheatgrass in the understory. The other represents the remaining three-quarters of the pasture with the same vegetation communities, though lacking the significant dominance of cheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in both vegetation communities of East Hunter Pasture. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/ bunchgrass community with cheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Bare ground
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Water flow patterns
	Reduction of soil surface resistance to erosion
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Annual production

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
 There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*  
 The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*  
 The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the

Wyoming big sagebrush/bunchgrass community with cheatgrass, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community with cheatgrass</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Annual production

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants

Departures from desired conditions were primarily related to historic grazing. These disturbances resulted in a reduction in the potential expression of forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb components in the vegetation community are not present. Cheatgrass and medusahead, introduced annual grasses, are present and have the potential to dominate in areas of reduced perennial grass composition.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in East Hunter Pasture.
- Rangeland Health Standard 2 was not applicable, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in all vegetation communities in East Hunter Pasture.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in all vegetation communities in East Hunter Pasture.
- The AMP management objective to maintain ecological conditions was met with overall upward trend record in the near absence of livestock grazing in recent years.

## Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).
- Add a line intercept trend study at the existing monitoring plot.

## **Freezeout (10401\_07)**

### Management Setting

Freezeout Pasture was reduced in size in 1995 with the construction of Quicksand Division Fence (JDR 5777) and the creation of Quicksand Pasture. The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Freezeout Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. Quicksand Division Fence (JDR 5777) was constructed in 1995 to separate Quicksand Pasture from Freezeout Pasture. Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Freezeout Pasture to maintain ecological condition.

### Evaluation of Monitoring Data

Actual use and utilization data for Freezeout Pasture (Appendix E) identify alternate year growing season grazing use in recent years. The maximum allowable utilization level of 50 within native range has not been in recent years with the exception of 2005 when 71 percent utilization was recorded in a wetter than average year.

Upland vegetation trend data for Freezeout Pastures were analyzed and summarized. Three trend plots were established in the larger Freezeout Pasture in the late 1960s. Two of those plots are now in Quicksand Pasture and one is in Freezeout Pasture with the construction of Quicksand Division Fence in 1995. Trend plot number 11 in Freezeout Pasture has not been relocated since 1967 when it was established. A series of landscape photos have been taken over the years at the estimated location of the trend plot. Through the years 1984, 1988, 1993 and 2004, the trend appears static with widely scattered Wyoming big sagebrush in all pictures. Professional judgment concerning trend in Freezeout Pasture does not conflict with the static trend identified in the photo series. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in native Wyoming big sagebrush/bunchgrass vegetation communities in the vicinity of trend plot

number eleven in Freezeout Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in the Wyoming big sagebrush/bunchgrass vegetation communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were primarily related to historic grazing. These disturbances resulted in a reduction in the potential expression of shrub components within the vegetation community. Departures do not appear related to current livestock management practices. Potential shrub components in the vegetation community are not present.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in East Hunter Pasture.
- Rangeland Health Standard 2 was not applicable, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in all vegetation communities in East Hunter Pasture.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in all vegetation communities in East Hunter Pasture.

- The AMP management objective to maintain ecological conditions was met with overall static trend recorded

Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).
- Establish a new trend study plot within the pasture.

**Drip Springs (10401\_08)**

Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Drip Spring Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. The 4,003 acre Drip Spring Brush Control was completed in 1963 as part of the Vale Project (Heady and Bartolome, 1977). Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Drip Springs Pasture to improve ecological condition.

Evaluation of Monitoring Data

Actual use and utilization data for Drip Spring Pasture (Appendix E) identify alternate year or less frequent growing season grazing use in recent years. The maximum allowable utilization level of 50 within native range has not been exceeded in recent years with the exception of 2002 when 64 percent utilization was recorded and 2005 when 52 percent utilization was recorded.

Upland vegetation trend data for Drip Spring Pastures were analyzed and summarized. Two trend plots were established and baseline data were collected in Drip Spring Pasture in 1969. A line intercept was added to trend plot number 1 in 1984. Trend data were recorded again in 1988, 1993 and 2004. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	1.04	11	0.0945	0.0915
1988	1.60	13	0.1231	0.0994
1993	3.26	16	0.2038	0.1988
2004	2.11	18	0.1172	0.1255

Recorded basal cover of bluebunch wheatgrass has increased over the long term (twenty years) but has remained static or declined in the short term (nine years). The increase in cover recorded in 1993 appears to be primarily the result of measurement of a few large plants with average intercept greater and the standard deviation in plant size larger than in other years. At the same time, the mapped 3X3 plot and photos at plot one indicate a similar increase in bluebunch wheatgrass cover over the long term from 1969 and static trend in the short term since 1993. Sagebrush cover appears to be increasing slightly based on photos of trend plot one. The 3X3 plot and photos at plot two indicate a long term decrease in perennial bunchgrass cover and a short term static to downward trend. Shrub cover within photos at trend plot two identify increased dominance by rabbitbrush through the 1980s with the introduction of a few more Wyoming big sagebrush plants in recent years. Professional judgment concerning trend of the native perennial vegetation within Drip Spring Pasture is consistent with the recorded upward trend over the long term and static to downward trend in the short term. In addition to the impacts of livestock grazing, the short term static to downward trend is believed to be at least in part due to extended periods of below average precipitation in the region as also observed in adjacent pastures and enclosures with limited or no livestock grazing. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in native Wyoming big sagebrush/bunchgrass vegetation communities in the vicinity of trend plot number one in Drip Spring Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in the Wyoming big sagebrush/bunchgrass vegetation communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Departure of functional structural groups from site potential

These departures of indicators are attributed to the loss of many forbs and some introduction of alien annual grasses.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Squaw Creek Spring. There is compaction, trailing, and trampling occurring. The trough from the spring development is placed in the riparian area creating a livestock loafing area. The pipeline is broken and water is flowing out on the ground. Contributing factors to not meeting the standard were historic and current

livestock grazing, lack of maintenance, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were minimal and within those expected under natural processes. Departures do not appear related to current livestock management practices.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Drip Springs Pasture.
- Rangeland Health Standard 2 was not met at Squaw Creek Spring due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was met in all vegetation communities in Drip Springs Pasture.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in all vegetation communities in Drip Springs Pasture.
- The AMP management objective to improve ecological conditions was not met in the short term with overall static trend recorded

Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for springs in this pasture.
- Address spring development design for riparian management at Squaw Creek and Riley Springs in accordance with BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **Chukar (10401\_09)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies two inventory units in the area which includes Chukar Pasture. The dominant vegetation community is shrub annual grassland with inclusions of big sagebrush perennial grass communities. The 11,070 acre Callahan Brush Control completed in 1965 and/or the 10,350 acre Hunter Brush Control completed in 1965 as part of the Vale Project extended into the southern half of Chukar Pasture (Heady and Bartolome, 1977). Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Chukar Pasture to maintain ecological condition.

### Evaluation of Monitoring Data

Actual use and utilization data for Chukar Pasture (Appendix E) identify alternate year growing season grazing use in recent years with the exception of late growing season use in 2004 following mid growing season use in 2003. The maximum allowable utilization level of 50 within native range has been periodically exceeded in recent years.

No upland vegetation trend plot has been established in Chukar Pasture. Professional judgment concerning upland trend in Chukar Pasture during the past ten years indicates a static trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Chukar Pasture are consistent with those presented for Callahan Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species, although with a loss of some structural diversity due to a limited shrub component. At the same time, the indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the portion of the pasture dominated by annual species. Departure of indicators from potential conditions in annual dominated communities is primarily related to the lack of forbs and shrubs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing and other historic events which resulted in the loss of native perennial species and are little related to current management actions.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Basin Creek, Callahan Spring, and various seeps located above Basin Creek. Historically, there was a fence around the Callahan Spring area, but it is no longer functioning. The spring development also is not functioning. There is compaction, trailing, trampling, compaction, excessive bank shearing, and hummocking occurring along the stream channel and spring riparian area. Salts were observed accumulating on the tops of the hummocks along with evidence of frost heaving. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, lack of maintenance on development, and invasion of weed species.

Standard 2 was not met on Winter Spring which is accessible from this pasture. There is compaction and trampling occurring. The trough from the spring development is placed in the riparian area. Saltcedar is invading the drainage channel below the spring. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Callahan Pasture write-up at trend plot # 1.

Departures from desired conditions were primarily related to vegetation treatment (brush control spray as part of the Vale Project in 1965), wildfire and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass, forb, and shrub components within the vegetation community. Greater than expected cover of annual grasses limits the effectiveness of the understory for wildlife.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Chukar Pasture.
- Rangeland Health Standard 2 was not met at Basin Creek and a number of developed and undeveloped springs, due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was not met in the annual species dominated vegetation communities in Chukar Pasture, due to factors other than current livestock grazing.
- Rangeland Health Standard 4 was not met in the pasture.

- Rangeland Health Standard 5 for wildlife species was not met in the Wyoming big sagebrush/perennial bunchgrass community in Chukar Pasture as a result of factors other than current livestock grazing.
- The AMP management objective to maintain ecological conditions was met with overall static trend determined from professional judgment.

### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Basin Creek and springs in this pasture.
- Address spring development design for riparian management at Callahan and Winter Springs in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Establish a trend plot within this pasture.
- Maintain sagebrush shrub cover consistent with the landscape level recommendations at the end of this document.

### **Keeney Creek Riparian (10401\_10)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Keeney Creek Riparian Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. Keeney Creek Riparian Fence (JDR 5771) was constructed in 1991 to separate riparian vegetation communities adjacent to Keeney Creek and surrounding uplands from Hunter Pasture. Recent grazing schedules, developed on an annual basis, have attempted to provide for early spring grazing use annually with livestock removed while adequate soils moisture remains for regrowth of upland perennial grasses.

The Southern Malheur RPS identified a management objective for Hunter Pasture to maintain ecological condition. Subsequently, a management objective for Keeney Creek Riparian Pasture has been added to improve riparian habitat.

#### Evaluation of Monitoring Data

Actual use and utilization data for Keeney Creek Riparian Pasture (Appendix E) indicate that grazing has consistently been during the spring with livestock typically removed from the pasture by May 15. The maximum allowable utilization level of 50 percent within native range was exceeded in 2003 and 2004, but remained consistently in the light range in earlier years.

No upland vegetation trend plot has been established in Keeney Creek Riparian Pasture. Professional judgment concerning upland trend during the past ten years indicates a static trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

A riparian monitoring photo points was established in this pasture in 1989. Retakes of this photo point did not indicate a change in the stream. Aerial photos of the lower end of Keeney Creek indicate a slight upward trend in the stream channel due to an increase in woody riparian vegetation cover. The upper end of Keeney Creek shows a slight increase in the width of the riparian herbaceous vegetation areas.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 in native Wyoming big sagebrush/bunchgrass vegetation communities of Keeney Creek Riparian Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in Keeney Creek Riparian Pasture. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Pedestals and/or terrecettes
	Litter Movement
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Deviation of litter amount from expected
	Annual production
	Reduction reproductive capability of perennial plants

Departure of indicators from potential is the result of loss of perennial grasses and forbs. These departures are primarily the result of historic livestock grazing and other historic events which resulted in the loss of native perennial grasses and forbs and are somewhat related to current management actions, as noted earlier in the heavy utilization measurements recorded in 2003 and 2004.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was met on Keeney Creek. There is some heavy browsing occurring in areas that has deterred recent regeneration from surviving. Contributing factors to this browse use are current livestock trespass grazing and elk browsing.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Annual production
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions were primarily related to current and historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass, forb, and shrub components within the vegetation community. Antelope bitterbrush, an important source of winter browse for mule deer, was moderately to severely hedged (Cole browse terminology, based upon ocular estimation) in the area.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Keeney Creek Riparian Pasture.
- Rangeland Health Standard 2 was met on Keeney Creek.
- Rangeland Health Standard 3 was met in all vegetation communities in Keeney Creek Riparian Pasture.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in all vegetation communities in Keeney Creek Riparian Pasture.
- The RPS management objective to maintain ecological conditions was met with overall static trend determined from professional judgment. Data are not available to assess meeting the objective to improve riparian habitat although the SRH 2 assessment should provide some insight to meeting this objective.

### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Keeney Creek and springs in this pasture.
- Address spring development design for riparian management at Riley Spring in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Establish a trend plot within this pasture.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).
- Improve winter browse for big game.

### **Winters Place FFR (10401\_11)**

#### Management Setting

The Winters Place FFR is predominantly private land with some state and public domain land included. Internal fencing may further divide the area identified in BLM files. The pasture is managed custodially, and livestock management actions are defined by the permittee so long as damage to public land resource does not occur.

Due to the current management priority for FFR, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

#### Recommendations

- Continue custodial management consistent with meeting resource objectives and the SRH.
- Address noxious weed issues consistent with the district plan and BLM policy.

### **Stacey Cabin Stream Exclosure (10401\_12)**

#### Management Setting

Stacey Cabin Stream Exclosure (JDR 5344) was constructed in 1980 to protect riparian vegetation and resources adjacent to Stacey Cabin Spring. The exclusion fence has since fallen down.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the exclosure and the objective for its construction.

A riparian monitoring photo point was established in this pasture in 1994. Retakes of this photo point indicate an upward trend in the late 1990's until the exclosures were no

longer maintained in recent years. The current trend is static. The riparian area is functioning like it was prior to exclusion as it has been grazed in recent years.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Cabin Creek and Stacey Cabin Spring. There is compaction, trampling, hummocking, and bank shearing occurring. Willow regeneration is occurring, but is not surviving due to excessive browse. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing (this was rock armored in 2005), lack of maintenance of enclosure fence, improper spring development design, recreational use during hunting seasons, and invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### Recommendations

- Retain as an enclosure.
- Expand the exclusion area to protect significant riparian resources.
- Address spring development design on Stacey Cabin Spring for riparian management in accordance with BLM policy, or abandon development as other water sources become available.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

### **Sagehen Pen Enclosure (10401\_13)**

#### Management Setting

Sagehen Pen Enclosure is a 2 acre enclosure in the southern portion of Hunter Pasture which was purportedly constructed by the Civilian Conservation Corps (CCC) crews. The enclosure is not listed in BLM project files, and, although the enclosure is immediately adjacent to Refuge Spring and Harper Basin Spring, it does not appear to have been constructed to protect riparian resources. Nonnative grass species are present within the enclosure, but not in the surrounding area, leaving one to believe it could have been constructed as a protected test plot. Due to the small size of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

## Recommendations

- Retain as a livestock exclusion area for reference to the ungrazed situation.

## **Callahan Spring Exclosure (10401\_14)**

### Management Setting

Callahan Spring Exclosure was constructed under the name Callahan Spring Wildlife Fence (JDR 3826) in 1969 as part of the Vale Project to exclude livestock use from the spring source and a portion of riparian resources downstream within Chukar Pasture. The exclosure is cross fenced to divide it into a north and south enclosure. Callahan Spring (JDR 4539) was developed in 1970. A pipeline from the developed water source was extended to two troughs within the enclosure. Cattle have had access to both halves of the enclosure for a number of years.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the exclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the exclosure.

### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Basin Creek and Callahan Spring. Historically, there was a fence around the Callahan Spring area, but it is no longer functioning. The spring development also is not functioning. There is compaction, trailing, trampling, compaction, excessive bank shearing, and hummocking occurring along the stream channel and spring riparian area. Salts were observed accumulating on the tops of the hummocks along with evidence of frost heaving. Upland and nonnative weed vegetation species have been invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, lack of maintenance on development, and invasion of weed species.

### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

## Recommendations

- Coordinate with livestock operators to redesign the exclosure and spring development.
- Retain and expand the exclusion area to protect riparian resources.

## **Marsters Spring Enclosure East (10401\_15) and Marsters Spring Enclosure West (10401\_18)**

### Management Setting

The BLM projects records do not list enclosure fencing around Marsters Spring. It was likely constructed to provide livestock access to water at Marsters Spring from either Little Valley Brush Control of Little Valley Allotment or Little Valley Seeding of Keeney Creek Allotment. The enclosure fence has remained somewhat intact in recent years, but use from the Little Valley Allotment side does not appear to be occurring. The function of the poorly maintained north-south division fence is unclear.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosures and the objective for their construction.

Riparian monitoring points were not historically established in Marsters Spring Enclosure West Pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosures.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Marsters Spring in Marsters Spring Enclosure West Pasture. This spring development is located within an enclosure area and can be utilized from several pastures. Design of the development placed the headbox in a side channel where it receives limited protection. The project could be redesigned to protect the headbox and move the trough out of the drainage bottom. There is compaction, trailing, trampling, compaction, excessive bank shearing, and hummocking occurring in the riparian area. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Coordinate with livestock operators to redesign the enclosure and spring development.
- Retain the enclosure area to protect riparian resources.

## **Riley Place State Block (104501\_16)**

### Management Setting

Riley Place State Block contains approximately one acre of public domain land and has not received any management attention by BLM. Due to the minimal public domain

acreage, no periodic monitoring of upland resources has been implemented. Similarly, information to complete upland standards assessments was not gathered in preparation for this evaluation.

### Findings

Due to the minimal acreage of public domain within Riley Place State Block and management defined by Oregon State lands, the Bureau's priority to dedicate time for future management is low.

### **Quicksand (10401\_17)**

#### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method, as adjusted for fire since 1979, identifies one inventory unit in the area which includes Quicksand Pasture. Dominant shrubs of the native portion of the pasture included big sagebrush while dominant grasses included bluebunch wheatgrass. Quicksand Division Fence (JDR 5777) was constructed in 1995 to separate Quicksand Pasture from Freezeout Pasture. The 5,400 acre Quicksand Springs Brush Control completed in 1969 as part of the Vale Project extended into the central half of Quicksand Pasture (Heady and Bartolome, 1977). Recent grazing schedules, developed on an annual basis, have attempted to provide for deferment of grazing use until after the active growing season in alternate years.

The Southern Malheur RPS identified a management objective for Quicksand Pasture to maintain ecological condition.

#### Evaluation of Monitoring Data

Actual use and utilization data for Quicksand Pasture (Appendix E) identify an attempt to limit growing season grazing use to alternative years, although recently annual use beginning in June has occurred in successive years. The maximum allowable utilization level of 50 within native range has not been exceeded pasture-wide in recent years.

Upland vegetation trend data for Quicksand Pastures were analyzed and summarized. Two trend plots were located and baseline data were collected in the portion of Freezeout Pasture that is now Quicksand Pasture with the 1995 construction of Quicksand Division Fence. Trend plot number one was established in 1969 and photographed again in 1970. A line intercept was added in 1984 and measured again in 1988, 1993, and 2004. Trend plot number two was also established in 1969 and also photographed again in 1970. Trend plot number two has not been relocated since 1970, although general photographs of the location were taken in 2004. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data under the line of plot number one are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	2.13	32	0.0666	0.1007
1988	2.19	27	0.0811	0.1019
1993	2.69	17	0.1582	0.1250
2004	3.36	21	0.1600	0.1979

Recorded basal cover of bluebunch wheatgrass under the line has increased consistently through the past twenty years, indicating an upward trend. At the same time, the number of plants has decreased with an increase in their average size, but an increase in the variability in plant size. The mapped 3X3 plot and photo indicate a similar upward trend long term (35 years) and a static to upward trend short term (11 years). Line intercept data identify variable sagebrush cover through the years with an average intercept between five and seven percent. Photos support this finding with periodic cycles of sagebrush defoliation, the most recent in 2004. Little additional information is available from photos at trend plot number two. Professional judgment concerning trend of the native vegetation in Quicksand Pasture supports the static to upward long term and short term trend recorded. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Rangeland health assessments and determinations for Standards 1 and 3 in the north one-third of Quicksand Pasture are consistent with those presented for native Wyoming big sagebrush/bunchgrass vegetation communities at trend plot one in Hunter Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in the portion of the pasture dominated by Wyoming big sagebrush/bunchgrass vegetation communities in mid condition. Departures of indicators from potential in the sagebrush/bunchgrass vegetation communities are primarily the result of the lack of forbs, reduced bunchgrass vigor, and the replacement of a portion of Wyoming big sagebrush with rabbitbrush.

Rangeland health assessments and determinations for Standards 1 and 3 in the south two-thirds of Quicksand Pasture are consistent with those presented for native Wyoming big sagebrush/bunchgrass vegetation communities in late condition at trend plot eleven in Freezeout Pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting both Standards 1 and 3 in the Wyoming big sagebrush/bunchgrass vegetation communities.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Long Creek. There are some perennial segments in the stream, but historic downcutting has stripped the soil from the drainage leaving a cobble and boulder streambed. There are bare and hummocking in the riparian area. Most of the vegetation was early seral herbaceous riparian species. Contributing factors to not meeting the standard were historic and current livestock grazing, headcuts from downstream conditions, and invasion of weed species.

Standard 2 was not met on Quicksand Spring. This spring development is no longer functioning due to a lack of water from the spring. There is no evidence of a riparian area or hydric soils in the location of the spring source. The headbox could not be

located Contributing factors to not meeting the standard were unknown although it is possible that the development contributed to dewatering the spring source.

Keeney Creek Spring is located in an enclosure called Quicksand Spring Enclosure in this pasture just upstream from Quicksand Spring. The standard was met on Keeney Creek Spring. There was a small riparian area remaining at the spring source with early seral riparian herbaceous vegetation. There was no water running into the troughs due to a lack of maintenance to the development.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the northern one third of the Quicksand Pasture in the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Hunter Pasture.

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the southern two thirds of the Quicksand Pasture in the other Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as described above for the Freezeout Pasture.

Departures from desired conditions were primarily related to historic livestock grazing. These disturbances resulted in a reduction in the potential expression of forb and shrub components within the vegetation community. Greater than expected cover of annual grasses limits the effectiveness of the understory for wildlife.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identify the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge, riparian and meadow habitats in the vicinity of adjacent to Long Creek have the potential to be important habitat.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Quicksand Pasture.
- Rangeland Health Standard 2 was not met on Long Creek due to current livestock grazing practices and other factors.
- Rangeland Health Standard 3 was met in all vegetation communities in Quicksand Pasture.
- Rangeland Health Standard 4 was not met in the pasture.

- Rangeland Health Standard 5 for wildlife species was met in all vegetation communities in Quicksand Pasture.

The RPS management objective to maintain ecological conditions was met with overall static to upward trend recorded.

### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Long Creek, Keeney Creek, and springs in this pasture.
- Coordinate with livestock permittees to determine the need for the spring developments near Quicksand Spring; abandon individual spring developments as appropriate.
- Address spring development design for riparian management at Callahan and Winter Springs in accordance with BLM policy.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

### **Cabin Creek Enclosure (104012\_19)**

#### Management Setting

The BLM project records do not list Cabin Creek Enclosure. It was likely constructed in association with Stacey Cabin Stream Enclosure (JDR 5344) in 1980 to protect riparian vegetation and resources adjacent to the stream. The exclusion fence has remained somewhat intact in recent years.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

A riparian monitoring photo point was established in this pasture in 1994. Retakes of this photo point indicate an upward trend in the late 1990's until the enclosures were no longer maintained in recent years. The current trend is static. The riparian area is functioning like it was prior to exclusion as it has been grazed in recent years.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Cabin Creek. There is compaction, trampling, hummocking, and bank shearing occurring. Upland and nonnative weed vegetation species have been

invading portions of the riparian channel. There is the potential for a larger amount of riparian herbaceous vegetation. The lower portion of the riparian segment is rock armored and impacts from livestock are less here than upstream. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing (this was rock armored in 2005), and invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### Recommendations

- Retain as an enclosure.
- Expand the exclusion area to protect riparian resources.

### **Stacey Reservoir #3 Enclosure (10401\_20)**

#### Management Setting

Stacey Reservoir #3 Enclosure provides access to water in Stacey Reservoir #3 when either Callahan Pasture, Hunter Pasture, or East Hunter Pasture is scheduled for use. The reservoir was constructed in 1950 to hold winter and spring runoff for mid-summer livestock water and has not been managed for riparian values. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### Recommendations

- Retain as an enclosure to provide reservoir water, when available, to three pastures.

### **Hunter Spring Enclosure (10401\_21)**

#### Management Setting

The BLM project records do not list Hunter Spring Enclosure. Although it is in a poor state of repair and no longer controls livestock movement, it appears to have been constructed to exclude livestock from vegetation communities. The development at Hunter Spring is located to the southeast of the enclosure and remains accessible to livestock. Riparian vegetation communities are present upstream and downstream of the enclosure fencing.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

Standard 2 was not met on Hunter Spring. There is compaction, trailing, and trampling occurring. The trough from the spring development is placed in the riparian area. There is some sloughing in the greasewood community above the spring development. The spring development design looks to be proper due to placing the trough away from the riparian area and protecting the spring source, but due to lack of maintenance the project is not functioning. The pipeline from the headbox is flowing on the ground where it is broken creating some soil erosion and cutting outside of the historic riparian area. The enclosure area fence is not maintained. Contributing factors to not meeting the standard were historic and current livestock grazing, lack of maintenance, and invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Retain as an enclosure to protect riparian resources.
- Expand the exclusion area as appropriate to protect riparian resources downstream of Hunter Spring.
- Address spring development design for riparian management in accordance with BLM policy, or abandon development as other water sources become available.

## **Drip Spring Watergap (10401\_22)**

### Management Setting

Drip Spring Watergap is located adjacent to the southeast corner of Drip Spring Pasture and provides access to Keeney Creek from Drip Springs Pasture to the west and Quicksand Pasture to the east. Past BLM management has not recognized the existence of the watergap which has riparian vegetation communities on both private and public domain lands.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the watergap and the objective for its construction.

Aerial photos of the upper end of Keeney Creek since 1983 indicate a static trend in the stream channel. There is a fence line contrast with the Keeney Creek Pasture downstream that shows wider channels and less riparian vegetation in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the watergap.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Keeney Creek. There is compaction, trailing, bank shearing, sloughing, and trampling occurring. There is some heavy browsing occurring in areas that has deterred recent woody regeneration from surviving. Contributing factors to this browse use are current livestock trespass grazing and elk browsing.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Keeney Creek in this pasture.

### **Fenceline Spring Enclosure (10401\_23)**

#### Management Setting

Fenceline Spring Enclosure is located adjacent to the southwest corner of Little Valley Seeding Pasture in the northwest corner of Callahan Pasture. Past BLM management has not recognized the existence of the enclosure which has riparian vegetation communities associated with Fenceline Spring.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the size of the enclosure.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation, although assessments in Callahan and Chukar pastures are for similar native and introduced annual vegetation communities which have received similar treatments.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Fenceline Spring. There is compaction, trampling, compaction, and sloughing occurring in the riparian area. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendations

- Implement an appropriate grazing system/season of use to meet resource objectives and the SRH.
- Add riparian management objectives for Fenceline Spring in this pasture.
- Address spring development design for riparian management at Fenceline Spring in accordance with BLM policy.

**Riley Spring Enclosure (10401\_24)**

Management Setting

Riley Spring Enclosure (JDR 1444, Riley Spring Fence) is located adjacent to the northeast corner of Drip Spring Pasture within the area of Keeney Creek Allotment managed custodially as Winters Place FFR. Riley Spring Enclosure provides access to water at the developed Riley Spring (JDR 4679) when either Drip Springs Pasture or Winters Place FFR is grazed.

Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Riley Spring which is accessible from a couple pastures. There is compaction and trampling occurring. The trough from the spring development is placed in the riparian area. This site looks to have historically been a cow camp with portions of building and corrals still visible. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, historic cow camp impacts, lack of maintenance of spring development, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Coordinate with livestock operators to redesign the enclosure and spring development.
- Retain the enclosure area to protect riparian resources.

### **Riley Place FFR 1 (10401\_25), Riley Spring Enclosure #2 (10401\_26), Riley Place FFR #3 (10401\_27), and Riley Place FFR #2 (10401\_28)**

### Management Setting

The Riley Place group of small pastures and enclosures adjacent to Keeney Creek are managed custodially with grazing authorization identified in association the Winters Place FFR. At least one unnamed spring and a short reach of Keeney Creek are located within this group of pastures and enclosures.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the past management of Winters Place FFR.

Aerial photos of the upper end of Keeney Creek since 1983 indicate a static trend in the stream channel in Riley Place FFR No. 1. The creek looks similar to conditions downstream in Drip Springs Watergap.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Keeney Creek. There is compaction, trailing, bank shearing, sloughing, and trampling occurring. There is some heavy browsing occurring in areas that has deterred recent woody regeneration from surviving. Contributing factors to this browse use are current livestock trespass grazing and elk browsing.

The standard was not assessed on a developed spring on BLM managed lands in Riley Spring Enclosure #2. This development is not listed in BLM records, but has been identified by personnel on previous field visits.

### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Retain as FFR consistent with resource management objectives.

## **Quicksand Spring Enclosure (not GPSed)**

### Management Setting

Quicksand Spring Enclosure (JDR 5469) was constructed in 1974 and excludes livestock from riparian communities adjacent to Keeney Creek Spring (JDR 1391). The pipeline from Keeney Creek Spring flows north to one trough from the exclusion fence. Quicksand Spring (JDR 0670 or JDR 4547) is located immediately north of the enclosure and has not supplied water to its troughs in recent years.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Keeney Creek Spring is located in an enclosure within Quicksand Pasture just upstream from Quicksand Spring. The standard was met on Keeney Creek Spring. There was a small riparian area remaining at the spring source with early seral riparian herbaceous vegetation. There was no water running into the troughs due to a lack of maintenance of the development.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Coordinate with livestock operators to redesign the enclosure and spring development.
- Retain the enclosure to protect riparian resources.

## **Nyssa Allotment (10403)**

Nyssa Allotment is managed as an “I” category allotment and includes eight pastures identified in the grazing schedule and a number of enclosures, exclosures and custodially management pastures. Nonnative seeding portions of the allotment include a portion of the 800 acre East Cow Hollow Seeding (Vale Project; 1966) in North and South Mud Springs pastures, all of the 3,400 acre Rye Field Seeding (Vale Project; 1966) in Ryefield Seeding and Grassy Mountain Seeding pastures, the 1675 acre Grassy Mountain Seeding in 1972 (JDR 4657), and 960 acre Sagebrush Seeding in 1984. A number of native and nonnative seedings were implemented in 1996 following the Cow Hollow Fire (M754). The location of Nyssa Allotment is provided in Figure 1, while pasture acreage within Nyssa Allotment is provided in Table 10.

Table 10: Nyssa Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
North Mud Spring	4,045	4,045				
South Mud Spring	3,056	3,056				
North Rock Creek	8,132	7,978	154*			
Sagebrush	11,856	11,856				
Ryefield Seeding	3,719	3,719				
Grassy Mountain Seeding (Cherry Creek)	3,034	3,034				
Grassy Mountain	29,793	25,205	4,286*		85	217
Schweizer Fenced Federal Range (FFR)	1,175	993			182	
Ryefield Reservoir Enclosure	20	20				
Yellowjacket Reservoir Enclosure	49	49				
Darkey Reservoir Enclosure	2	2				
Rockcreek Riparian Stream Enclosure	2,640	1,601	783*		256	
Sagebrush Reservoir Enclosure	6	6				
South Rock Creek	7,561	7,557	3*		1	
North Grassy Mountain Res Enclosure	4	4				
Sagebrush Spring Enclosure	3	3				
Shellbark Spring Enclosure	72	72				
Frogpond Spring Enclosure	1	1				
Lone Willow Spring Enclosure	1	1				
Lone Willow Spring Enclosure	6	6				
Sweitzer Spring Enclosure	1	1				
FFA Riparian Enclosure	0.13	0.13				
Mud Spring Enclosure	1	1				
Mud Spring Reservoir Enclosure	10	10				
Lost Bull Catch Pen	0.5	0.5				
Chalk Butte West	639	573			66	
Chalk Butte East	198	79			119	
Chalk Butte Catch Pen	1	1				
Twin Spring Creek Watergap	0.6	0.6				
Ryefield Seeding Testplot	2	2				
Owyhee Ridge Trough Enclosure	2	2				
Government Corral	0.2	0.2				
Lone Willow Corral	0.2	0.2				
Grassy Reservoir Enclosure	1	1				

\* includes acreage returned to BLM in Bureau of Reclamation (BOR) revocation

An allotment management plan was implemented in 1984 with a three year grazing rotation planned, in addition to a number of rangeland projects. A revision to that AMP grazing schedule was implemented in 1999, following the recognition of riparian values and other recommendations from allotment evaluations. The current grazing schedule identifies two areas-of-use, with North Rock Creek and South Rock Creek pastures used annually in early spring. Use in North Mud Spring, South Mud Spring, Grassy Mountain Seeding, and Ryefield Seeding pastures alternates between spring and fall grazing, and

Sagebrush and Grassy Mountain pastures have grazing deferred annually until after seed set as identified in Table 11.

Table 11: Nyssa Allotment grazing schedule implemented in the 1999 AMP

Southern Area-of-use Grazing Schedule		
Pasture	Year 1 (2005, 2007, ...)	Year 2 (2006, 2008, ...)
South Rock Creek	4/1 to 4/30	4/1 to 4/30
Ryefield Seeding	5/1 to 7/15	9/15 to 10/31
Grassy Mountain	7/16 to 9/31	6/16 to 9/15
Grassy Mountain Seeding	10/1 to 10/31	5/1 to 6/15
Rock Creek Riparian	Spring trailing to and fall trailing from Nyssa and Blackjack Allots.	
Northern Area-of-use Grazing Schedule		
Pasture	Year 1 (2005, 2007, ...)	Year 2 (2006, 2008, ...)
North Rock Creek	4/1 to 4/30	4/1 to 4/30
North Mud Spring	5/1 to 7/15	9/16 to 10/31
Sagebrush	7/16 to 9/15	7/16 to 9/15
South Mud Spring	9/16 to 10/31	5/1 to 7/15

Four livestock operators are permitted to graze cattle in Nyssa Allotment within pastures identified in the grazing schedule between April 1 and October 31 annually. The AMP provides flexibility to extend cattle grazing use until November 30, provided cattle numbers are reduced during the active growing season (5/1 to 7/15). A fifth livestock operator is permitted to graze cattle within Schweizer FFR, a custodially managed pasture without a defined season of use, so long as damage to public land resources does not occur. One livestock operator is permitted to graze sheep in Nyssa Allotment. Nyssa Allotment grazing authorizations are listed in Table 12.

Table 12: Nyssa Allotment grazing authorization summary

Permittee	AUMs from pastures identified in the grazing schedule	AUMs from custodial pastures	AUMs active authorization
Gary Cleaver (cattle)	2,191		2,191
Jeff Hess (cattle)	1,617		1,617
Chris & Ann Bennight (cattle)	1,120		1,120
Vernon & Velma Widmer (cattle)	350		350
Juan Ayarza (cattle)		70	70
Frank Shirts, Jr. (sheep)	534		534
		Total	5,882

The following summary lists the percent of cattle grazing authorization reported used in Nyssa Allotment during the past five years without use in the custodial pasture considered:

2005	94 percent
2004	94 percent
2003	99 percent
2002	97 percent
2001	84 percent

Actual use reported by the sheep operator, with grazing schedules being less defined by pasture fences and allotment boundaries, is less accurate on an allotment basis.

Special management areas within Nyssa Allotment include Owyhee Below the Dam ACEC and Owyhee River Below the Dam administratively suitable National Wild and Scenic River, both primarily within Rock Creek Riparian Stream Exclosure. Minimal acreage of both designations in North Rock Creek, South Rock Creek, and Grassy Mountain pastures is a result of the delineation of the special management areas on legal boundaries. Portions of Owyhee Views and Dry Creek Gorge ACECs are also within Grassy Mountain Pasture.

Special status plants present within Nyssa Allotment include Biddle's lupine, Mulford's milkvetch, Malheur forget-me-not, and Cusick's chaenactis.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

### **North Mud Spring Pasture (10403\_01)**

#### Management Setting

The west one-half of Mud Springs Pasture was seeded with crested wheatgrass in 1966 as part of the 800 acre East Cow Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977). Additional acreage east of Mud Springs was seeded to crested wheatgrass in 1996 following Cow Hollow Fire (M754). At the same time, accessible portions of North Mud Spring Pasture on Chalk Butte, which were at risk of crossing a threshold to become a cheatgrass-dominated vegetation community, were seeded to a native mix of grasses and forbs following the Cow Hollow Fire (M754).

Mud Spring pasture was divided by Mud Spring Seeding Division fence in 1987, creating North and South Mud Spring pastures. North Mud Spring Pastures has been grazed with a deferred rotation schedule since division. The AMP grazing schedule was adopted in 1999, implementing an alternate year spring (5/1 to 7/15) – fall (9/15 to 10/31) rotation.

Livestock water sources include troughs along Mud Spring Pipeline, Chalk Butte Spring, and surface water in drainages downstream of Mud Spring.

The Southern Malheur RPS identified a management objective for North Mud Springs Pasture to maintain seeding conditions. This seeding objective was restated in the 1999 AMP, and an additional objective was included to maintain the late ecological of native portions of the pasture.

#### Evaluation of Monitoring Data

Actual use and utilization data for North Mud Spring Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year spring/fall grazing, has been followed since AMP implementation in 1999. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has not been exceeded in recent years.

Upland vegetation trend data for North Mud Spring Pastures were analyzed and summarized. One trend plot was located and baseline data were collected in the pasture in 1989, two years following the division of Mud Springs Pasture. The plot was measured again in 1993, prior to the most recent allotment evaluation, and again in 2002 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1989	5.95	32	0.185 feet	0.202 feet
1993	4.16	26	0.160 feet	0.119 feet
2002	6.02	44	0.137 feet	0.141 feet

Recorded basal cover of crested wheatgrass has increased during the nine year period between 1993 and 2002, following an equal decline in the previous four years. At the same time, the mapped 3X3 plot and photo indicate a similar increase in crested wheatgrass cover over nine years between 1993 and 2002. These data and a summary of individual plants measured along the 100 foot line indicate a decline of crested wheatgrass vigor during periods of crop year precipitation below the median and an increase in crested wheatgrass vigor during periods of crop year precipitation above the median. Professional judgment concerning trend in the seeded portion of North Mud Spring Seeding Pasture during the nine years between 1993 and 2002 are consistent with the finding of static to upward trend based on the 100 foot line and the 3X3 plot. Trend since 2002, based on professional judgment, especially in 2004, suggests a static to downward trend, possibly caused by limited precipitation since 2002. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 at the trend plot location in North Mud Spring Seeding Pasture, a key area representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site which was seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and not meeting Standard 3, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Gullies
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were primarily related to historic grazing, the seeding of a nonnative species as part of the Vale Project, and related to Cow Hollow Fire in 1996. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related significantly to current livestock management practices. Potential shrub and forb components in the vegetation community are not present and both scotch thistle and rush skeleton weed are present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

A portion of the pasture is also dominated by native sagebrush/perennial bunchgrass communities, some seeded with a native species mix following the 1996 Cow Hollow Fire. No assessment write-up was completed for these due to their limited dominance and lighter use by livestock.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was met on the riparian areas within the Mud Springs Enclosure areas.

Standard 2 was not met on several drainages in this pasture. These drainages area connected with Mud Springs, Schweizer Spring, and other tributaries to Cow Hollow Creek. There is compaction, trampling, trailing, and excessive bank shearing occurring in this segment. In the segment between the Mud Springs Enclosures, the road travels through the riparian area. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing, and invasion of weed species.

Standard 2 was not met on Chalk Spring. There is a headcut between the trough and headbox that is draining the riparian area. There is trampling, trailing, and excessive bare banks occurring in this segment. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, lack of maintenance of spring development, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

The indicators of rangeland health for native species and supplemental information from the assessment provide reasonable data supporting a finding that Standard 5 is not met within North Mud Spring Pasture, primarily as a result of loss of shrubs and forbs as noted above. The summary rating for Standard 5 is that the plant community appears able to support a reduced population of animals appropriate to the range site, corridors are reduced in connectivity for key species and management actions are creating minor threats to retaining or restoring potential populations.

#### Additional Issues

Enclosures at Mud Spring and Reservoir were completed in 1986 to exclude livestock use of riparian vegetation communities adjacent to Mud Spring and Reservoir. The two enclosures left riparian communities adjacent to the road which passes between the spring and reservoir enclosures open to livestock use. Scheduled early summer and fall use of these riparian communities does not appear to be compatible with enhancing riparian values, especially at this area of livestock concentration. Appropriate actions need to be implemented to ensure that livestock impacts do not limit opportunities for passive enhancement.

The storage tank for Mud Spring Pipeline in North Mud Spring Pasture has met its expected service life. At 35 years of service, the storage tank has a number of leaks and is in need of replacement.

Scheduled May 1 to July 15 grazing use following fall use in the past two grazing rotations has resulted in a shortage of available forage in the western portion of South Mud Springs Pasture used by cattle. At the same time, the eastern portion of the pasture remains lightly to moderately used. Opportunities to reduce spring grazing pressure on the western portion of the pasture needs to be considered.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in North Mud Spring Pasture.
- Rangeland Health Standard 2 was not met due to past and current impacts including current livestock grazing.
- Rangeland Health Standard 3 was not met in vegetation communities seeded to nonnative perennial species as a result of factors other than current livestock grazing practices.
- Rangeland Health Standard 4 was not met in North Mud Spring Pasture as a result of not meeting standard two at a number of springs and tributaries.
- Rangeland Health Standard 5 for wildlife species was not met in North Mud Spring Pasture as a result of factors other than current livestock grazing practices.

- The AMP management objective to maintain seeding conditions was marginally met with overall static to upward trend recorded.

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for tributaries to Cow Hollow Creek and springs in this pasture.
- Address spring development design at Chalk and Schweizer Springs for riparian management in accordance with BLM policy.
- Coordinate with livestock operators to address road location and livestock exclusion between the Mud Spring/Reservoir Exclosures.
- Address noxious weed issues (e.g. tamarisk and Russian olive in tributaries to Cow Hollow Creek; perennial pepperweed in Chalk and Mud Springs; rush skeletonweed in the uplands) consistent with the district plan and BLM policy.

### **South Mud Spring Pasture (10403\_02)**

#### Management Setting

Most all of South Mud Springs Pasture was seeded with crested wheatgrass in 1966 as part of the 800 acre East Cow Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977). The entire pasture was within the boundaries of the 1996 Cow Hollow Fire, although no rehabilitation seeding was completed due to the earlier seeding treatment.

Mud Spring Pasture was divided by Mud Spring Seeding Division fence in 1987, creating North and South Mud Spring Pastures. North Mud Spring Pasture has been grazed with a deferred rotation schedule since division, with the current grazing schedule implementing an alternate year spring (5/1 to 7/15) – fall (9/15 to 10/31) rotation since the AMP was adopted in 1999.

Livestock water sources include Mud Spring pipeline and surface water in Rock Spring Canyon accessed through a water gap.

The Southern Malheur RPS identified a management objective for South Mud Springs Pasture to maintain seeding conditions. This seeding objective was restated in the 1999 allotment management plan and an additional objective was included to maintain the late ecological of native portions of the pasture.

#### Evaluation of Monitoring Data

Actual use and utilization data for South Mud Spring Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year spring/fall grazing, has been followed since AMP implementation in 1999. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has not been exceeded in recent years, except in 2004, in spite of moving cattle from this pasture earlier than planned.

Upland vegetation trend data for South Mud Spring Pastures were analyzed and summarized. One trend plot was located and baseline data were collected in the pasture in 1989, two years following the division of Mud Springs Pasture. The plot was measured again in 1993, prior to the last allotment evaluation, and again in 2002 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1989	3.74	27	0.159 feet	0.190 feet
1993	3.97	39	0.102 feet	0.124 feet
2002	4.47	21	0.211 feet	0.196 feet

Recorded basal cover of crested wheatgrass has increased steadily during the thirteen year period between 1989 and 2002, although the number of plants has declined. At the same time, the mapped 3X3 plot and photo indicate a decrease in crested wheatgrass cover over the thirteen years between 1989 and 2002. These data and a summary of individual plants measured along the 100 foot line indicate a static trend to slight increase of crested wheatgrass vigor over the long term, which does not track trends in crop year precipitation. Professional judgment concerning trend in the seeded portion of South Mud Spring Seeding Pasture over the long term and short term is consistent with the indications of a slight downward trend in the photos and mapped 3X3 plot. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 at the trend plot location in South Mud Spring Seeding Pasture, a key area representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site which was seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Pedestals and/or terracettes
	Litter Movement
	Compaction layer
<i>Moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected

<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Annual production
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected
	Reduction reproductive capability of perennial plants

Departures from desired conditions were primarily related to historic livestock grazing, the seeding of a nonnative species as part of the Vale Project, and related to Cow Hollow Fire in 1996, resulting in a reduction in the potential expression of shrub and forb components within the vegetation community. Additionally, grazing impacts to seeded grass species has been greater within South Mud Springs Pasture as compared to North Mud Spring Seeding. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

One riparian assessment, consistent with Technical Reference 1737-15 for lotic areas, was completed for Standard 2 in South Mud Spring Pasture. Rock Springs Canyon in the watergap access from South Mud Spring Pasture was found to be proper functioning condition, with stream bank stability provided by protection from bedrock and riparian herbaceous species diversity and structure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was met on Rock Spring Canyon.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 3 soil surface stability characteristics.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Annual production
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures from desired conditions are primarily related to historic vegetation treatment (1968). These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Scotch thistle, an invasive exotic forb, is present in the area, as is cheatgrass. Both have the potential to spread.

#### Additional Issues

Utilization levels in excess of the maximum allowable level were reached before the scheduled move of cattle from South Mud Spring Pasture in 2005, resulting in the early move of cattle to Sagebrush Pasture. It has become evident that carrying capacity of South Mud Spring Pasture is less than North Mud Spring Pasture, although the current grazing schedule provides for equal use in the two pastures. Adding to the utilization levels reached in the impact of fall grazing followed by spring grazing the following year in each of these pastures as well as the seeding pastures in the south area of use of Nyssa Allotment.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in South Mud Spring Pasture.
- Rangeland Health Standard 2 was met on the short reach of Rock Creek Canyon in the water gap, the only known riparian resources in the pasture. .
- Rangeland Health Standard 3 was not met in vegetation communities seeded to nonnative perennial species as a result of factors other than current livestock grazing practices.
- Rangeland Health Standard 4 was met in South Mud Spring Pasture as a result of meeting standard one and two.
- Rangeland Health Standard 5 for wildlife species was not met in North Mud Spring Pasture as a result of factors other than current livestock grazing practices.
- The AMP management objective to maintain seeding conditions was not met with overall static to downward trend recorded.

#### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH and if the current schedule is maintained, consider flexibility to allow for a shorter period of spring use with the move to Sagebrush Pasture as much as two weeks earlier.
- Add riparian management objectives for Rock Spring Canyon while retaining it as a watergap.
- Coordinate with livestock operators on use of Rock Spring Canyon watergap.
- Address noxious weed issues (e.g. tamarisk and perennial pepperweed in Rock Spring Canyon) consistent with the district plan and BLM policy.

## North Rock Creek (10403\_03)

### Management Setting

North Rock Creek Pasture is composed of native shrub steppe vegetation communities with inclusions of annual vegetation, primarily cheatgrass. The north one-half of North Rock Creek Pasture was included in the 1968 Haystack Butte Brush Control during the Vale Project (Heady and Bartolome, 1977). Most of the pasture north of the Rock Creek Road burned during the 1996 Cow Hollow Fire. No rehabilitation seeding was implemented in this portion of the burn.

Rock Creek Pastures was divided by Rock Creek Division Fence in 1987 (Job Description Report (JDR) 5527), creating North and South Rock Creek pastures. Through 1998, North Rock Creek Pasture was grazed in a deferred rotation system. Annual spring use (4/1 to 5/1) was initiated in 1999 with revisions to the AMP and recognition of riparian values adjacent to Rock Creek and a number of springs.

The Southern Malheur RPS identified a management objective for North Rock Creek Pasture to improve ecological conditions. This native upland objective was restated in the 1999 allotment management plan and an additional objective was included to improve riparian habitat.

### Evaluation of Monitoring Data

Actual use and utilization data for North Rock Creek Pasture (Appendix E) indicate that the AMP grazing schedule, with planned early spring grazing every year, has been followed since AMP implementation in 1999. Fall grazing also occurred in 2001. The maximum allowable utilization level of 50% within native rangeland has not been exceeded in recent years.

Upland vegetation trend data for North Rock Creek Pastures were analyzed and summarized. Trend Plot 1 was established in 1969 and not found again in 1984. Trend plot number two was located within ¼ mile of trend plot one and baseline data were collected 1984, prior to the division of Rock Creek Pasture. Line intercept data were recorded in 1984, 1988, 1993, and 2004. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	0.24%	5	0.048 feet	0.058 feet
1988	1.19%	14	0.085 feet	0.059 feet
1993	1.89%	13	0.145 feet	0.087 feet
2004	1.89%	10	0.189 feet	0.131 feet

Recorded basal cover of bluebunch wheatgrass increased steadily during the nine year period between 1984 and 1993, with an increase in the number of plants and plant size. Basal cover has remained static between 1993 and 2004, although the number of plants has declined. Line intercept data for sagebrush cover also indicate a steady increase with 1.70% cover in 1984, 13.49% cover in 1993, and 26.94% cover in 2004. The mapped

3X3 plot and photo indicate the same trends in bluebunch wheatgrass and sagebrush cover.

Trend plot number three was established without a line in 1988. The mapped 3X3 plot and photo indicate the static trends in bluebunch wheatgrass and sagebrush cover between 1988 and 2004.

Professional judgment concerning long term and short term trend in the portion of North Rock Creek Pasture where native perennial grasses dominate is consistent with the indications of an upward trend through which may be static in recent years of more droughty conditions. Portions of the pasture are also dominated by cheatgrass which limits reestablishment of desirable native bunchgrasses. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 at the trend plot location in North Rock Creek Pasture, a key area representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Reduction reproductive capability of perennial plants

Departures from desired conditions were primarily related to the lack of forbs and cryptogamic crust. Although some portions of the pasture have a significant presence of cheatgrass, the site at the trend plot only supports a trace of this invasive annual grass species.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was met on Rock Spring Canyon and undeveloped spring named Solomon Spring.

Standard 2 was not met on Lone Willow Creek and the tributary to Lone Willow Creek. There is not a defined channel with braiding in portions of the segment. Historic and current headcuts are influencing the channel shape. Saltcedar is present in a large portion of these streams. There are some historic remnants of trails and loafing areas. Riparian herbaceous vegetation appears to be expanding and is vigorous. Contributing factors to not meeting the standard were historic livestock grazing and invasion of weed species.

Standard 2 was not met on Dam, Deer Butte, and Haystack Spring. There is trampling, trailing, and excessive bare banks occurring in this segment. Contributing factors to not meeting the standard were historic livestock grazing, improper spring development design, lack of maintenance of spring development, and invasion of weed species.

Standard 2 was not met on the Rock Spring Canyon Spring. This is a historically downcut drainage. High flow events in 2004 caused more cutting and erosion in the channel. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on the unnamed spring located in T22S R44E Sec. 16 SWSW. This is a very weedy riparian area that is a desirable livestock loafing area. High flow events in 2004 caused more cutting and erosion in the channel. This development has been used by livestock more than the other developments in this pasture recently. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, lack of maintenance of spring development, and invasion of weed species.

Standard 2 was not met on the tributary to Owyhee River. There is not a defined channel with braiding in portions of the segment. Historic and current headcuts are influencing the channel shape. Saltcedar is present in the lower portion of this stream. There is both wildlife and livestock browse occurring on the woody riparian vegetation. Contributing factors to not meeting the standard were historic and current livestock grazing and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>
<i>Slight to moderate departure from site description/reference area</i>

	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional/structural groups from site potential
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions were primarily related to historic grazing. Departures do not appear related to current livestock management practices.

#### Additional Issues

Although not recorded in the Geographic Information System (GIS) pasture coverage, a portion of North Rock Creek Pasture adjacent to Snively Hot Springs on the Owyhee River, is fenced separate from the pasture and used as a temporary holding pasture for cattle which trail to and from Nyssa Allotment in the spring and fall. Management objectives and terms for use of this small pasture need to be defined.

One site of Malheur forget-me-not, a state-listed threatened species, is known from this pasture. The site has been visited within the last five years and remains intact, with plants vigorous and reproductive. No threats have been observed. Two sites of Biddle's lupine, a BT species, are found within the pasture but have not been revisited since their discovery. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this allotment is anticipated to be stable, or at least not impacted by livestock.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in North Rock Creek Pasture.
- Rangeland Health Standard 2 was not met on Lone Willow Creek, other unnamed drainages, and several developed and undeveloped springs due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was met in all vegetation communities in North Rock Creek Pasture.
- Rangeland Health Standard 4 was not met in North Mud Spring Pasture as a result of not meeting Standard 2 at a number of springs and tributaries.
- Rangeland Health Standard 5 for wildlife species was met in North Rock Creek Pasture.
- Rangeland Health Standard 5 was met for Malheur forget-me-not, a special status plant species, and was not evaluated but is anticipated to be met for Biddle's lupine, a special status plant species.
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend recorded.

#### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Define management of holding pasture adjacent to Snively Hot Spring.

- Add riparian management objectives for Lone Willow Creek, Lone Willow Creek tributary, Owyhee River tributary, Rock Spring Canyon, and springs in this pasture.
- Address spring development design at Dam, Rock Spring Canyon, Haystack Butte, Deer Butte Springs, and the spring located at T. 22 S, R. 44 E., Section 16, SWSW for riparian management in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk and perennial pepperweed in Rock Spring Canyon; tamarisk in Lone Willow Creek and surrounding riparian areas) consistent with the district plan and BLM policy.

**Sagebrush (10403\_04)**

Management Setting

A portion of Sagebrush Pasture east of Sagebrush Spring (960 acres) was burned with a prescribed fire in 1984 and seeded to crested wheatgrass. Additional nonnative seeding was completed through Sagebrush Gulch (949 acres) and adjacent to Yellowjacket Reservoir (100 acres) following the 1996 Cow Hollow Fire. Additionally, a native seeding mix was planted west of Shellbark Spring (879 acres) following the Cow Hollow Fire.

Sagebrush Pasture was grazed with a deferred rotation system through 1998 until implementation of the revised AMP. Annual deferment of livestock grazing until after the active growing season was implemented in 1999. Livestock water is available in the pasture at Lone Willow, Shellbark Spring, Sagebrush Spring and Reservoir, springs in Sagebrush Gulch, Red Rim Well, and Double Mountain Well. Additional springs and reservoirs provide less reliable water when climatic conditions are favorable.

The Southern Malheur RPS identified a management objective for Sagebrush Pasture to improve ecological conditions. This native upland objective was restated in the 1999 allotment management plan.

Evaluation of Monitoring Data

Actual use and utilization data for Sagebrush Pasture (Appendix E) indicate that the AMP grazing schedule, with planned annual deferment, has been followed since AMP implementation in 1999, with the exception of 2001 when spring use occurred as a result grazing schedule changes following the Kern Fire which lead to closure of Grassy Mountain Pasture. The maximum allowable utilization level of 50% within native rangeland has not been exceeded in recent years with the exception of 2004 when 71 percent utilization was measured.

Upland vegetation trend data for Sagebrush Pastures were analyzed and summarized. Trend Plot 1 was established in 1984 and line intercept data were collected in 1988, 1993, and 2004. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
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1984	0.47	8	0.0588	0.0730
1988	2.34	7	0.3343	0.3035
1993	1.49	9	0.1656	0.1220
2004	1.50	8	0.1875	0.1379

Recorded basal cover of bluebunch wheatgrass increased between 1984 and 1988, declined by 1993 and remained static during the nine years between 1993 and 2004, with the number of plants and plant size also remaining static in recent years. Line intercept data for sagebrush cover also indicate a moderate stand of 3.14 percent cover in 1984, but has declined to 0.5 percent cover in 2004. No sagebrush cover data were collected in the intermediate years. The mapped 3X3 plot and photos do not provide information which indicates a different trend in bluebunch wheatgrass and sagebrush cover.

Trend plot number two was established without a line in 1984. The mapped 3X3 plot and photos indicate the static trends in bluebunch wheatgrass in recent years. Sagebrush cover was removed by the 1996 Cow Hollow Fire. Redevelopment of water, the 1995 Cow Hollow Fire, and recent livestock management practices have resulted in the professional opinion that a healthy and diverse vegetation community in the vicinity of Double Mountain Well has been pushed to a greater dominance by annual species.

No trend plot is established in nonnative portions of Sagebrush Pasture east of Sagebrush Reservoir or in the upper reaches of Sagebrush Gulch.

Professional judgment concerning the portion of Sagebrush Pasture where native perennial grasses dominate is consistent with the indications of an upward trend in the 1980's and a static trend in recent years of more droughty conditions. The 1996 Cow Hollow Fire and subsequent seeding of portions of the pasture resulted in greater production of perennial herbaceous species, but recent years have seen a decline in that production and higher measured utilization, especially adjacent to Double Mountain Well which was reconstructed in the late 1990's. This is consistent in nonnative seedings of the pasture. Portions of the pasture are also dominated by cheatgrass which limits reestablishment of desirable native bunchgrasses. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Sagebrush Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site, while the second represents those portions of the pasture which were seeded to create wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3 within both the native range vegetation communities and those seeded to create wheatgrass, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected

<b>Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected
	Reduction reproductive capability of perennial plants

Departures from potential conditions are primarily related to the lack of forbs and shrubs. A moderate presence of cheatgrass also limits ecological function of these vegetation communities.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was met on Rintop Spring and the drainage downstream. The spring development could be redesigned to better protect the spring source.

Standard 2 was not met on Sagebrush Gulch and several seep areas that flow into this stream. There is trampling, compaction, and bank shearing occurring in these riparian areas. The portion of this stream located in the pasture downstream has severely downcut leaving only a cobble and boulder streambed. Currently, this headcut is prevented from entering this pasture due to a blockage at the fenceline, but if it is compromised this entire system will lose the hydric soils. Contributing factors to not meeting the standard were historic and current livestock grazing, downstream headcut, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the non-native bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality / decadence
	Reduction in the reproductive capability of perennial plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the native bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality / decadence

Departures from desired conditions were primarily related to historic grazing, vegetation treatment, and wildfire. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures

do not appear related to current livestock management practices. Potential forb components in the vegetation community are not present, and shrubs are nearly absent, except in patches. Cheatgrass, an introduced annual grass, is present in the area.

### Additional Issues

Livestock operators have requested authorization to develop a pipeline from Double Mountain Well (T. 21S., R. 44E., W.M. section 3) to Darkey Reservoir (section 11) and/or Yellowjacket Reservoir (section 1) for trough placement in the area of surface disturbance associated with the reservoir. Both reservoirs have traditionally only held water for a brief period following spring runoff and localized summer storms. Operators have also requested authorization to place a trough north of the fenceline at Double Mountain Well to provide water within Double Mountain Pasture of Dry Creek Allotment.

One site of Malheur forget-me-not, a state-listed threatened species, is known from this pasture. The site has been discovered within the last five years. It had burned in a wildfire at an unknown time prior to 2000; sagebrush was completely lacking from the site. However, the forget-me-not is vigorous and reproductive, with no known threats to the site. A site of Cusick's chaenactis, a BT species, is known from this pasture; however, repeated visits to the site over the last 10 years have failed to identify this species at this original discovery site. No habitat modifications appear to have taken place, e.g. no OHV use or livestock trampling, and it is assumed that conditions for this annual species have not been right for it to reproduce or that the site has been visited at times when the species was not visible.

### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Sagebrush Pasture.
- Rangeland Health Standard 2 was not met on Sagebrush Gulch due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was met in all vegetation communities in Sagebrush Pasture.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in Sagebrush Pasture as a result of disturbance factors which have reduced the shrub and forb component from potential vegetation communities including those seeded to nonnative perennial species.
- Rangeland Health Standard 5 was met for Malheur forget-me-not, a special status plant species, and could not be assessed for Cusick's chaenactis, a special status plant species.
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend recorded

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.

- Consider operators request for pipeline construction from Double Mountain Well.
- Add riparian management objectives for Sagebrush Gulch, Sagebrush Gulch tributaries, and springs in this pasture.
- Address spring development design at Rimtop and Raccoon Springs for riparian management in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk in Sagebrush Gulch) consistent with the district plan and BLM policy.
- Maintain sagebrush cover consistent with the landscape level recommendations at the end of this document.

### **Ryefield Seeding (10403\_05)**

#### Management Setting

Much of Ryefield Seeding Pasture was seeded with crested wheatgrass in 1966 as part of the Rye Field Seeding during the Vale Project (Heady and Bartolome, 1977). A small portion of the southwest corner of the pasture burned during the 2000 Kern Fire although no rehabilitation seeding was done within Ryefield Seeding Pasture.

Ryefield Seeding Pasture was grazed with a deferred rotation system through 1998 until implementation of the revised AMP. Alternate year spring and fall use was implemented with the revised AMP grazing scheduled in 1999. Livestock water is provided primarily from Owyhee Ridge Well and a trough near Ryefield Reservoir from Gulf Oil Artesian Well, and Grassy Mountain Reservoir.

The Southern Malheur RPS identified a management objective for Ryefield Seeding to maintain/improve deer/antelope winter range. An additional, but related objective stated in the 1999 allotment management plan is to maintain seeding condition.

#### Evaluation of Monitoring Data

Actual use and utilization data for Ryefield Seeding Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year spring/fall grazing, has been followed since AMP implementation in 1999 with the exception of a few years following the 2000 Kern Fire in Grassy Mountain Pasture. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has not been exceeded in recent years, except in 2003.

Upland vegetation trend data for Ryefield Seeding Pastures were analyzed and summarized. Photo trend plot number one was located and a baseline photo was taken in 1969. The plot photograph was retaken in 1984, 1988, 1993 prior to the last allotment evaluation, and again in 2002 in preparation for this GMA assessment. These photos indicate a cyclical change on crested wheatgrass cover, likely associated with annual rainfall and timing of photos relative to the period of use scheduled for the pasture in the year photos were taken. These photos indicate a static trend long term with no indication of a short term trend which differs.

Trend plot number two was established in 1969 with a photo. Line intercept data were initiated in 1984 and recorded again in 1988, 1993, and 2002. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	10.05	102	0.0985	0.1263
1989	6.04	53	0.1140	0.0869
1993	0.53	6	0.0883	0.0714
2002	1.86	6	0.31	0.2360

Recorded basal cover of crested wheatgrass decreased significantly from 1984 to 1993 and has possibly increased in the past decade, although remains far below potential expressed in the mid 1980's. The long term decline in cover is very evident in a loss of the number of plants from 102 in 1984 to 6 in 1993. Short term, the number of plants has remained static although the size of recorded plants has increased. At the same time, the mapped 3X3 plot and photo indicate a long term decrease in crested wheatgrass cover over the nine years between 1984 and 1993. Short term trend based in the 3X3 plot indicates a static trend between 1993 and 2002. Professional judgment concerning trend in the seeded portion of Ryefield Seeding Pasture over the long term and short term is consistent with the indications of a significant downward long term trend with a short term static trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Ryefield Seeding Pasture, one key area at the trend plot number 2 site represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site which was seeded to crested wheatgrass, while the second represents a mixed shrub community in loamy ash in the northern portion of the pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both communities. At the same time, the indicators support a finding of not meeting Standard 3 within the community seeded to crested wheatgrass but meeting standard 3 in the mixed shrub community. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Compaction layer
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	

	Reduction of soil surface resistance to erosion
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Reduction reproductive capability of perennial plants

<b>Mixed shrub community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>None to slight departure from site description/reference area for all indicators</i>	
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants

Departures from potential conditions in the areas seeded to crested wheatgrass were primarily related to the lack of forbs and shrubs. A moderate presence of cheatgrass also limits ecological function of the seeded vegetation community. Departures do not appear related to current livestock management practices.

The only point of departure from the potential vegetation community of function in the mixed shrub community is the minor occurrence of cheatgrass.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed on Lowe Spring. This spring development is no longer functioning due to a lack of water from the spring. Historic project photos indicate that this spring source was associated with a riparian area, but it could not be identified during the assessment process. Contributing factors to not meeting the standard were unknown although it is possible that the development contributed to dewatering the spring source.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent upland standards.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>
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<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive species

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Plant mortality/decadence
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions were primarily related to historic grazing and vegetation treatment (seeding of exotic perennial grasses). These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Cheatgrass, an introduced annual grass, is present in the area, with the potential to dominate.

#### Additional Issues

Two sites of Biddle's lupine are known from Rye Field Seeding. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the sites in this pasture are anticipated to be stable, or at least not impacted by livestock. One site of Cusick's chaenactis is found in the pasture but has not been revisited since its discovery date.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Ryefield Seeding Pasture.
- Rangeland Health Standard 2 was not applicable, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was not met in seeded portions of Ryefield Seeding pasture seeded to nonnative perennial species as the result of past vegetation manipulation and the lack of shrubs and forbs. Not meeting the standard is not related to current livestock management practices.

- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in portions of Ryefield Seeding pasture seeded to nonnative perennial species as the result of past vegetation manipulation and the lack of shrubs and forbs. Not meeting the standard is not related to current livestock management practices.
- Rangeland Health Standard 5 was not evaluated for two species of special status plants known in the pasture.
- The data necessary to evaluate meeting the RPS objective to maintain/improve deer/antelope winter range can best be evaluated based on meeting Rangeland Health Standard 5 for wildlife species. The AMP management objective to improve seeding conditions was not met with overall static to downward trend recorded

#### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Address loss of non-native perennial seeded species.
- Consider abandonment of Lowe Spring development.

### **Grassy Mountain Seeding (10403\_06)**

#### Management Setting

The east one-half of Grassy Mountain Seeding Pasture was seeded in 1966 as part of the Rye Field Seeding during the Vale Project (Heady and Bartolome, 1977).

Grassy Mountain Seeding Pasture was grazed with a deferred rotation system through 1998 until implementation of the revised AMP. Alternate year spring and fall use was implemented with the revised AMP grazing scheduled in 1999. Livestock water is provided primarily at Government Corral Spring, Sagebrush Spring, North Grassy Mountain Reservoir, and seeps and springs in the eastern portion of the pasture.

The Southern Malheur RPS identified a management objective for Grassy Mountain Seeding to maintain ecological conditions. This native upland objective was restated in the 1999 allotment management plan and an additional objective was included to maintain the good seeding condition in seeded portions of the pasture.

#### Evaluation of Monitoring Data

Actual use and utilization data for Grassy Mountain Seeding Pasture (Appendix E) indicate that the AMP grazing schedule, with planned alternate year spring/fall grazing, has been followed since AMP implementation in 1999, with the exception of total rest in 2000 and fall use in 2001 and 2002 as a result grazing schedule changes following the Kern Fire in accordance with policy to rest fire impacted vegetation for two growing seasons. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has been exceeded in 1998, 2002 and 2004, the only recent years that data were collected for utilization following grazing in Grassy Mountain Seeding Pasture.

Upland vegetation trend data for Grassy Mountain Seeding Pastures were analyzed and summarized. Trend Plot number one was established in 1984 with a 3X3 plot and line. Data from the plot and line were reread in 1993 and 2002. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	3.00	38	0.0789	0.0774
1993	5.72	45	0.1271	0.0929
2002	2.71	37	0.0732	0.0638

Recorded basal cover of crested wheatgrass increased between 1984 and 1993. Cover declined by approximately the same amount between 1993 and 2002. These trends in cover are reflected in both plant numbers and average intercept. Line intercept data for sagebrush cover was only recorded in 2002, with landscape photos prior to this date indicating no sagebrush on the crested wheatgrass seeded bench where the trend plot is located.

No trend plot is established in native portions of Grassy Mountain Seeding Pasture.

Professional judgment concerning the portion of Grassy Mountain Seeding Pasture where crested wheatgrass was seeded is consistent with the indications of a downward trend in recent years. Heavy use resulting from drought prior to the 2000 Kern Fire and in 2001 and 2004 has likely contributed to weakened health of seeded species. Similarly, those native portions of Grassy Mountain Seeding Pasture which are available have been used heavy in a number of recent years. A heavy down-pour in late summer of 2004 also contributed to impacts to vegetation resources in the eastern portion of the pasture. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Grassy Mountain Seeding Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site, while the second represents those portions of the pasture which were seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both vegetation communities. At the same time, the indicators support a finding of not meeting Standard 3 within the community seeded to crested wheatgrass but meeting standard 3 in the native vegetation community. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes

<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
<b>Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Compaction layer
<i>Moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Reduction reproductive capability of perennial plants

Departures from potential conditions in the areas seeded to crested wheatgrass were primarily related to the lack of forbs and shrubs. A moderate presence of cheatgrass also limits ecological function of the seeded vegetation community, especially in areas of limited crested wheatgrass dominance. Departures do not appear related to current livestock management practices. The only point of departure from the potential vegetation community of function in the native sagebrush/bunchgrass community is the slight reduction of perennial grasses and minor occurrence of cheatgrass and burr buttercup.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on QT Spring and the drainage below it. The drainage is downcut approximately 30 feet with many large riparian woody species including cottonwood. The trough is placed next to the stream within the downcut drainage. Livestock use related to the trough is creating trailing, trampling, and some sloughing near the trough. The entire riparian area has mostly early seral herbaceous riparian vegetation with excessive bare banks. Woody regeneration was occurring, but very little was surviving due to browse by livestock and wildlife. There is saltcedar present along this drainage. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, wildlife browse, invasion of weed species, and lack of maintenance of spring development.

The standard was not met on Sand Hollow Creek and several seeps feeding the creek in this pasture. The drainage is downcut approximately 30 to 40 feet with remnants of large

riparian woody species including cottonwood. Historically, this was a large woody system, but there does not appear to be any regeneration on the woody riparian species. There are healthy chokecherry stands in areas where livestock access is limited. The entire riparian area has mostly early seral herbaceous riparian vegetation with excessive bare banks. There is saltcedar present along this drainage. There is trailing, trampling, and bank sloughing occurring although some bank cutting is to be expected to reestablish a floodplain in this downcut system. Small headcuts are still visible so this system is currently not vertically stable. Contributing factors to not meeting the standard were current and historic livestock grazing, invasion of weed species, and vertical instability.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the nonnative bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive Plants
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Reduction in the reproductive capability of perennial plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential

Departures from desired conditions were primarily related to historic grazing and vegetation treatment (seeding of exotic perennial grasses). Departures do not appear related to current livestock management practices. Potential forb components in the vegetation community are slightly less than expected. Cheatgrass, an introduced annual grass, is present in the area.

### Additional Issues

Three sites of Biddle's lupine are known from Grassy Seeding. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the sites in this pasture are anticipated to be stable, or at least not impacted by livestock.

### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Ryefield Seeding Pasture.
- Rangeland Health Standard 2 was not met on Sand Hollow Creek and various riparian areas due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was not met in the portions of the pasture seeded to nonnative perennial species due to factors other than current livestock grazing practices.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was not met in the portions of the pasture seeded to nonnative perennial species due to factors other than current livestock grazing practices.
- Rangeland Health Standard 5 for Biddle's lupine, a special status plant species, is anticipated to have been met.
- The AMP management objective to maintain ecological conditions in native portions of the pasture and maintain seeding conditions in portions seeded to perennial nonnative species was not met with overall downward trend recorded.

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Sand Hollow Creek, Sand Hollow Creek tributary, and springs in this pasture.
- Address spring development design at QT Spring for riparian management in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk in riparian areas) consistent with the district plan and BLM policy.
- Maintain sagebrush cover consistent with the landscape level recommendations at the end of this document.

## **Grassy Mountain (10403\_07)**

### Management Setting

Approximately 1200 acres in the northwest portion of the pasture burned during the 2000 Kern Fire and portions were seeded with crested wheatgrass or a native grass-forb mix with little success. Medusahead ryegrass dominates approximately 500 acres of the northwest corner of the pastures and in association with drilling of frozen soils, limited spring precipitation in 2001, and heavy clay soils, resulted in poor success of much of the rehabilitation seeding following wildfire. Much of the flat on the west end of The Oxbow

road and south of Twin Springs is dominated by annuals in spite of attempts to seed it following the Kern Fire.

Grassy Mountain Pasture was grazed with a deferred rotation system through 1998 until implementation of the revised AMP. Annual deferment of livestock grazing until after the active growing season was implemented in 1999. Livestock water is available in the pasture from a number of developed springs and one well. Although Owyhee Reservoir forms the southern boundary of this pasture, a limited portion of the pastures is made available for livestock use with this water due to the steep climb and distance from the reservoir to the majority of the pasture.

The Southern Malheur RPS identified a management objective for Grassy Mountain Pasture to maintain ecological conditions. This native upland objective was restated in the 1999 allotment management plan.

#### Evaluation of Monitoring Data

Actual use and utilization data for Grassy Mountain Pasture (Appendix E) indicate that the AMP grazing schedule, with planned annual deferment, has been followed since AMP implementation in 1999, with the exception of 2001 following Kern Fire when Grassy Mountain Pasture was rested. The maximum allowable utilization level of 50% within native rangeland has not been exceeded in recent years.

Upland vegetation trend data for Grassy Mountain Pastures were analyzed and summarized. Trend Plot number one was established in 1984 with a 3X3 plot and line. Data collection and photos were repeated in 1988, 1993, and 2002. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1984	1.71	32	0.0534	0.0993
1988	1.77	30	0.0590	0.0669
1993	2.17	21	0.1033	0.0564
2002	3.00	16	0.1875	0.1286

Recorded basal cover of bluebunch wheatgrass steadily increased between 1984 and 2002, although the number of recorded plants has declined steadily and the average plant size has increased. Line intercept data for sagebrush cover was only collected in 1984, although photos tend to indicate an increase in cover over time through 1993. The plot was within the 2000 Kern Fire and all sagebrush was removed. The mapped 3X3 plot and photos do not provide evidence of significant change in 18 years.

Trend plot number two was established without a line in 1967. The landscape photos indicate a static trend in bluebunch wheatgrass whereas notes indicate a conversion of the site from cheatgrass dominance to Medusa-head rye dominance. The plot was outside the area burned by the 2000 Kern Fire and sagebrush cover remains scattered.

Professional judgment concerning trend of Grassy Mountain Pasture does not conflict with monitored trend. Although significant portions of the pasture are dominated by

native perennial vegetation communities, much of which is near potential natural communities for herbaceous composition, sagebrush cover is limited, especially following the Kern Fire. Annual species are holding much of the pasture in a low seral state as noted above. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Three upland rangeland health assessments were completed for Standards 1 and 3 in Grassy Mountain Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site, the second represents those portions of the pasture which were burned during the Kern Fire and are lacking a shrub component, but retain a healthy perennial herbaceous component, while the third is at the trend plot and is more heavily dominated by annual grasses and forbs. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in all three vegetation communities. At the same time, the indicators support a finding of not meeting Standard 3 within the community burned during the Kern Fire or the site dominated by annual species, but meeting standard 3 in the native vegetation community with shrubs. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site not recently burned</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site burned in 2000</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
	Invasive plants

	Reduction reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Extreme departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Plant mortality/decadence
	Deviation of litter amount from expected
	Invasive plants

Departures of indicators from potential conditions in the areas burned during the 2000 Kern Fire primarily relate to the lack of shrubs. In addition to the lack of shrubs, the indicators within areas dominated by annual species also identified a lack of perennial grasses and forbs. The only point of departure from the potential vegetation community of function in the native sagebrush/bunchgrass community is the slight reduction of perennial grasses and minor occurrence of cheatgrass and burr buttercup. Departures do not appear related to current livestock management practices, but are related to historic grazing and other disturbances including wild fire.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on three tributaries to the Owyhee River in this pasture. The drainages are downcut approximately 30 feet. The entire riparian areas have mostly early seral herbaceous riparian vegetation with excessive bare banks. There is saltcedar present along these drainages. There is trailing, trampling, and bank sloughing occurring although some bank cutting is to be expected to reestablish a floodplain in a downcut system. There are large willows through portions of the tributaries, but little regeneration occurring. The systems are all vertically instable currently. Contributing factors to not meeting the standard were current and historic livestock grazing, invasion of weed species, and vertical instability.

The standard was not met on Twin Springs Creek. At the time of the assessment, the pasture had two years of hot season rest which resulted in vigorous riparian herbaceous growth. The entire riparian areas have mostly early seral herbaceous riparian vegetation with excessive bare banks. There is perennial pepperweed present along this drainage.

There is trailing, trampling, compaction, and excessive raw banks. Contributing factors to not meeting the standard were current and historic livestock grazing, invasion of weed species, and historic downcutting.

The standard was not met on the tributary to the Owyhee River from Oxyoke Spring. This is an interrupted intermittent riparian area with saltcedar invading the entire system. Contributing factors to not meeting the standard was invasion of weed species.

The standard was not met on Grassy Mountain Spring and nearby seeps. There is trailing, trampling, compaction, hummocking, and sloughing on the spring source. The vegetation consists of early seral herbaceous riparian vegetation with some upland and weed species invading the riparian area. Woody riparian vegetation is heavily browsed and lacking surviving regeneration. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, invasion of weed species, and lack of maintenance of spring development.

The standard was not met on Whiskey and Oxbow Springs. The spring sources are livestock loafing areas which lead to trampling, compaction, hummocking, and sloughing on the spring sources. The vegetation consists of early seral herbaceous riparian vegetation with some upland and weed species invading the riparian areas. Perennial pepperweed is invading the riparian areas. Whiskey Spring has three troughs in the drainage below the spring that are dry while flow from the headbox is flowing onto the ground. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, lack of maintenance of spring development on Whiskey Spring, and invasion of weed species.

The standard was not met on Oxyoke Spring at the time of this assessment. Conditions were similar to Whiskey Spring with a non functional spring development, but this development was reconstructed in 2004. The redevelopment eliminated the current livestock grazing impacts. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, lack of maintenance of spring development, and invasion of weed species.

The standard was not met on Ryefield Spring. Historic downcutting has eroded the hydric soils in this drainage leaving a cobble streambed. This downcutting has decreased the soil-water holding storage capacity of the site and limited the riparian area. The trough is placed adjacent to the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, and lack of maintenance of spring development.

The standard was not met on Shack Spring which consists of two springs in the drainages upstream and Keg Spring. There is trampling, compaction, hummocking, and sloughing occurring on the spring sources. The vegetation consists of early seral herbaceous riparian vegetation with some upland and weed species invading the riparian areas. Woody regeneration is not occurring. There is evidence at the time of the assessment of recent sheep use of the riparian area around Shack Spring. Contributing factors to not

meeting the standard were current and historic livestock grazing, improper spring development design, and historic use of Shack Spring as a cow camp.

The standard was not met on a developed spring located in T22S R44E Sec. 26 NENW. There is not any riparian herbaceous species present at the spring source and very little water flowing into the troughs. The vegetation consists of upland and weed species. All of the water from the spring is being captured by the development and is flowing into the trough. Contributing factors to not meeting the standard were unknown although the development could be contributing to dewatering the spring source.

The standard was not met on Grassy Spring. There is not any riparian herbaceous species present at the spring source and very little water flowing into the trough. The vegetation consists of upland and weed species. All of the water from the spring is being captured by the development and is flowing into the trough. The entire site is heavily grazed and trampled. Historic downcuts in all of the drainages in the area have contributed to limiting the soil-water storage capability of the drainages due to erosion of the soils. Contributing factors to not meeting the standard were unknown although the development and headcuts could be contributing to dewatering the spring source.

The standard was not met on the riparian area associated with Frog Pond Spring Exclosure that is not protected within the confines of the exclosure. Approximately, 75% of the riparian wet meadow is within the Grassy Mountain Pasture. The spring source has trampling, compaction, hummocking, and sloughing occurring within it. Perennial pepperweed and thistle are invading the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing, improper exclosure fence design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grassland community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Annual grassland</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production
	Reduction in the reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	

	Plant mortality / decadence
	Invasive plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the recently burned Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential

Departures from desired conditions were primarily related to historic grazing and the fire that occurred in 2000. These disturbances resulted in a reduction in the potential expression of shrub, forb, and perennial grass components within the vegetation communities. Departures do not appear related to current livestock management practices. Potential forb components in the vegetation community are less than expected. Cheatgrass and medusahead, introduced annual grasses, are present. Adjacent areas with Wyoming big sagebrush and an understory of cheatgrass and/or Medusahead are at risk and are also not meeting Standard 5.

Additional Issues

A livestock operator has requested authorization to develop a pipeline from Twin Springs (T. 22S., R. 43E., W.M. section 35) to a new trough placement in the southwest portion of Grassy Mountain Pasture (T. 23S., R. 43E., W.M. section 1 and/or 12).

One site of Biddle’s lupine is known from Grassy Mountain Pasture. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the site in

this pasture is anticipated to be stable, or at least not impacted by livestock. One site of Cusick's chaenactis is found in the pasture but has not been revisited since its discovery date.

### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Grassy Mountain Pasture.
- Rangeland Health Standard 2 was not met on Twin Springs Creek, various drainages, and several developed and undeveloped springs due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was not met in the Wyoming big sagebrush/bunchgrass vegetation communities which burned during the Kern Fire in 2000 or in the annual dominated vegetation communities due to factors other than current livestock grazing.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities, including those recently burned by wildfire, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for two special status plant species, although it is anticipated that the standard was met for Biddle's lupine.
- The AMP management objective to maintain ecological conditions was met with overall static to upward trend recorded

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Address operator's request for pipeline development and need for Twin Springs Creek watergap.
- Add riparian management objectives for Twin Springs Creek, Owyhee River tributaries, and springs in this pasture.
- Address spring development design at Grassy #1, Grassy Mountain, Keg, Ryefield, Oxbow, Whiskey, Shack Springs, and a developed spring located at T. 22 S., R. 44 E., Section 26, NENW for riparian management in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk and perennial pepperweed in riparian areas; Medusahead in the uplands) consistent with the district plan and BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

**Schweizer FFR (10403\_08)**

Management Setting

Although the pasture is a portion of Nyssa Allotment, the 70 AUMs of authorized grazing by livestock of one operator, not authorized to graze the remainder of the allotment, is managed as a custodial pasture. The entire pasture was within the boundaries of the 1996 Cow Hollow Fire and the northern portion (approximately 40 acres) was seeded to crested wheatgrass in 1996 following the wildfire.

The Southern Malheur RPS identified a management objective for Schweizer FFR to improve ecological conditions. The objective with consideration for the seeding of nonnative perennial species was restated in the 1999 allotment management plan, within the limitations that the pasture is managed as a custodial pasture.

Evaluation of Monitoring Data

As a custodially managed pasture, no actual use or utilization data have been collected. No upland trend monitoring plots have been established in Schweizer FFR pasture. Professional judgment is a static to upward trend with limited livestock use recently and somewhat successful rehabilitation seeding of nonnative perennial species following the Cow Hollow Fire.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 within Schweizer FFR Pasture. One was completed at a key area representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site which was seeded to created wheatgrass. The second was located within a native perennial vegetation community dominated by Wyoming big sagebrush and Sandberg bluegrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both communities and meeting Standard 3 in the seeded portion, but not meeting Standard 3 in the native portion due to significant reduction of sagebrush, perennial forbs and perennial grasses from potential. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Gullies
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

<b>Wyoming big sagebrush/Sandberg bluegrass vegetation communities</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Bare ground
	Litter Movement
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants

Departures from desired conditions in the seeded portion of the pasture were primarily related to the seeding of a nonnative species as part of the Vale Project and stabilization actions following Cow Hollow Fire in 1996, resulting in a reduction in the potential expression of shrub and forb components within the vegetation community and not related significantly to current livestock management practices. Potential shrub and forb components in the vegetation communities throughout the pasture are not present and both scotch thistle and rush skeleton weed are present in portions of the pasture. Cheatgrass, an introduced annual grass, is also present and dominates areas of reduced perennial grass composition.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	

	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions were primarily related to wildfire and subsequent vegetation treatment (1996). These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present.

#### Additional Issues

Mud Spring pipeline at one time was the source of livestock water to a trough placed in the southern portion of the pasture (T. 20S., R. 45 E., W.M. section 34). With the recent transfer of the grazing permit for use of Schweizer FFR Pasture, the new permittee asked what opportunities were available for restoring the pipeline and again supplying water from the pipeline to the pasture.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Schweizer FFR Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was met in vegetation communities seeded to nonnative perennial species, but not in the Wyoming big sagebrush/bunchgrass vegetation communities due to the loss of perennial herbaceous species and shrubs from historic grazing and other surface disturbing activities and from recent fire.
- Rangeland Health Standard 4 was met in the pasture.

- Rangeland Health Standard 5 for wildlife species was not met in Schweizer FFR Pasture due to the loss forbs and shrubs from historic grazing and other surface disturbing activities and fire.
- The AMP management objective to improve ecological conditions was marginally met with overall static to upward trend identified from professional judgment.

#### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Address operator's request for pipeline restoration, or consider abandonment.
- Consider incorporating pasture into allotment grazing rotation, or retain as a custodial pasture.

### **Ryefield Reservoir Exclosure (10403\_09)**

#### Management Setting

Ryefield Reservoir was excluded from livestock use in 1972. In addition to annual winter/spring surface flow of precipitation, the water source for the reservoir is overflow from the pipeline originating at Gulf Oil Well and providing water to a number of livestock watering troughs. Rangeland around the reservoir and inside the exclosure was seeded with crested wheatgrass in 1966, as part of the Rye Field Seeding during the Vale Project (Heady and Bartolome, 1977).

The management action to exclude livestock to protect riparian resources was restated in the 1999 allotment management plan.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Ryefield Reservoir Exclosure.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standards 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the manmade riparian area associated with the Ryefield Reservoir Exclosure. It provides aquatic habitat although the quality of this habitat may be at risk due to the amount of noxious weed invasion occurring.

##### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Additional Issues

A chronic problem remains with fence maintenance needed to exclude cattle from the reservoir. A trough immediately to the south of the enclosure is a location of cattle concentration and the availability of forage and water within the enclosure. Additionally, overland flow of water during spring runoff and summer storms has deposited silt adjacent to the fence reducing its effective height.

### Recommendations

- Maintain development as an enclosure for wildlife habitat.
- Address noxious weed issues consistent with the district plan and BLM policy.

## **Yellowjacket Reservoir Enclosure (10403\_10)**

### Management Setting

Yellowjacket Reservoir Enclosure provides access to water within the reservoir from Sagebrush, North Rock Creek, South Mud Spring Seeding, and/or Double Mountain pastures when available. Recent climatic conditions have seldom resulted in water held by this reservoir for any period into the summer.

### Evaluation of Monitoring Data

No monitoring plots have been established in Yellowjacket Reservoir Enclosure.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### Additional Issues

As noted in additional issues for Sagebrush Pasture, livestock operators have requested authorization to develop a pipeline from Double Mountain Well to Darkey Reservoir and/or Yellowjacket Reservoir. This proposed pipeline would provide a more reliable source of livestock water and facilitate wider livestock distribution.

### Recommendations

- Maintain development as an enclosure for livestock watering.
- Consider operators request for pipeline construction from Double Mountain Well with trough placement within the enclosure.

## **Darkey Reservoir Enclosure (10403\_11)**

### Management Setting

Darkey Reservoir Enclosure provides access to water within the reservoir from Sagebrush and/or Double Mountain pastures when available. Recent climatic conditions have seldom resulted in water held by this reservoir.

### Evaluation of Monitoring Data

No monitoring plots have been established in Darkey Reservoir Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

#### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### Additional Issues

As noted in additional issues for Sagebrush Pasture, livestock operators have requested authorization to develop a pipeline from Double Mountain Well to Darkey Reservoir and/or Yellowjacket Reservoir. This proposed pipeline would provide a more reliable source of livestock water and facilitate wider livestock distribution.

### Recommendations

- Maintain development as an enclosure for livestock watering.
- Consider operators request for pipeline construction from Double Mountain Well with trough placement within the enclosure.

## **Rock Creek Riparian Stream Exclosure (Owyhee River Corridor) (10403\_12)**

### Management Setting

The Owyhee River corridor below the dam has been the traditional route of spring and fall trailing by one livestock operator accessing grazing in Blackjack, Lower Owyhee, and Nyssa Allotment. A series of efforts in recent years have resulted in improving the integrity of boundary fences in rims above the river to ensure that livestock grazing in adjacent pastures does not result in livestock movement into the corridor and impact public domain riparian resource mid season. Fencing remains an issue between public and private land in portions of Rock Creek Riparian Stream Exclosure. With the exception of limited trailing, livestock use of public land in the exclosure is not authorized.

A number of human ignited small fires have burned the shrub component from portions of the corridor on BLM and Bureau of Reclamation (BOR)-managed acreage in recent years. Transfer of management of a significant portion of BOR-managed land back to BLM in this pasture associated with the Owyhee Project was completed in November 2004.

The Southern Malheur RPS identified a management objective for Rock Creek Riparian Stream Exclosure to improve ecological condition. This native upland objective was restated in the 1999 allotment management plan, in addition to an objective to improve riparian condition and manage the river corridor to protect and enhance values for which this river was found administratively suitable for potential designation by Congress as a part of the National Wild and Scenic Rivers System.

Evaluation of Monitoring Data

No monitoring plots have been established in Rock Creek Riparian Stream Exclosure. Professional judgment identifies a static to upward trend in upland vegetation communities of the canyon adjacent to Owyhee River as a result of limited livestock use.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Rock Creek Riparian Stream Exclosure. One key area represents the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site, while the second represents those portions of the pasture which are dominated by Greasewood and now have an understory dominated by cheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both vegetation communities. At the same time, the indicators support a finding of not meeting Standard 3 within the greasewood/cheatgrass community but meeting standard 3 in the Wyoming big sagebrush/ bluebunch wheatgrass vegetation community. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Native Wyoming big sagebrush/bluebunch wheatgrass range site</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Gullies
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Invasive plants
<b>Greasewood/cheatgrass vegetation communities</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
<i>Moderate to extreme departure from site description/reference area</i>	
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Plant mortality/decadence

Departure of indicators from potential conditions in greasewood/cheatgrass communities is primarily related to the lack of forbs and the replacement of perennial grasses by nonnative annual grasses. These departures are the result of historic livestock grazing and other historic events which resulted in the loss of native perennial species and are little related to current management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the Owyhee River. Functionality of the reach is mainly controlled by reservoir releases upstream. The black cottonwood stand is disappearing with no regeneration occurring. The reason for the lack of regeneration is thought to be competition with other species although there could be various other reasons. Portions of the river system are negatively impacted by the recreation use occurring in the corridor. Heavy foot and vehicle traffic in accessible riparian areas have destroyed riparian vegetation as well as compacted riparian soils and caused some bank sloughing. The garbage and human refuse in the area is also contributing to degrading the water quality of the river system.

*Standard 4 - Water Quality*

- Rangeland Health Standard 4 was not met on the Owyhee River due to parameters limiting water quality as listed on Oregon Department of Environmental Quality’s 303 list.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the greasewood/annual grass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Greasewood/Annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential

<i>Moderate to extreme departure from site description/reference area</i>	
	Reduction in the reproductive capability of perennial plants
	Invasive plants
<i>Extreme departure from site description/reference area</i>	
	Plant mortality / decadence

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Departures from desired conditions were primarily related to historic grazing. These disturbances resulted in a reduction in the potential expression of forb and perennial grass components within one vegetation community. Departures do not appear related to current livestock management practices. Potential forb components in one vegetation community are not present. Cheatgrass and medusahead, introduced annual grasses, are present and dominate some areas. Within other areas, departures from desired conditions were minimal and within those expected under natural processes.

#### Additional Issues

A recreation driven activity planning process for Owyhee Below-the-Dam was initiated in 2004 and will guide some management actions for this pasture which comprises the majority of the planning area for that activity plan.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Rock Creek Riparian Stream Exclosure.
- Rangeland Health Standard 2 was met on the Owyhee River.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the greasewood/annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met on the Owyhee River due to parameters limiting water quality as listed on Oregon Department of Environmental Quality's 303 list.
- Rangeland Health Standard 5 for wildlife species was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the greasewood/annual rangeland vegetation communities due to the loss of perennial species from fire and historic grazing and other surface disturbing activities.
- The AMP management objective to improve ecological conditions was met with overall static to upward trend identified with professional judgment.

### Recommendations

- Maintain active trailing use authorized between 3/15-4/15 and 10/15-11/15 annually.
- Address noxious weed issues consistent with the district plan and BLM policy.
- Defer to the Owyhee Below the Dam Activity Plan for additional recommendations.

### **Sagebrush Reservoir Exclosure (10403\_13)**

#### Management Setting

Sagebrush Reservoir Exclosure was constructed in 1973 at the same time the reservoir was constructed to exclude livestock use. The reservoir is the water source for piped water to one trough located downslope and outside the exclosure fencing. In addition to annual winter/spring surface flow of precipitation, the water source for the reservoir is subsurface flow from the aquifer supplying Sagebrush Spring.

The management action to exclude livestock to protect riparian resources was restated in the 1999 allotment management plan.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Sagebrush Reservoir Exclosure.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on Sagebrush Reservoir riparian.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Maintain development as an exclosure for wildlife habitat.
- Address noxious weed issues consistent with the district plan and BLM policy.

### **South Rock Creek (10403\_14)**

#### Management Setting

Rock Creek Pasture was divided by Rock Creek Division Fence in 1987 (JDR 5527), creating North and South Rock Creek pastures. The 1996 Cow Hollow fire burned minor acreage in the pasture with no rehabilitation seeding completed in those portions burned. An intense August rain storm in 2004 scoured many of the dry washes in the pasture with significant deposition of eroded material into Owyhee River at Sand Hollow Creek.

Through 1998, South Rock Creek Pasture was grazed in a deferred rotation system. Annual spring use was initiated in 1999 with revisions to the AMP and recognition of riparian values adjacent to a number of seasonal streams and springs.

The Southern Malheur RPS identified a management objective for South Rock Creek Pasture to improve ecological conditions. This native upland objective was restated in the 1999 allotment management plan and an objective was included to improve riparian conditions.

Evaluation of Monitoring Data

Actual use and utilization data for South Rock Creek Pasture (Appendix E) indicate that the AMP grazing schedule, with planned early spring grazing every year, has been followed since AMP implementation in 1999 with the exception of frequent moves out of the pasture as late as May 9 and some fall use on the move home at the end of the grazing season. The maximum allowable utilization level of 50% within native rangeland has not been exceeded although was close in 1999.

No upland vegetation trend has been established in South Rock Creek Pasture. Professional judgment concerning trend of vegetation communities in South Rock Creek Pasture is static with limiting factors being frequent years of drought conditions and upland impacts from a severe rain storm in 2004. Portions of the pasture are also dominated by cheatgrass which limits reestablishment of desirable native bunchgrasses. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 within South Rock Creek Pasture. One was completed at a key area representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site. The second was located within a native perennial vegetation community dominated by Wyoming big sagebrush and cheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both communities and meeting Standard 3 in the vegetation which supports a vigorous perennial bunchgrass understory to sagebrush, but not meeting Standard 3 in the vegetation community which supports a cheatgrass understory. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/bluebunch wheatgrass vegetation communities</b>
<b>Standard 1: Upland watershed function</b>
<i>None to slight departure from site description/reference area for all indicators</i>
<b>Standard 3: Ecological processes</b>
<i>None to slight departure from site description/reference area for all indicators</i>

<b>Wyoming big sagebrush/cheatgrass vegetation communities</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Bare ground
	Wind scoured blowouts and/or deposition areas
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Gullies
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
	Reduction reproductive capability of perennial plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Invasive plants

Departures from desired conditions were not present at the key area supporting vigorous perennial herbaceous species, whereas the key area with cheatgrass in the understory lacked potential perennial forbs and grasses limiting its ecological function. These departures are the result of historic livestock grazing and other historic events which resulted in the loss of native perennial species and are little related to current management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Sand Hollow Creek and several seeps feeding the creek in this pasture. The drainage is downcut approximately 30 to 40 feet with remnants of large riparian woody species including cottonwood. Historically, this was a large woody system, but there does not appear to be any regeneration on the woody riparian species. There are healthy chokecherry stands in areas where livestock access is limited. The entire riparian area has mostly early seral herbaceous riparian vegetation with excessive bare banks. There is saltcedar present along this drainage. There is trailing, trampling, and bank sloughing occurring although some bank cutting is to be expected to reestablish a floodplain in this downcut system. Small headcuts are still visible so this system is currently not vertically stable. Although spring use of this pasture has been authorized for the past three years, there were cattle present at the time of the assessment (???) and the riparian vegetation was grazed. Contributing factors to not meeting the standard were

historic livestock grazing, unauthorized current livestock grazing, invasion of weed species, and vertical instability.

The standard was not met on a tributary of the Owyhee River that flows from Mendiola Spring. The drainage has historically downcut leaving a cobble and boulder streambed. This has created an instable system that is incapable of handling any high flow events. There is historic evidence of trailing, trampling, and bank sloughing occurring. Due to spring use the past three years, the herbaceous and woody riparian vegetation is vigorous and increasing in volume. The road channels some of the water in the stream away from the drainage. Contributing factors to not meeting the standard were historic livestock grazing, invasion of weed species, and dewatering of system by the road.

The standard was not met on developed spring in Sand Hollow Creek located in T21S R45E Sec. 31 NWNW. There is early riparian herbaceous species present at the spring source with some upland and weed species invasion into the riparian area. There is trampling, compaction, and hummocking occurring near the spring source and trough. Contributing factors to not meeting the standard were current and historic livestock grazing, invasive weed species, and improper spring development design.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/annual grass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
	Reduction in the reproductive capability of perennial plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality / decadence
	Invasive plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/bunchgrass community, with slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Departures from desired conditions were primarily related to historic grazing. These disturbances resulted in a reduction in the potential expression of perennial grass and forb components within the vegetation community. Departures do not appear related to

current livestock management practices. Potential forb and perennial grass components in the vegetation community are lacking. Cheatgrass, an introduced annual grass, is dominating the vegetation in some areas.

### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in South Rock Creek Pasture.
- Rangeland Health Standard 2 was not met on Sand Hollow Creek, various riparian areas, and developed and undeveloped springs due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was met in the intact Wyoming big sagebrush/bunchgrass vegetation communities, but not in the same vegetation communities with the understory dominated by annual species due to the loss of perennial grasses and forbs from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the Wyoming big sagebrush/annual grass community communities due to the loss of perennial grasses and forbs from historic grazing and other surface disturbing activities.
- The AMP management objective to improve ecological conditions was not met with overall static trend identified from professional judgment.

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Sand Hollow Creek., Owyhee River tributary, and springs in this pasture.
- Address spring development design at Mendiola Spring, and developed springs located at T. 22 S., R. 44 E., Section 1, NWNW and T. 21 S., R. 45 E., Section 31, NWNW for riparian management in accordance with BLM policy.
- Address noxious weed issues (e.g. tamarisk in riparian areas) consistent with the district plan and BLM policy.

## **North Grassy Mountain Reservoir Enclosure (10403\_15)**

### Management Setting

North Grassy Mountain Reservoir Enclosure provides access to water within the reservoir from Grassy Mountain Seeding and/or Grassy Mountain pastures when available. Typical climatic conditions provide water through most summers, although recent climatic conditions have resulted in loss of water held by late summer in some years.

### Evaluation of Monitoring Data

No monitoring plots have been established in North Grassy Mountain Reservoir Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

#### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### Recommendations

- Maintain development as designed.

### **Sagebrush Spring Enclosure (10403\_16)**

#### Management Setting

Sagebrush Spring Enclosure provides access to water within troughs at the spring from Grassy Mountain Seeding and/or Sagebrush pastures when available. Typical climatic conditions provide water through most summers although recent climatic conditions have resulted in reduced flow from the spring, especially by late summer.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Sagebrush Spring Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Sagebrush Spring. There were remnants of the cottonwood trees present that were seen in the historical project photos. The enclosure is used as a water source from several pastures so there is trampling, compaction, and hummocking occurring on the riparian area. There were excessive bare soils on the spring source with very little vegetation present. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring development, and improper spring development design.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Coordinate with operators to exclude this area from livestock use of the water source and riparian area.
- Address spring development design for riparian management in accordance with BLM policy.

### **Shellbark Spring Exclosure (10403\_17)**

#### Management Setting

Shellbark Spring Exclosure was constructed in 2003 to exclude livestock use from the spring source and riparian resources downstream within Sagebrush Pasture. The pipeline from the developed water source was extended to relocate a trough within Sagebrush Pasture away from riparian vegetation communities.

The majority of the shrub component in the exclosure was burned by the 1996 Cow Hollow Fire. No rehabilitation seeding was implemented following the fire due to slopes, rocky soils, and vegetation health prior to the burn.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Shellbark Spring Exclosure.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Shell Bark Spring. The spring source was negatively impacted by trampling, compaction, hummocking, and sloughing on the riparian area. The vegetation consisted of early seral herbaceous riparian vegetation with some upland and weed species invading the riparian areas. In 2004, this project was reconstructed and properly protected to eliminate the current livestock impacts. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, and lack of maintenance of spring development.

##### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Maintain development as designed.

## **Frog Pond Spring Enclosure (10403\_18)**

### Management Setting

Frog Pond Spring Enclosure was constructed in 1993 to exclude livestock use from the spring source and protect cattle from entrapment in water saturated soils. Additional riparian vegetation in the main drainage channel to the north was not made a portion of the enclosure. The trough associated with Frog Pond Spring was not moved at the time of enclosure construction.

### Evaluation of Monitoring Data

No monitoring plots have been established in Frog Pond Spring Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on Frog Pond Spring riparian area within the enclosure.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Maintain development as designed.
- Address spring development design for riparian management in accordance with BLM policy.
- Consider expansion of the enclosure to include all of the riparian area.

## **Lone Willow Spring Enclosure (10403\_19)**

### Management Setting

Lone Willow Spring was developed in 1943. Although not recorded in BLM files, the enclosure around Lone Willow Spring was likely constructed at the same time to protect the water source. The enclosure fell into disrepair following periods of high water flow in the channel and was reconstructed in 2003.

### Evaluation of Monitoring Data

No monitoring plots have been established in Sagebrush Reservoir Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Lone Willow Spring. There were remnants of the enclosure fence, but it was non functional. There is trampling, compaction, and sloughing occurring on the riparian area. There were excessive bare soils on the spring source with very a small amount of obligate riparian herbaceous species present. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring development, lack of maintenance on enclosure fence, and improper spring development design.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendations

- Maintain exclusion area to protect riparian vegetation.
- Address spring development design for riparian management in accordance with BLM policy.

**Lone Willow Spring Enclosure (10403\_20)**

Management Setting

Lone Willow Spring Enclosure was likely built in association with Shellrock Butte Division Fence in 1968. Although it encloses 6 acres including riparian vegetation communities associated with surface flow from Lone Willow Spring, management has not been to exclude livestock. The enclosure is adjacent to Lone Willow Corral and was likely used when constructed as a gathering and short term holding facility.

Evaluation of Monitoring Data

No monitoring plots have been established in Lone Willow Spring Enclosure.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the unnamed developed spring located in this pasture downstream of Lone Willow Spring. The enclosure area had not been used by livestock for several years at the time of the assessment. Historic impacts to the riparian area were still evident, but not putting the riparian system at risk.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Additional Issues

The dominance of riparian vegetation within Lone Willow Spring Enclosure and its small size leads to difficulty managing livestock consistent with RMP management objectives.

### Recommendations

- Define management to protect riparian resources.

## **Schweizer Spring Enclosure (10403\_21)**

### Management Setting

Schweizer Spring was developed in 1969. Although not recorded in BLM files, the enclosure around Schweizer Spring was likely constructed at the same time to protect the water source. Riparian vegetation communities are present in the drainage channel upstream in North Mud Spring Seeding Pasture and downstream in Chalk Butte Custodial West Pasture.

### Evaluation of Monitoring Data

No monitoring plots have been established in Schweizer Spring Enclosure.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on Schewiezer Spring. The current grazing system is protecting the riparian area. There was Russian olive and saltcedar invading the riparian areas nearby the spring.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Define management to protect riparian resources.
- Address spring development design for riparian management at Schweizer Spring in accordance with BLM policy.

## **FFA Riparian Enclosure (10403\_22)**

### Management Setting

FFA Riparian Enclosure was constructed in 1994 in association with a riparian enhancement demonstration project in coordination with students from Adrian High School. Treatments implemented were livestock exclusion vs. livestock access and willow planting vs. no planting.

### Evaluation of Monitoring Data

No monitoring plots have been established in FFA Riparian Exclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on Rock Spring Canyon.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Retain exclusion area as needed for demonstration purposes.

## **Mud Spring Exclosure (10403\_23)**

### Management Setting

Mud Spring Exclosure was constructed as part of Mud Spring Wildlife Fence in 1968 to protect the spring and improve wildlife habitat values by excluding livestock impacts. Although protected by green riparian vegetation, the area was part of the 1996 Cow Hollow Fire and some burning inside the exclosure removed decadent material.

The management action to exclude livestock to protect riparian resources was restated in the 1999 allotment management plan.

### Evaluation of Monitoring Data

No monitoring plots have been established in Mud Spring Exclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Mud Springs due to the invasion of weed species.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Retain exclusion area to protect riparian resources.

- Coordinate with livestock operators to address road location and livestock exclusion between the Mud Spring/Reservoir Enclosures.

### **Mud Spring Reservoir Enclosure (10403\_24)**

#### Management Setting

Mud Spring Reservoir Enclosure was constructed as part of Mud Spring Wildlife Fence in 1968 to protect the reservoir source of water for Mud Spring Pipeline and improve wildlife habitat values by excluding livestock impacts. The area was part of the 1996 Cow Hollow Fire.

The management action to exclude livestock to protect riparian resources was restated in the 1999 allotment management plan.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Mud Spring Reservoir Enclosure.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the drainage below Mud Springs.

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

#### Recommendations

- Retain exclusion area to protect riparian resources.
- Coordinate with livestock operators to address road location and livestock exclusion between the Mud Spring/Reservoir Enclosures.

### **Lost Bull Catch Pen (10403\_25)**

#### Management Setting

BLM records did not identify Lost Bull Catch Pen in the southeast corner of South Mud Spring Seeding Pasture. The enclosure is adjacent to a corral in Mitchell Butte Allotment and was likely used when constructed as a gathering and short term holding facility.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Lost Bull Catch Pen.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

Recommendations

- Coordinate with livestock operators to identify need to retain this facility.

**Chalk Butte West (10403\_26) and Chalk Butte East (10403\_27)**

Management Setting

Chalk Butte West and Chalk Butte East pastures were separated from North Mud Springs Seeding Pasture by short sections of fencing on the northwest and southwest flanks of Chalk Butte. Rims and short gap fencing completes the barrier to livestock movement across the top of Chalk Butte. No management treatment has been identified for these enclosures. The east and west pastures are divided by rims and down fence (some points with one strand of wire) on the east rim of Chalk Butte.

Evaluation of Monitoring Data

No monitoring plots have been established in Chalk Butte West or Chalk Butte East pastures.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

Additional Issues

The boundary fence on the east side of Chalk Butte between private and public land is in poor condition. Rental of the private land for winter feeding of cattle has resulted in animals drifting onto public land without an authorization, especially late in the winter as spring growth is initiated.

### Recommendations

- Consider exclusion of livestock to protect low elevation late seral vegetation communities distant from available water sources.

### **Chalk Butte Catch Pen (10403\_28)**

#### Management Setting

BLM records did not identify Chalk Butte Catch Pen in Fletcher Gulch between North Mud Spring Seeding Pasture and Schweizer FFR Pasture. The catch pen was likely used when constructed as a gathering and short term holding facility. The pen is not used with current livestock management.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Chalk Butte Catch Pen.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### Recommendations

- Coordinate with livestock operators to identify need to retain this facility.

### **Twin Spring Creek Watergap (10403\_29)**

#### Management Setting

Twin Spring Creek Watergap was constructed in the late 1980's to provide access to water in Twin Spring Creek by cattle grazing the west side of Grassy Mountain Pasture. The fence has been in disrepair in recent years.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Twin Spring Creek Watergap.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 - Watershed Function: Riparian/Wetland Areas watershed function*

The standard was not met on Twin Springs Creek. This riparian area is a water gap, therefore, livestock impacts are to be expected on this segment. This riparian area had trailing, trampling, and sloughing occurring. Contributing factors to not meeting the standard were current and historic livestock grazing and weed species invasion.

*Standard 4 - Water Quality*

The standard was not met due to not meeting pertinent criteria in Standard 2.

Recommendations

- Coordinate with livestock operators to identify need to retain this facility.

**Ryefield Seeding Test Plot (10403\_30)**

Management Setting

Ryefield Seeding Test Plot was likely constructed at the time Ryefield Seeding was planted in 1966 during the Vale Project. The exclusion area was seeded to crested wheatgrass and has been excluded from livestock grazing with no known failure in recent years.

Evaluation of Monitoring Data

No monitoring plots have been established in Ryefield Seeding Test Plot.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

Recommendations

- Retain plot for comparative purposes.

**Owyhee Ridge Trough Enclosure (10403\_31)**

Management Setting

Owyhee Ridge Trough Enclosure provides access to water piped from Owyhee Ridge Well, when livestock are grazing Grassy Mountain or Ryefield Seeding pastures.

Evaluation of Monitoring Data

No monitoring plots have been established in Owyhee Ridge Trough Enclosure.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

#### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

### Recommendations

- Retain project.

### **Government Corral (10403\_32) and Lone Willow Corral (10403\_33)**

#### Management Setting

Government Corral and Lone Willow Corral were constructed prior to BLM records of projects on public land. Both are periodically are used for livestock management purposes.

#### Evaluation of Monitoring Data

No monitoring plots have been established in Government Corral or Lone Willow Corral.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Government Corral Spring. There is trailing, trampling, compaction, hummocking, and sloughing on the spring source. The vegetation consists of early seral herbaceous riparian vegetation with excessive bare soil on the hummocks. Contributing factors to not meeting the standard were current and historic livestock grazing, improper spring development design, invasion of weed species, and historic use of this site as a cow camp.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Coordinate with livestock operators to identify need to retain this facility.
- Coordinate with operators to exclude this area from livestock use of the water source and riparian area.

- Address spring development design for riparian management in accordance with BLM policy.

**Grassy Reservoir Enclosure (10403\_34)**

Management Setting

Grassy Reservoir Enclosure provided access to water within the reservoir from Ryefield Seeding and/or Grassy Mountain pastures when available. Recent climatic conditions have seldom resulted in water held by this reservoir.

Evaluation of Monitoring Data

No monitoring plots have been established in Grassy Reservoir Enclosure.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

No rangeland health assessments were completed for Standard 1 (upland watershed function), Standard 3 (ecological processes), or Standard 5 (locally important species) in preparation for this evaluation/assessment.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

Recommendations

- Retain this project as designed.

**Sourdough Allotment (10404)**

Sourdough Allotment is managed as an “M” category allotment and includes seven pastures identified in the grazing schedule and a number of enclosures, exclosures and custodially management pastures. Nonnative seeding portions of the allotment include all of the 3,300 acre Sand Hollow Seeding (Vale Project; 1964) in Sand Hollow Seeding, West Sand Hollow Seeding, and Double Mountain Seeding pastures and all of the 475 acre Freezeout Lake Seeding (Vale Project, 1971) in Freezeout Lake Pasture. Sourdough Allotment was created in 2002 when Freezeout Allotment was divided and a separate management plan was implemented for Dry Creek Allotment. Terms and conditions of livestock management in Sourdough Allotment continue to be defined by the Freezeout Allotment Management Plan revised in 1989. The location of Sourdough Allotment is provided in Map 1, while pasture acreage within Sourdough Allotment is provided in Table 13.

Table 13: Sourdough Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Sand Hollow Seeding	3,310	3,241			69	

West Sand Hollow Seeding	901	899			2	
Double Mountain Seeding	940	940				
Canyon	21,117	21,043			74	
North Kane Spring	10864	10664			200	
South Kane Spring	8,238	8,225		13	Trace	
Freezeout Lake	22,262	22,157		Trace	105	
Bishop FFR	6,503	1,492			5,011	
HooDoo State Block	3,106	329		2532	245	
Rye Field FFR	1,432	283			1,149	
Kane Spring Reservoir Exclosure	76	76				
West Freezeout Creek FFR	904	303			601	
HooDoo Corral	0.4	0.4				
Upper Flowing Well Exclosure	2	2				
Lower Flowing Well Exclosure	12	12				
Bunchgrass Reservoir Enclosure	1	1				
Charolais Spring Enclosure	24	24				
Sand Hollow Gathering	119	119				
Willow Spring Exclosure	2	2				
Sponge Spring Exclosure	37	37				
Poison Spring FFR	272	31			241	
Negro Rock Pen	1	1				
Wildcat Spring Enclosure	5	5				
Poison Spring Corral*	4				4	
* Poison Spring Corral is all private land and is not a part of any public land grazing allotment						

Following completion of the Southern Malheur RPS in 1984, an allotment management plan for Freezeout Allotment was drafted and implemented in August 1984. The current grazing schedule for Sourdough Allotment was implemented with the 1989 Freezeout Allotment Management Plan revision which is presented in Table 14 and was maintained with the division of Freezeout Allotment to create Sourdough and Dry Creek allotments in 2002.

Table 14: Sourdough Allotment grazing schedule implemented in the 1989 AMP for Freezeout Allotment

Pasture	Year 1 (2005, 2008)	Year 2 (2006, 2009)	Year 3 (2007, 2010)
Sand Hollow Seeding	4/1 to 6/15	6/1 to 6/30	9/1 to 10/31*
West Sand Hollow Seeding	4/1 to 6/15	6/1 to 6/30	7/1 to 10/31*
Double Mountain Seeding	4/1 to 6/15	6/1 to 6/30	7/1 to 10/31*
North Kane Springs	6/16 to 7/1	7/1 to 10/31*	4/1 to 6/30
South Kane Springs	7/1 to 10/31*	7/1 to 10/31*	4/1 to 6/30
Freezeout Lake	7/1 to 10/31*	6/1 to 10/31*	7/1 to 10/31
Canyon Field	9/1 to 10/31*	4/1 to 5/31*	9/1 to 10/31
* The allotment management plan includes flexibility to extend the grazing season to December 31, provided reduced cattle numbers graze during the active growing season (April, May, and June) and authorized AUMs are not exceeded.			

Two livestock operators are permitted to graze cattle in Sourdough Allotment within pastures identified in the grazing schedule between April 1 and October 31 annually and within custodially managed pastures without a defined season of use, so long as damage to public land resources does not occur. One livestock operator is permitted to graze sheep in Sourdough Allotment. Sourdough Allotment grazing authorizations are listed in Table 15.

Table 15: Sourdough Allotment grazing authorization summary

Permittee	AUMs from pastures identified in the grazing schedule	AUMs from custodial pastures	AUMs active authorization
P Bar Grazing Association (cattle)	5,852	49	5,901
Calvin Haueter (cattle)	371		271
Frank Shirts, Jr. (sheep)	266		266
		Total	6,438

The following summary lists the percent of cattle grazing authorization reported used in Sourdough Allotment, or that portion of Freezeout Allotment that became Sourdough Allotment with the 2002 division, during the past five years:

2005	83 percent
2004	55 percent
2003	78 percent
2002	66 percent
2001	83 percent

Actual use reported by the sheep operator, with grazing schedules being less defined by pasture fences and allotment boundaries, is less accurate on an allotment basis.

A recent transfer of grazing authorization with a new livestock operator and different desires of how forage from federal lands will fit with his operation has resulted in the request to revisit the planned grazing schedule to better integrate it with planned winter grazing in Dry Creek Allotment. At the same time a second operator's desires will need to be considered in any proposed grazing schedule changes.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

### **Sand Hollow Seeding (10404\_01)**

#### Management Setting

The majority of Sand Hollow Seeding Pasture was seeded with crested wheatgrass in 1964 as part of the 3,300 acre Sand Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977). The Double Mountain Fire of 2005 burned most of the surface area of the pasture.

Sand Hollow Seeding Pastures is scheduled to be grazed in a three year rotation with growing season use in year one, late growing season use in year two, and deferment until

after the growing season in year three. This schedule was implemented with the 1989 allotment management plan. A pipeline water system, with the source of water at Willow Spring, was also constructed during the Vale Project and provides the major source of livestock water for the pasture.

The Southern Malheur RPS identified a management objective for Sand Hollow Seeding to maintain or improve deer and antelope winter range. This seeding objective was carried forward to the allotment management plan and an objective to maintain ecological condition was added.

Evaluation of Monitoring Data

Actual use and utilization data for Sand Hollow Seeding Pasture (Appendix E) indicate that the AMP grazing schedule, with planned full deferment of grazing until after the growing season in one of three years and partial deferment in one of three years in a three year rotation has been somewhat followed. The planned grazing schedule with liberal flexibility, especially after July one each year, does not lend itself to accurately tracking actual use. Data do not identify that the maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has been exceeded in recent years, except in 2002 when 70 percent utilization was measured.

Upland vegetation trend data for Sand Hollow Seeding were analyzed and summarized. Two trend plots were located and baseline data were collected in the pasture in 1969. Plot number two was not relocated again. Plot number one had a line intercept added in 1980 and data were again collected in 1985 and 2004. Statistical analysis of the recorded basal cover of crested wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1980	3.60	26	0.1385	0.1138
1985	5.32	77	0.0691	0.0655
2004	1.88	17	0.1106	0.0482

Recorded basal cover of crested wheatgrass has decreased in the long term since 1980, although was at a recorded high of 5.34 percent in the mid-1980s. The decrease in the past twenty years has been in measured cover and plant density. At the same time, the mapped 3X3 plot and photo indicate a similar increase in crested wheatgrass cover between 1980 and 1985, but a significant decrease in the past twenty years. Professional judgment concerning recent trend in Sand Hollow Seeding Pasture are consistent with the finding of downward trend measured under the 100 foot line and identified in the 3X3 plot. Recent drought conditions have likely contributed to the identified downward trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 in Sand Hollow Seeding Pasture, representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of

evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in the nonnative vegetation community. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures of indicators from ecological site description/reference areas are the result of removal of shrubs, loss of forbs, seeding a mix dominated by one nonnative grass species, and not related to current grazing practices.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not assessed on Hickey Spring. The riparian area and spring development could not be located during the field assessments, but historic project photos showed that it existed at the site visited. Contributing factors to the loss of this spring development are unknown although headcuts through the drainages in the area could have contributed to dewatering the spring source.

The standard was not assessed on Bentonite Spring as the development could not be located during the assessment.

*Standard 4 - Water Quality*

The standard was met due to meeting the erosion factors in Standard 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence

	Annual Production
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential

Departures from the indicators were primarily due to vegetation manipulation (brush control and seeding as part of the Vale Project), and wildfire. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Cheatgrass, an introduced annual grass, is present and has the potential to dominate the area.

#### Additional Issues

One site of Malheur forget-me-not, a state-listed threatened species, is found in Sand Hollow Seeding. The site has not been visited since its discovery date in the late 1980s; however, because of the stability and persistence of the species on its typical north-facing slopes and lack of fire at this location, the site is presumed stable and without threats.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Sand Hollow Seeding Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was not met in the seeded portion of Sand Hollow Seeding Pasture due to the loss of perennial grasses and forbs, as well as shrubs, from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was met in the pasture with Standard 1 met and no riparian documented.
- Rangeland Health Standard 5 was not met in the crested wheatgrass vegetation communities due to the loss of shrubs and perennial herbaceous species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for Malheur forget-me-not, a special status plant species, but is anticipated to have been met.
- The data necessary to evaluate meeting the RPS objective to maintain/improve deer/antelope winter range can best be evaluated based on meeting Rangeland Health standard 5 for wildlife species. The AMP management objective to improve ecological condition was not met with overall downward trend recorded.

#### Recommendations

- Maintain/implement a grazing schedule/season of use which will meet upland pasture objectives and the SRH.
- Administratively abandon Hickey Spring and Bentonite Spring (if appropriate).

## **West Sand Hollow Seeding (10404\_02)**

### Management Setting

A portion of West Sand Hollow Seeding Pasture was seeded with crested wheatgrass in 1964 as part of the 3,300 acre Sand Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977).

West Sand Hollow Seeding Pastures is scheduled to be grazed in a three year rotation with growing season use in year one, late growing season use in year two, and deferment until after the growing season in year three. This schedule was implemented with the 1989 allotment management plan. Spring developments associated with Negro Rock Canyon and streamflow provide the major source of livestock water for the pasture.

The Southern Malheur RPS identified a management objective for West Sand Hollow Seeding to improve ecological condition. This objective was carried forward to the allotment management plan.

### Evaluation of Monitoring Data

It is difficult to evaluate whether the AMP grazing schedule has been followed, with planned full deferment of grazing until after the growing season in one of three years and partial deferment in one of three years in a three year rotation, with the incomplete actual use data reported (Appendix E). The planned grazing schedule with liberal flexibility, especially after July one each year, does not lend itself to accurately tracking actual use, especially with combined use of pastures late in the season. Similarly, inconsistent utilization measurement in this small pasture does not allow evaluation of how often the maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has been exceeded.

No trend plot has been established in West Sand Hollow Seeding. Professional judgment is that trend is static in West Sand Hollow Seeding Pasture in the short term. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

One trend photo was established in 1990 on Negro Rock Canyon in this pasture. The 2004 monitoring of this point showed the trend of the riparian area to be static. There was no significant improvement or degradation occurring in the photo.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was completed for Standards 1 and 3 in West Sand Hollow Seeding Pasture, representing the vegetation communities in a Wyoming big sagebrush/bluebunch wheatgrass range site seeded to crested wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in the nonnative seeded community. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
	Reduction reproductive capability of perennial plants
<i>Moderate departure from site description/reference area</i>	
	Deviation of litter amount from expected
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures of indicators from ecological site description/reference areas is the result of removal of shrubs, loss of forbs , seeding a mix dominated by one nonnative grass species, and are little related to current grazing practices.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on segment 001 of Negro Rock Canyon. There was some trailing, compaction, and hummocking occurring in portions of the segment. There is some channel braiding that indicates lateral channel instability. Even though this segment was not meeting the standard, it appeared to be improving due to the riparian area slightly enlarging and the channel becoming more defined. There is perennial pepperweed and saltcedar present in this system. Contributing factors to not meeting the standard were current and historic livestock grazing, road constraints, insect impacts on woody vegetation, invasion of weed species, and lateral instability.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual Production
	Reduction in the reproductive capability of perennial plants

<i>Moderate departure from site description/reference area</i>	
	Invasive plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional/structural groups from site potential

Departures from the indicators were primarily due to vegetation manipulation (brush control and seeding as part of the Vale Project), and wildfire. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Cheatgrass, an introduced annual grass, is present and has the potential to dominate the area.

#### Additional Issues

Playa buckwheat, a BA species, was discovered in West Sand Hollow Seeding in 2004 during SRH assessments. It occupies an unusual ash clay substrate at the base and up the slopes of several outcrops in the West Sand Hollow Seeding. This area represents the northernmost global site known for the species, which is a Great Basin endemic. It appeared in large numbers at the time of discovery with no signs of disturbance to any of the sites in the pasture. Plants were vigorous, indicating excellent growing conditions for this annual species. Additional inventory and monitoring should be completed for the species in this pasture and general area. However, the population does not appear to be threatened at this time in this pasture.

#### Findings

- Rangeland Health Standard 1 was met in all vegetation communities in West Sand Hollow Seeding Pasture.
- Rangeland Health Standard 2 was not met on Negro Rock Canyon due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was not met in the seeded portion of West Sand Hollow Seeding Pasture due to the loss of perennial grasses and forbs, as well as shrubs, from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was not met in the crested wheatgrass vegetation communities due to the loss of shrubs and perennial herbaceous species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for playa buckwheat, a special status plant species. The species was discovered in this pasture as part of these assessments and needs additional monitoring and evaluation.
- The AMP management objective to improve ecological conditions was not met with static trend identified through professional judgment.

#### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.

- Add riparian management objectives for Negro Rock Canyon in this pasture, or relocate the boundary fence between West Sand Hollow Seeding and Willow Springs Enclosure.
- Establish an upland trend monitoring site in this pasture.
- Monitor playa buckwheat.

### **Double Mountain Seeding (10404\_03)**

#### Management Setting

A portion of Double Mountain Seeding Pasture was seeded with crested wheatgrass in 1964 as part of the 3,300 acre Sand Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977). The 2005 Double Mountain Fire burned the majority of the surface area of the pasture.

Double Mountain Seeding Pastures is scheduled to be grazed in a three year rotation with growing season use in year one, late growing season use in year two, and deferment until after the growing season in year three. This schedule was implemented with the 1989 allotment management plan. A pipeline water system with the source of water at Willow Spring was also constructed during the Vale Project and provides livestock water to one trough in the pasture. A second pipeline, not recorded in the BLM project system and now not functional, was run from Double Mountain Spring in the Canyon Field to troughs in Double Mountain Seeding Pasture.

The Southern Malheur RPS identified a management objective for Double Mountain Seeding to maintain ecological condition. Although a significant portion of the pasture is nonnative seeding, this objective was carried forward to the allotment management plan.

#### Evaluation of Monitoring Data

It is difficult to evaluate whether the AMP grazing schedule has been followed, with planned full deferment of grazing until after the growing season in one of three years and partial deferment in one of three years in a three year rotation, with the incomplete actual use data reported (Appendix E). The planned grazing schedule with liberal flexibility, especially after July one each year, does not lend itself to accurately tracking actual use, especially with combined use of pastures late in the season. Similarly, inconsistent utilization measurement in this small pasture does not allow evaluation of how often the maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has been exceeded.

No trend plot has been established in Double Mountain Seeding. Professional judgment is that trend is static in Double Mountain Seeding Pasture in the short term. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Double Mountain Seeding Pasture are consistent with those presented for Sand Hollow Seeding

Pasture above. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in the nonnative vegetation community. Departure of indicators from ecological site description/reference areas is the result of seeding a mix dominated by one nonnative grass species and shrub removal resulting from wild fire. Current livestock grazing was not determined to be a significant factor to not meeting the standard.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the perennial bunchgrass community, with departures of indicators from potential as described above for Sand Hollow Seeding Pasture.

Additional Issues

Wildfire in 2005 removed a considerable amount of sagebrush cover. As a result, Standard 3 – Ecological Function would likely not be met in the entire pasture. Standard 5 would likely not be met.

Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Double Mountain Seeding Pasture.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was not met in the seeded portion of Double Mountain Seeding Pasture due to the loss of perennial grasses and forbs, as well as shrubs, from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was met in the pasture with Standard 1 met and no riparian documented.
- Rangeland Health Standard 5 was not met in the crested wheatgrass vegetation communities due to the loss of shrubs and perennial herbaceous species from historic grazing and other surface disturbing activities.
- The AMP management objective to maintain ecological conditions was met with overall static trend documented from professional judgment.

Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Establish an upland trend monitoring site in this pasture.
- Coordinate with livestock operators to identify the need for the undocumented pipeline and, if appropriate, abandon the project.

## Canyon (10404\_04)

### Management Setting

No vegetation management projects were implemented in Canyon Pasture during the Vale Project. Historic fires in Canyon Pasture include the northeast ten percent of the pasture in 1980, 159 acres adjacent to Sagebrush Gulch in 2002 and approximately 600 acres in the northeast corner in 2005. Canyon Pastures is scheduled to be grazed in a three year rotation with growing season use in year one, followed by two years of deferment until after the growing season, use after September 1. This schedule was implemented with the 1989 revision to the Freezeout Allotment Management Plan to meet upland management objectives. Riparian values have also been a consideration in recent years.

Livestock water is provided from the stream in Negro Rock Canyon and a few springs. A pipeline water system with the source of water at Willow Spring was constructed during the Vale Project and is enclosed in Willow Spring Exclosure, but does not provide livestock water to Canyon pasture. A second pipeline, not recorded in the BLM project system and now not functional, was run from Double Mountain Spring in the Canyon Pasture to troughs in Double Mountain Seeding Pasture, but does not provide water to Canyon Pasture.

The Southern Malheur RPS identified a management objective for Canyon Field to improve ecological condition. This objective was carried forward to the allotment management plan.

### Evaluation of Monitoring Data

Actual use and utilization data for Canyon Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment in two of three years has been followed since AMP implementation in 1989, although a change in livestock operators in recent years has resulted in the extension of fall use in deferment years into winter use. The maximum allowable utilization level of 50 within native rangeland has not been exceeded in recent years with the exception of 1994 when 59 percent utilization was recorded.

Upland vegetation trend data for Canyon Pastures were analyzed and summarized. One trend plot was located and baseline data were collected in the pasture in 1985. The plot was measured again in 1987 and 2004. Statistical analysis of the recorded basal cover of bluebunch wheatgrass and squirreltail data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	0.48	10	0.0480	0.0352
1987	0.53	10	0.0530	0.0250
2004	1.21	7	0.1729	0.1144

Recorded basal cover of native bunchgrasses has increased in the long term, although the recent increase is primarily the result of an increase in squirreltail, an early seral species. Bluebunch wheatgrass cover has varied from 0.34 percent in 1985 to 0.31 percent in 1987 to 0.23 percent in 2004. At the same time, squirreltail cover has increased from 0.14

percent in 1985 to 0.22 percent in 1987 to 0.98 percent in 2004. The mapped 3X3 plot and photo indicate a static trend with little change in basal cover of native bunchgrasses. Professional judgment concerning short term trend in the portions of Canyon Pasture supporting native species is consistent with the finding of static trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Six trend photo points were established in 1990 on Negro Rock Canyon in this pasture. The 2004 monitoring of these points showed the trend of the riparian area to be slightly upward over the long-term. Some of the photo points exhibited slight channel narrowing, healing of raw banks, and a slight increase of riparian vegetation. The channel narrowing could be related to the drier conditions over the last decade allowing the channel to establish lateral stability. It is possible a high streamflow event could scour the channel again and create lateral instability as some of the vegetation on the banks consists of upland species that do not have proper riparian root stabilization characteristics.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One site in the southern portion of Canyon Field serves as a reference site for the Wyoming big sagebrush/bluebunch wheatgrass sites in Canyon Pasture and many of the surrounding pastures.

Three upland rangeland health assessments were completed for Standards 1 and 3 in Canyon Pasture. One assessment area was located at a key area representing the Wyoming big sagebrush/bluebunch wheatgrass range site with some loss of native species and is present on the higher portions of slopes distant from water, especially in the southern portion of the pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and Standard 3 in the portions of the pasture supporting Wyoming big sagebrush/bunchgrass communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/native bunchgrass community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Invasive plants

Departure of indicators from site potential is primarily related to the replacement of some bunchgrass potential by cheatgrass and other annuals as well as the some loss of forbs.

The second site of an upland rangeland health assessment was within the Wyoming big sagebrush/bunchgrass range site dominated by cheatgrass and other annual species with some or no sagebrush component in the overstory and is dominant on the lower portions of slopes, especially in the northern portion of the pasture and in areas with recent fire occurrence. The Wyoming big sagebrush/ native bunchgrass sites dominated by annuals in Canyon Pasture are similar to the annual dominated sites in North Kane Springs Pasture, although with less Thurber's needlegrass and squirreltail. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in the Wyoming big sagebrush/bunchgrass vegetation communities dominated by annual species. Departures of indicators from site potential are primarily related to the loss of sagebrush, replacement of bunchgrass potential by cheatgrass and other annuals, as well as the loss of forbs as a result of historic grazing, wild fire, other disturbance factors, and is little related to current livestock grazing practices.

The third site of an assessment in Canyon Pasture was a greasewood dominated site in the northern portion of the pasture adjacent to the stream. The greasewood sites in Canyon Pasture are similar to the greasewood sites in North Kane Springs Pasture, although with more shadscale present. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and Standard 3 in the portions of the pasture supporting the greasewood communities. Departures of indicators from site potential are primarily related to the replacement of some native grass potential by cheatgrass and other annuals, as well as the loss of forbs.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on segments 003, 004, and 006 of Negro Rock Canyon. There was some trailing, compaction, and hummocking occurring in portions of each segment. The woody riparian vegetation regeneration was not surviving due to heavy livestock and wildlife browse. Insects and drought were also having a detrimental effect on the woody vegetation. This segment also had less woody vegetation. There is some channel braiding that indicates lateral channel instability. Road crossings of the creek were creating localized channel widening impacts, but were not resulting in extensive bank sloughing or cutting. Even though these segments were not meeting the standard, they are improving due to the riparian area enlarging. There is perennial pepperweed and saltcedar present in this system. Contributing factors to not meeting the standard were current and historic livestock grazing, road crossings, insect impacts on woody vegetation, invasion of weed species, and lateral instability.

The standard was not assessed on segment 005 of Negro Rock Canyon as it has only ephemeral flow and could be described as a large interrupted section of the stream.

The standard was not met on segment 007 of Negro Rock Canyon and the spring flowing into this segment above the corrals. There was severe trailing, trampling, compaction, and hummocking occurring in this segment. This area looks to be a loafing area concentrating livestock on this water source. Road crossings of the riparian areas were

channelizing the flow and removing it from the stream while also creating excessive sloughing and erosion. Contributing factors to not meeting the standard were current and historic livestock grazing and road crossings.

The standard was not met on the riparian area created by Upper Flowing Well. There was trailing, trampling, compaction, and sloughing occurring in this segment. Most of the impacts were related to the location of the trough outside of the enclosure. The trough is located adjacent the upper NW corner of the enclosure which is approximately 20 feet from the drainage. The overflow on the trough is not correctly designed and is creating a large headcut just downstream of the trough. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on water development, and improper water development design.

The standard was not met on the riparian area created by Lower Flowing Well above the enclosure. There was trailing, trampling, compaction, and sloughing occurring in segment upstream of the enclosure where the trough is located. Most of the impacts were related to the location of the trough and the overflow. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on water development, and improper water development design.

The riparian area created by Lower Flowing Well downstream of the enclosure was functioning properly and met the standard.

The standard was not met on Double Mountain Spring and its drainage. The very top of this segment was not accessible to livestock and was functioning properly with a large woody riparian vegetation population. There is evidence of a historical development downstream of this section. There was some trailing and sloughing, but these impacts were less than other riparian areas in this pasture. Perennial pepperweed invasion was putting the system at risk and contributing to the bank sloughing. Contributing factors to not meeting the standard were current and historic livestock grazing, invasion of weed species, and historic spring development design.

The standard was not met on Red Rim Spring. There was trailing, compaction, hummocking, and sloughing occurring in the riparian area. Most of the impacts were related to livestock using the spring source as a water source due to the lack of water in the trough. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on spring development, and improper spring development design.

The standard was not met on No Name Spring and the seeps nearby. There was trailing, compaction, hummocking, and sloughing occurring in the riparian area. Vegetation in the riparian area was almost entirely weed species. The nearby seeps were not as severely impacted as No Name Spring due to livestock use concentrating on the development. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on spring development, weed species invasion, road constraints, and improper spring development design.

The standard was not met on the seep located at the undeveloped West Shellbark Spring site. There was slight trailing and hummocking occurring in the riparian area. Saltcedar is located upstream of the seep. Contributing factors to not meeting the standard were historic livestock grazing and weed species invasion.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

Departures from desired conditions are primarily due to historic livestock grazing. Spring sheep use may limit the full expression of the forb component, but the departure of biological crust cover from that which is expected does not appear related to current livestock management practices. While this community is providing for local wildlife, surrounding habitats have limited connectivity (seedings, wildfire areas, roads, and high voltage power lines). Some areas within this pasture are subject to increased amounts of cheatgrass, whitetop, and Medusahead. Fire management should retain the communities present to the extent possible.

Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identify the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge and Sourdough, riparian and meadow habitats in the vicinity of and adjacent to Canyon Creek have the potential to be important for sage-grouse.

One site of Malheur forget-me-not, a state-listed threatened species, is found in Sand Hollow Seeding. The site has not been visited since its discovery date in the late 1980s; however, because of the stability and persistence of the species on its typical north-facing slopes and lack of fire, this site is presumed stable and without threats. Three sites of Biddle’s lupine are found also in this pasture. It is a BT species and as such is of lower priority conservation concern; its populations are considered more widespread and stable than many other rare species. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this pasture is anticipated to be stable, or at least not impacted by livestock.

## Findings

- Rangeland Health Standard 1 was met in all vegetation communities in Canyon Field.
- Rangeland Health Standard 2 was not met on Negro Rock Canyon, various drainages, and several developed and undeveloped springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was not met in the portions of the Canyon Field dominated by annual species due to the loss of perennial grasses and forbs, as well as shrubs, from historic grazing and other surface disturbing activities and fire.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the Wyoming big sagebrush/perennial bunchgrass community, although annual species and weeds were noted.
- Rangeland Health Standard 5 was not evaluated for two special status plant species, although it is anticipated that all sites of these species, Malheur forget-me-not and Biddle's lupine, have met the standard.
- The AMP management objective to improve ecological conditions was marginally not met with overall static trend recorded, but some indication of improved cover of squirreltail.

## Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Negro Rock Canyon and Basin Gulch and springs in this pasture.
- Address spring development design at Red Rim Spring, No Name Springs, Upper Flowing Well, and Lower Flowing Well for riparian management in accordance with BLM policy.
- Address spring development design or abandon at West Shellbark and Raccoon Springs if appropriate in accordance with BLM policy.
- Coordinate with livestock operators to relocate fence between Canyon and Freezeout Lake Pastures to incorporate the riparian communities associated Negro Rock Canyon into the Canyon Pasture. Retain water trough in Freezeout Lake Pasture.
- Address spring development design at Wildcat Spring for riparian management in accordance with BLM policy. Coordinate with livestock operators to provide water source for Canyon and Freezeout Lake Pastures as appropriate from this spring.
- Coordinate with livestock operators to identify the need for the undocumented pipeline out of Double Mountain Spring and, if appropriate, abandon the project.
- Harden stream crossing in Negro Rock Canyon north of Poison Spring in Canyon Field to ease vehicular access, especially mid-winter.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe

Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **North Kane Spring (10404\_05)**

### Management Setting

No vegetation management projects were implemented in North Kane Springs Pasture during the Vale Project, although a crested wheatgrass seeding was implemented in the northern portion of the pasture in the mid-1990s to control spread of halogeton. Historic fires in North Kane Springs Pasture include the north one-third of the pasture in 1980 and the southeast one-third in 1982. North Kane Springs pasture is scheduled to be grazed in a three year rotation with early growing season use in one year, followed by late growing season use in the second year, and deferment until after the growing season in the third year. This schedule was implemented with the 1989 revision to the Freezeout Allotment Management Plan to meet upland management objectives. Riparian values at Kane Spring and Sponge Spring have been excluded from livestock grazing by enclosure fencing.

The Southern Malheur RPS identified a management objective for North Kane Spring Pasture to improve ecological condition. This objective was carried forward to the allotment management plan.

### Evaluation of Monitoring Data

Actual use and utilization data for North Kane Spring Pasture (Appendix E) indicate that the AMP grazing schedule, with planned critical growing season use, late growing season use, and deferment of use until after the growing season planned in a three year rotation, has not been followed in recent years. Critical growing season use has occurred in seven of the past fifteen years. The maximum allowable utilization level of 50 percent within native range was exceeded in recent years only in 2002 when 70 percent was recorded.

No upland vegetation trend data are available for North Kane Spring Pastures. The trend plot for Kane Spring Pasture established prior to its division in 1987 is located in South Kane Spring. No trend plot has been established for North Kane Spring Pasture following construction of the division fence. Professional judgment supports a finding of static short term trend in North Kane Spring Seeding Pasture. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Three upland rangeland health assessments were completed for Standards 1 and 3 in North Kane Spring Pasture. One assessment area was a key area representing the Wyoming big sagebrush/bluebunch wheatgrass range site with some loss of native species and is present on the upper portions of slopes distant from water. The second was the same range site dominated by cheatgrass and other annual species with little or no

shrub overstory and is dominant on the lower portions of slopes, especially in areas with recent fire occurrence. The third site of an assessment in North Kane Spring Pasture was a greasewood dominated site.

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and meeting Standard 3 in the portions of the pasture supporting Wyoming big sagebrush/bunchgrass communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/native bunchgrass community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Deviation of litter amount from expected
	Annual production
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the replacement of some bunchgrass potential by cheatgrass and other annuals as well as the some loss of forbs.

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1, but not meeting Standard 3 in the Wyoming big sagebrush/bunchgrass vegetation communities dominated by annual species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/native bunchgrass community dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Wind scoured blowouts and/or deposition areas
	Soil surface loss or degradation
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff

	Deviation of litter amount from expected
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Invasive plants
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the loss of sagebrush, replacement of some bunchgrass potential by cheatgrass and other annuals, as well as the loss of forbs as a result of historic grazing, wild fire, other disturbance factors, and is little related to current livestock grazing practices.

The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and Standard 3 in the portions of the pasture supporting the greasewood communities. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Greasewood community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Gullies
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Invasive plants
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the replacement of some native grass potential by cheatgrass and other annuals, as well as the loss of forbs.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Sand Hollow Creek, Kane Springs Gulch, and other various tributaries and undeveloped springs in this pasture. All of these riparian areas had trailing, trampling, and compaction occurring on them. Impacts to the riparian areas on the eastern portion of the pasture were somewhat less. Many of the riparian areas with woody vegetation were dominated by Russian olive. The drainage flowing into Big Twin Reservoir did have one incised channel area that had large, treelike willows. Contributing factors to not meeting the standard were historic and current livestock grazing and invasion of weed species.

Standard 2 was not met on undeveloped Butcher Block Spring. There is no record of the historical development here as this spring was a development located on state lands until

a land exchange transferred management to BLM. It is a large water source located in the northern end of this pasture on a gently sloping, wide open valley bottom. The topography and location make this water source a desirable loafing area for livestock. There is heavy compaction, trailing, trampling, hummocking, and sloughing occurring in the riparian area. At the time of the assessment, there was only bare dirt and water present. There was not any riparian vegetation present due to livestock use except for greasewood and saltgrass around the perimeter of the historic riparian area. Historic development of this spring did include a fence that excluded a portion of the riparian area, but only remnants of the fence are visible. Contributing factors to not meeting the standard were historic and current livestock grazing and lack of maintenance of spring development.

Standard 2 was not met on Ideal Spring and the adjacent springs located along the contour. There is compaction, trailing, and sloughing occurring that is creating terraces along the hillside in the riparian areas. Hummocking in the wetter areas is allowing some frost heaving to occur. The woody riparian vegetation is browsed and has very little regeneration occurring. The spring development design could be improved by placing the trough further away from the riparian area and protecting the spring source. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

Standard 2 was not met on Whiskey Spring #2. There is compaction, trailing, and sloughing occurring. There is some sloughing in the greasewood and riparian communities above the spring development. Riparian vegetation is not at its potential on the spring development which is contributing to a loss of hydric soils. The spring development design could be improved by placing the trough further away from the riparian area and protecting the spring source. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
	Reduction in the reproductive capability of perennial plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the annual grassland community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Annual grassland</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Invasive plants
	Reduction in the reproductive capability of perennial plants

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the greasewood/annual grass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Greasewood/Annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Annual production
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Invasive plants
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions are primarily due to historic livestock grazing and the slow recovery of the vegetation from a historic fire (more than 20 years ago). While this pasture is providing for local wildlife, surrounding habitats and some communities have limited connectivity (seedings, wildfire areas, and roads). Two communities are lacking perennial herbaceous vegetation in the understory, and one lacks shrubs and perennial herbaceous. Some areas within this pasture are subject to increased amounts of cheatgrass and medusahead. Fire management should retain the communities present to the extent possible, and when effective techniques are available, restoration of annual dominated areas should be considered.

Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge and Sourdough, riparian and meadow habitats in the vicinity of Kane Spring, Sponge Spring, Whiskey Spring, and Butcher Spring have the potential to be important for sage-grouse.

One site of Biddle's lupine is known from North Kane Springs Pasture. It is a BT species and as such is of lower priority conservation concern; its populations are considered more widespread and stable than many other rare species. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this pasture is anticipated to be stable, or at least not impacted by livestock.

### Findings

- Rangeland Health Standard 1 was met all vegetation communities in North Kane Spring Pasture.
- Rangeland Health Standard 2 was not met on Sand Hollow Creek, Kane Springs Gulch, and several developed and undeveloped springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities and greasewood communities, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the annual rangeland vegetation communities or greasewood communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for Biddle's lupine, a special status plant species. However, it is anticipated that the standard has been met for this species.
- The AMP management objective to improve ecological conditions was not met with overall static trend identified by professional judgment.

### Recommendations

- Maintain/implement a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Establish an upland trend plot in this pasture.
- Add riparian management objectives for this pasture.
- Address spring development design at Ideal, Sponge, Charolais, Whiskey #2, and Butcher Block Springs for riparian management in accordance with BLM policy.
- Coordinate with livestock operators in Keeney Creek and Sourdough Allotments to reconstruct or abandon the enclosure around Charolais Spring. Address proper trough location.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## South Kane Spring (10404\_06)

### Management Setting

No vegetation management projects were implemented in South Kane Springs Pasture during the Vale Project. Historic fires in South Kane Springs Pasture include the northeast one-third of the pasture in 1982. South Kane Springs Pasture is scheduled to be grazed in a three year rotation with growing season use in one year, followed by two years of deferment until after the growing season. This schedule was implemented with the 1989 revision to the Freezeout Allotment Management Plan to meet upland management objectives. Riparian values at Kane Spring have been excluded from livestock grazing by enclosure fencing.

The Southern Malheur RPS identified a management objective for South Kane Spring Pasture to improve ecological condition. This objective was carried forward to the allotment management plan.

### Evaluation of Monitoring Data

Actual use and utilization data for South Kane Spring Pasture (Appendix E) indicate that the AMP grazing schedule, with planned deferment of grazing until after the growing season in two of three years, has not been followed with a couple consecutive years of growing season use in recent years. The maximum allowable utilization level of 50 percent within native range has not been exceeded in recent years.

Upland vegetation trend data for South Kane Spring Pastures were analyzed and summarized. One trend plot was located and baseline photos were taken in Kane Spring Pasture in 1971. A line intercept transect was added in 1985. The line was measured again in 1987 and 2004. Statistical analysis of the recorded combined basal cover of bluebunch wheatgrass, Thurber's needlegrass, and squirreltail data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	1.94	6	0.3233	0.1875
1987	2.30	8	0.2875	0.2176
2004	0.95	8	0.1188	0.1008

Recorded basal cover of native bunchgrasses has decreased in recent years following a static to upward trend in the mid-1980s. Recorded cover in 2004 included Thurber's needlegrass not identified in the two earlier readings. At the same time, the mapped 3X3 plot and photo indicate a similar short term decrease in native bunchgrass cover. Professional judgment concerning short term trend in South Kane Spring Pasture supporting native species is consistent with the finding of downward trend identified in the 3X3 plot and under the line intercept. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in South Kane Spring Pasture. One assessment area was at the trend plot and represents the Wyoming big sagebrush/bluebunch wheatgrass range site with some loss of native species and is present in the majority of the pasture. The other was the same range site with a greater dominance by cheatgrass and other annual species and reduced shrub overstory. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both vegetation communities and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species, although not meeting standard 3 in the areas with a greater dominance by annual species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/native bunchgrass community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production

Departure of indicators from site potential is primarily related to the loss of some bunchgrass potential and a reduction in sagebrush cover, as well as the loss of forbs.

<b>Wyoming big sagebrush/native bunchgrass community dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Soil surface loss or degradation
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Plant mortality/decadence
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the replacement of bunchgrass potential by cheatgrass and other annuals and loss of sagebrush, as well as the loss of forbs. Not meeting Standard 3 in the sites dominated by annual species is the

result of past grazing impacts and other historic disturbance factors as well as current grazing practices which have lead to the downward trend identified above.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on the small segment of Basin Gulch in this pasture. Historically this stream has downcut upstream approximately ten to fifteen feet creating an incised channel. There was trailing, compaction, hummocking, bank shearing, and sloughing occurring. This pasture has limited water resources so this creek is one of the more important perennial watering sources. Contributing factors to not meeting the standard were current and historic livestock grazing, headcuts, historic roads along drainage, and historical use of the area as a homestead or cow camp.

The standard was not met on Hoodoo Creek. This pasture has limited water resources so this creek is one of the more important watering sources although the entire segment may not be a perennial water source. This system is connected to Basin Gulch and has historically downcut. The topography of the wide, open drainage surrounded by steep ridges creates a desirable livestock loafing area. There was trailing, compaction, hummocking, bank shearing, and sloughing occurring. Contributing factors to not meeting the standard were current and historic livestock grazing and headcuts.

Standard 2 was not met on Sand Hollow Creek. This pasture has limited water resources so this creek is one of the more important perennial watering sources in the northern end of this pasture. Impacts to the riparian area along this creek are similar to those identified in the North Kane Spring Pasture, although this part of the stream is more rock controlled. Contributing factors to not meeting the standard were historic and current livestock grazing and invasion of weed species.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community #1</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of

indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Plant mortality/decadence
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional/structural groups from site potential
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants

Departures from expected conditions were primarily due to current and historic livestock grazing. This disturbance resulted in less than expected perennial herbaceous vegetation in the understory, with increased vulnerability to invasive species in some areas within the pasture. Some areas within this pasture are subject to increased amounts of cheatgrass and medusahead. Fire management should retain the communities present to the extent possible, and when effective techniques are available, restoration of annual-dominated areas should be considered.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge, riparian and meadow habitats adjacent to Hoodoo Creek have the potential to be important for sage-grouse.

Limited late season water availability is primarily associated with riparian communities.

One large population of Biddle's lupine is known from South Kane Springs Pasture. It is a BT species and as such is of lower priority conservation concern; its populations are considered more widespread and stable than many other rare species. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this pasture is anticipated to be stable, or at least not impacted by livestock.

#### Findings

- Rangeland Health Standard 1 was met in all rangeland vegetation communities in South Kane Spring Pasture.
- Rangeland Health Standard 2 was not met on Basin Gulch, Hoodoo Creek, and Sand Hollow Creek due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the annual rangeland vegetation communities

due to the loss of perennial species from historic grazing and other surface disturbing activities and current livestock grazing practices.

- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the healthy Wyoming big sagebrush/bunchgrass vegetation communities, but not in the same community dominated by annual species due to the loss of perennial species from current and historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for Biddle's lupine, a special status plant species. However, it is anticipated that the standard was met for this species.
- The AMP management objective to improve ecological conditions was not met with overall downward trend recorded.

#### Recommendations

- Implement a grazing schedule/season of use to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Sand Hollow Creek, Hoodoo Creek, and Basin Gulch in this pasture in accordance with BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

#### **Freezeout Lake (10404\_07)**

##### Management Setting

Vegetation manipulation projects in Freezeout Lake Pasture during the Vale Project included the 475 acre Freezeout Lake Seeding in 1971 and the 3,535 acre Freezeout Butte Brush Control in 1972 (Heady and Bartolome, 1977). Remnants of the nonnative seeding in the internally drained basin with seasonally saturated soils are nearly nonexistent. Freezeout Lake Pastures is scheduled to be grazed in a three year rotation with late growing season use in one year followed by two years of deferment until after the growing season. This schedule was implemented with the 1989 revision to the Freezeout Allotment Management Plan to meet upland management objectives.

The Southern Malheur RPS identified a management objective for Freezeout Lake Pasture to maintain ecological condition. This objective was carried forward to the allotment management plan.

##### Evaluation of Monitoring Data

Actual use and utilization data for Freezeout Lake Pasture (Appendix E) indicate that the AMP grazing schedule, with deferment of grazing until after the active growing season in two years out of three and only late growing season use in the third year, has been followed in recent years, but was not implemented in the first few years following the

1989 revision to the allotment management plan. The maximum allowable utilization level of 50 within native range has not been exceeded in recent years.

Upland vegetation trend data for Freezeout Lake Pastures were analyzed and summarized. A number of trend plots have been established in Freezeout Lake Pasture over the years. Only trend plot number three, established in 1985 with a photo and line, has been read in recent years to monitor trend. The plot was measured again in 1987 and 2004. Statistical analysis of the recorded combined basal cover of bluebunch wheatgrass and squirreltail data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	2.68	27	0.0993	0.1130
1987	2.46	37	0.0665	0.0823
2004	2.13	24	0.0888	0.0602

Recorded basal cover of native perennial bunchgrasses has decreased slightly, but steadily in the short term and long term. Evaluation of trend based upon the mapped 3X3 plot and photo is less evident. Professional judgment is consistent with a finding of static to downward trend in Freezeout Lake Pasture in the short term. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Riparian monitoring points were not historically established in this pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were completed for Standards 1 and 3 in Freezeout Lake Pasture. One assessment area represents the Wyoming big sagebrush/bluebunch wheatgrass range site with a minor loss of native species and is present in the majority of the pasture. The other was the same range site with a greater dominance by cheatgrass and other annual species and reduced shrub overstory. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both vegetation communities and supporting a finding of meeting Standard 3 in the portion of the pasture dominated by native perennial species, although not meeting standard 3 in the areas with a greater dominance by annual species. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Wyoming big sagebrush/native bunchgrass community</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Bare ground
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff

Departure of indicators from site potential is primarily related to the loss of microbiotic crust from the soil surface.

<b>Wyoming big sagebrush/native bunchgrass community dominated by annual species</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Pedestals and/or terrecettes
	Gullies
	Litter Movement
	Soil surface loss or degradation
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Bare ground
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Deviation of litter amount from expected
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the replacement of potential bunchgrass by cheatgrass and other annuals, increased sagebrush cover, and the loss of forbs. Not meeting Standard 3 in the sites with increased annual species is the result of past grazing impacts and other historic disturbances and is little related to current livestock management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Daisy Basin Spring and the riparian area associated with the spring. This project was developed to provide a water flow into a reservoir and pipeline system. There is limited water and herbaceous riparian vegetation at the spring source. Contributing factors to not meeting the standard were historic and current livestock grazing, road crossing, dewatering of spring source by pipeline, and reservoir development.

Standard 2 was not met on the riparian area associated with the aspen stand in Daisy Basin. Historically, the riparian area was larger than its current extent. Most of the woody riparian vegetation is decadent or dead. Regeneration is not allowed to survive due to heavy browsing by elk and livestock. This site is a desirable loafing area for both

wildlife and livestock. Contributing factors to not meeting the standard were historic and current livestock grazing and wildlife browsing and loafing (elk are the largest factor).

Standard 2 was not met on the springs feeding Bri Pit Reservoir and Bell Mare Reservoir. These reservoirs were constructed by digging a pit on or near a spring. A Standard 2 assessment was made of the springs while recognizing that the purpose for the reservoirs was to develop a livestock water source. Due to use of the area as a watering source, there was trampling, compaction, and hummocking occurring in the riparian areas. Riparian vegetation was limited due to use of the water site. Bell Mare Reservoir is an unusually large, isolated reservoir that is used by many wildlife species. These types of reservoir developments can be protected in a similar manner to spring developments to protect the spring source and riparian area. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife use, and improper reservoir development design. There are several other similar developments in this pasture that were not assessed, but most likely will be in a similar condition.

Standard 2 was not met on Wildcat Spring and the riparian area associated with the spring. This project was developed to provide a water source for two pastures. There is downcutting, compaction, trailing, and sloughing occurring. Historically, this system has downcut and eroded all of the hydric soils from the riparian area leaving a cobble and boulder streambed. The design of the project created a livestock loafing area on the riparian area. The site is lacking riparian vegetation and allowing upland species to invade due to limited soil water storage capacity. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and lack of maintenance of project.

Standard 2 was not met on Whiskey Spring and the riparian area associated with the spring. This spring development is no longer functioning due to a lack of water from the spring. Historic project photos indicate that this large spring source was associated with a riparian area, but there were very few riparian indicators at the time of the assessment. These indicators included a small population of marginal riparian plants and historical evidence of hydric soil indicators. Contributing factors to not meeting the standard were unknown although it is possible that the development contributed to dewatering the spring source.

Standard 2 was not assessed on Wildcat Canyon upstream of Wildcat Spring. The drainage may historically have been a riparian area, but downcutting in the system has eroded the soils in the riparian area leaving behind a boulder streambed with sparse patches of marginal riparian vegetation. This site was classified as an ephemeral drainage, therefore, Standard 2 did not apply to it.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no departures of indicators from potential as compared to ecological site descriptions/reference areas.

Departures from desired conditions were minimal and within those expected under natural processes. Departures do not appear related to current livestock management practices.

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass/annual grass community within the pasture, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass/annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions were primarily related historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential perennial grass and forb components in the vegetation community are not present. Greater than expected cover of annual grass and shrubs limit the effectiveness of the understory for wildlife. Early season sheep use in this vegetation community may be limiting the ability of forbs and grasses to recover.

Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge, riparian and meadow habitats in the pasture are important habitat for sage-grouse.

One site of Biddle’s lupine is known from the Freezeout Lake Pasture. It is a BT species and as such is of lower priority conservation concern; its populations are considered more widespread and stable than many other rare species. Because this species is not palatable unless all other sources of forage have been depleted and does not grow on fragile ash or clay soils where severe trampling damage may occur, the population in this pasture is anticipated to be stable, or at least not impacted by livestock.

## Findings

- Rangeland Health Standard 1 was met in all rangeland vegetation communities in Freezeout Lake Pasture.
- Rangeland Health Standard 2 was not met on several pit reservoirs, the Daisy Basin aspen stand, and several developed and undeveloped springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the healthy Wyoming big sagebrush/bunchgrass vegetation communities, but not in the same community dominated annual species in the understory due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the healthy Wyoming big sagebrush/bunchgrass vegetation communities, but not in the same vegetation community with greater dominance by annual species due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was not evaluated for Biddle's lupine, a special status plant species. However, it is anticipated that the standard was met for this species.
- The AMP management objective to maintain ecological conditions was not met with overall static to downward trend recorded.

## Recommendations

- Maintain/implement a grazing schedule/season of use to meet upland pasture objectives and the SRH.
- Add riparian management objectives for this pasture.
- Address spring development design at Daisy Basin Spring for riparian management in accordance with BLM policy.
- Coordinate with livestock operators to relocate fence between Canyon and Freezeout Lake Pastures to incorporate the riparian communities associated Negro Rock Canyon into the Canyon Pasture. Retain water trough in Freezeout Lake Pasture.
- Address spring development design at Wildcat Spring for riparian management in accordance with BLM policy. Coordinate with livestock operators to provide water source for Canyon and Freezeout Lake Pastures as appropriate from this spring.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).
- Protect the Daisy Basin aspen stand as a unique community in the area.
- Fence Bell Mare Reservoir and pipe water below for livestock use.
- Consider the re-design of pit reservoirs in this pasture for livestock management, resource objectives, and wildlife habitat needs.

- Coordinate with livestock operators to identify the need for the undocumented pipeline near Daisy Basin and, if appropriate, abandon the project.

### **Bishop FFR (10404\_08)**

#### Management Setting

Bishop FFR is a pasture with corners and small parcels of public land fenced with predominantly private land. The pasture is managed custodially by the permittee and to date; livestock management actions are determined by the permittee, so long as damage to public land resources does not occur.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to past management priority for FFR.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage in this FFR pasture.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

#### Recommendations

- Continue management as a custodially managed pasture, so long as RMP management objectives are met.

### **HooDoo State Block (10404\_09)**

#### Management Setting

HooDoo State Block includes minor acreage of public land due to ease of fence locations off property lines. Oregon State Lands has developed a management plan for this state land parcel. The livestock operator typically uses HooDoo State Block with a portion of the herd grazing through the Sourdough grazing schedule before and/or after use of the state land parcel.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to management direction for this area set by Oregon State Lands.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage fenced with the state block.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on the small segment of Basin Gulch in this pasture. Historically this stream has downcut approximately ten to fifteen feet creating an incised channel. There was trailing, compaction, hummocking, bank shearing, and sloughing occurring. Riparian woody regeneration was not occurring, and herbaceous riparian vegetation reproduction was limited. Contributing factors to not meeting the standard were current and historic livestock grazing, headcuts, historic roads along drainage, and historical use of the area as a homestead or cow camp.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendations

- Coordinate with livestock permittee and Division of State Lands to implement appropriate riparian management.
- Integrate grazing authorization of public lands into the grazing permit.

**Rye Field FFR (10404\_10)**

Management Setting

Rye Field FFR is a pasture with corners and small parcels of public land fenced with predominantly private land. The pasture is managed custodially by the permittee and to date; livestock management actions are determined by the permittee, so long as damage to public land resources does not occur.

Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to past management priority for FFR.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*

Standards were not assessed in this pasture.

### Recommendations

- Continue management as a custodially managed pasture, so long as RMP management objectives are met.

### **Kane Spring Reservoir Exclosure (10404\_11)**

#### Management Setting

Kane Spring Wildlife Fence (JDR 1564) was constructed in 1967 to exclude livestock from riparian resources at Kane Springs.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the exclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the exclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the manmade riparian area associated Kane Spring Reservoir inside the exclosure. Even though the site was functioning properly, the weed issue is a factor that could potentially put the system at risk in the future due Russian olive dominating the woody vegetation.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

#### Additional Issues

The dominant woody riparian species associated with Kane Spring and the reservoir is Russian olive, an introduced invader.

### Recommendations

- Continue management as an exclosure.
- Address invasive non-native species (Russian Olive) within the exclosure.

### **West Freezeout Creek FFR (10404\_12)**

#### Management Setting

West Freezeout FFR is a pasture with corners and small parcels of public land fenced with predominantly private land. The pasture is managed custodially by the permittee and to date, livestock management actions are determined by the permittee, so long as damage to public land resources does not occur.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to past management priority for FFR.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

### Recommendations

- Continue management as a custodially managed pasture, so long as RMP management objectives are met.

## **HooDoo Corral (10404\_13)**

### Management Setting

HooDoo Corral is located at the corners of South Kane Spring, Canyon and Freezeout Lake Pastures. It is an old structure with no record of its construction through a section 4 permit or a cooperative agreement.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the corral and the objective for its construction.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

### Recommendations

- Continue management as a livestock handling facility if needed for permittees operation.

## **Upper Flowing Well Enclosure (10404\_14) and Lower Flowing Well Enclosure (10404\_15)**

### Management Setting

Upper and lower Flowing Well Enclosures (JDR 5557) were constructed in 1978 to exclude livestock from riparian resources developed with the drilling of two wells in 1969 which became artesian wells. Riparian resources associated with Hoodoo Ridge Artesian Well (JDR 3818) are protected by Upper Flowing Well Enclosure while riparian resources associated with Gulf Oil Artesian Well (JDR 3819) are protected by Lower Flowing Well Enclosure.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosures and the objective for their construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessment was not gathered in preparation for this evaluation due to the small size of the enclosures.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the manmade riparian area associated with the Upper and Lower Flowing Wells inside the enclosures. Willows inside the Lower Flowing Well Enclosure were dead and decadent from an unidentified reason.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Address water source design in accordance with BLM policy.
- Retain exclusion areas.

## **Bunchgrass Reservoir Enclosure (10404\_16)**

### Management Setting

Bunchgrass Reservoir Enclosure provides access to water in Bunchgrass Reservoir when either East Hunter Pasture of Keeney Creek Allotment or South Kane Springs Pasture of Sourdough Allotment is scheduled for use. The reservoir was constructed in 1970 to hold winter and spring runoff for mid-summer livestock water and has not been managed for riparian values. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*

Standards were not assessed in this pasture.

### Recommendations

- Retain project as needed by Keeney Creek and Sourdough Allotment permittees.

## **Charolais Spring Enclosure (10404\_17)**

### Management Setting

Charolais Spring Enclosure provides access to water at Charolais Spring when either Callahan Pasture of Keeney Creek Allotment or North Kane Springs Pasture of Sourdough Allotment is scheduled for use. The spring was developed in 1969 to provide livestock water. Construction of the enclosure is not recorded in BLM projects records. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Charolais Spring and the drainage associated with the spring. This spring is fenced to be used from several pastures. There was trailing, compaction, hummocking, and sloughing occurring in the riparian area. Vegetation in the riparian area was early seral herbaceous riparian vegetation and weed species.

Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on spring development, weed species invasion, and improper spring development design.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendations

- Address spring development design at Charolais Spring for riparian management in accordance with BLM policy.
- Coordinate with livestock operators in Keeney Creek and Sourdough Allotments to reconstruct or abandon the enclosure around Charolais Spring. Address proper trough location.

**Sand Hollow Gathering (10404\_18)**

Management Setting

Sand Hollow Gathering is a small enclosure situated between Sand Hollow Seeding, West Sand Hollow Seeding, and Canyon Pastures and has been used for gathering livestock into during moves. Fencing to enclose the parcel is not recorded in BLM project information.

Evaluation of Monitoring Data

No monitoring studies for trend have been established, due to the small size of the gathering pasture.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the gathering pasture and its similarity to adjacent pastures.

Recommendations

- Retain project as needed by Sourdough Allotment permittees.

**Willow Spring Exclosure (10404\_19)**

Management Setting

Willow Spring Exclosure encloses riparian communities adjacent to Negro Rock Canyon at Willow Spring, including the building which houses the generator for Willow Spring Pipeline. Fencing did not enclose the extent of riparian communities here, is located at the base of a hill adjacent to green riparian vegetation, and has been poorly maintained in recent years.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture. Professional judgment of the area indicates slight improvement in the riparian vegetation near the spring over the past decade.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on the riparian area associated with Willow Spring along Negro Rock Canyon. There was evidence of livestock impacts in the riparian area which indicates that the spring area could be better protected. There were some areas where hummocking, trampling, and compaction was occurring. Although the segment did not meet the standard, it appeared to be improving slightly. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance on enclosure fence, and weed species invasion.

### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendations

- Add riparian management objectives for Negro Rock Canyon and Willow Spring in this enclosure, and consider the relocation of the boundary fence between West Sand Hollow Seeding and Willow Springs Enclosure.

## **Sponge Spring Enclosure (10404\_20)**

### Management Setting

Sponge Spring Wildlife Fence (JDR 3827) was constructed in 1969 to exclude livestock from riparian resources at Sponge Springs. The integrity of the exclusion area has been maintained to date.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the riparian area associated with Sponge Spring..

*Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

Recommendations

- Address spring development design at Sponge Spring for riparian management in accordance with BLM policy.
- Coordinate with livestock operators to exclude all riparian at Sponge Spring and downstream.

**Poison Spring FFR (10404\_21)**

Management Setting

This land unit is composed of Poison Spring Enclosure, corral, and an adjacent pasture within the Sourdough Allotment boundaries. The thirty seven acre Poison Spring Enclosure and associated corral are totally on private land. The private land is owned by a past permittee who now grazes livestock in another portion of the resource area.

Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small acreage of public domain in the FFR and past management priority.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*

Standards were not assessed in this pasture.

**Negro Rock Pen (10404\_22)**

Management Setting

Negro Rock Pen is a small livestock gathering pen, not recorded in BLM records, which is poorly maintained.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the pen and the objective for its construction.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the pen.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*

Standards were not assessed in this pasture.

### Recommendations

- Coordinate with livestock permittees, and if appropriate, consider abandonment and fence removal.

## **Wildcat Spring Enclosure (10404\_24)**

### Management Setting

Wildcat Spring Enclosure provides access for livestock to the spring from either Canyon of Freezeout Lake pastures. It was constructed in 1968 as part of Wildcat Division Fence (JDR 2165). The extended period of below average precipitation in recent years has left Wildcat Spring as a marginal source of livestock water, especially during mid to late summer.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Wildcat Spring and the drainage associated with the spring. This spring is fenced to be used from several pastures. There was trailing, compaction, hummocking, downcutting, and sloughing occurring in the riparian area. Vegetation in the riparian area was early seral herbaceous riparian vegetation and weed species. Contributing factors to not meeting the standard were current and historic livestock

grazing, lack of maintenance on spring development, weed species invasion, and improper spring development design.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendations

- Address spring development design at Wildcat Spring for riparian management in accordance with BLM policy. Coordinate with livestock operators to provide water source for Canyon and Freezeout Lake Pastures as appropriate from this spring.

**Mitchell Butte Allotment (10408)**

Mitchell Butte Allotment is managed custodially and includes 3,306 acres of public land enclosed with 133 acres of private land in the four pastures currently recognized. Prior to initiation of Rangeland Health Assessments in Dry Creek GMA, one pasture was recognized. Boundaries of four pastures were GPS'd concurrent with rangeland health data collection in 2003. The location of Mitchell Butte Allotment is provided in Figure 1, while pasture acreage within Mitchell butte Allotment is provided in Table 16.

Table 16: Mitchell Butte Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Middle Mitchell Butte	2820	2603	113*		104	
Northwest Mitchell Butte	156	156				
Northeast Mitchell Butte	196	187			9	
Mitchell Butte Canal	21	1			20	
* includes acreage returned to BLM in BOR revocation						

One livestock operator, Mark Hartley, is authorized to graze cattle (114 AUMs annually) in Mitchell Butte Allotment. Seasons of use and livestock numbers can vary from those stated on the permit, so long as damage to the public land resources does not occur.

Special management areas within Mitchell Butte Allotment include a small upland corner of Owyhee Below the Dam ACEC and Owyhee River Below the Dam administratively suitable National Wild and Scenic River. Presence of both designations in the allotment is a result of the delineation of special management areas on legal boundaries, with minimal acreage which extends into Middle Mitchell Butte Pasture.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

## Middle Mitchell Butte (10408\_01)

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method identified three inventory units in the area which includes Middle Mitchell Butte Pasture. Dominant shrubs included greasewood and big sagebrush while dominant grasses included bluebunch wheatgrass and Sandberg bluegrass. The portion of the pasture north of the Rock Creek Road burned during the 1996 Cow Hollow Fire. No rehabilitation seeding was completed following the fire.

As a custodial allotment, no season of livestock use is prescribed. Use has been generally limited to late spring and summer in recent years. The Southern Malheur RPS identified a management objective for Mitchell Butte Allotment to improve ecological condition. A second objective was to improve riparian habitat through livestock exclusion, which was dependent on project construction. The riparian management objective is believed to be for resources adjacent to Owyhee River which is not accessible from the allotment as a result of an old fence in the rims.

### Evaluation of Monitoring Data

No long term monitoring studies have been established within Middle Mitchell Butte Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected. A finding of static trend is based on professional judgment.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was completed for Standards 1 and 3 in Middle Mitchell Butte Pasture. The assessment area represents the Wyoming big sagebrush/bluebunch wheatgrass range site with a loss of native species and is present in the majority of the pasture. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Pedestals and/or terrecettes
	Bare ground
	Litter Movement
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
	Reduction reproductive capability of perennial plants

Departure of indicators from site potential is primarily related to the replacement of potential bunchgrass by cheatgrass and other annuals, increased sagebrush cover, and the loss of forbs. Not meeting Standard 3 in the sites with increased annual species is the result of past grazing impacts and other historic disturbances and is little related to current livestock management actions.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Rock Spring Canyon. There is compaction, trampling, trailing, and excessive bank shearing occurring in this segment. There has been historic and current downcutting of this stream that has made the historic floodplain into a terrace. There is braiding of the channel at the lower end of this segment. Contributing factors to not meeting the standard were historic and current livestock grazing, road constraining stream, and invasion of weed species.

Standard 2 was not met on North Spring. The spring development is not functioning due to a lack of maintenance. Historically, this drainage area has downcut. Contributing factors to not meeting the standard were historic and current livestock grazing, improper spring development design, and lack of maintenance of spring development.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/ bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Invasive plants
<i>Moderate departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Plant mortality/decadence
	Annual production
	Reduction in the reproductive capability of perennial plants

Departures from desired conditions are primarily related to historic livestock grazing. These disturbances resulted in a reduction in the potential expression of perennial grass and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb and bunchgrass components in the vegetation community are not present. Scotch thistle, an invasive exotic forb, is present in the area, as is cheatgrass. These invasives have the potential to spread. This area needs targeted fire suppression to limit the expansion of grasslands. The area is historic mule deer and antelope winter range.

### Additional Issues

The one known site for Malheur forget-me-not, a state-listed threatened species, remains stable in this allotment. This species is found on north-facing slopes in Wyoming or basin big sagebrush habitat throughout the sand hills surrounding Vale to the northeast, south, and southwest. The species is vulnerable to disturbance from OHV traffic, to livestock trailing, and burning due to late summer wildfires. It does not appear to be palatable on a large scale, although small nips presumably from rabbits or mule deer are often observed at various sites where the species occurs.

### Findings

These findings apply to all pastures within Mitchell Butte Allotment.

- Rangeland Health Standard 1 was met in all rangeland vegetation communities of Mitchell Butte Allotment.
- Rangeland Health Standard 2 was not met on Rock Spring Canyon and a developed spring due to current livestock grazing and other factors.
- Rangeland Health Standard 3 was not met in the Wyoming big sagebrush/bunchgrass vegetation communities with a dominance of annual species in the understory and in portions of the allotment seeded to nonnative perennial species due to the loss of perennial species, including shrubs, from historic grazing, fire, and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture.
- Rangeland Health Standard 5 was not met in the Wyoming big sagebrush/bunchgrass vegetation communities dominated by annual species in the understory and in portions of the allotment seeded to nonnative perennial species, as a result of loss of perennial grasses, forbs, and shrubs from historic grazing, fire, and other surface disturbing activities.
- Rangeland Health Standard 5 was met for Malheur forget-me-not, a special status plant species.
- The RPS management objective to improve ecological conditions was not met with overall static trend identified by professional judgment. The objective to improve riparian habitat was not assessed for Mitchell Butte Allotment, but Owyhee River was assessed for Nyssa Allotment.

### Recommendations

These recommendations apply to all pastures within Mitchell Butte Allotment.

- Change the management category of the allotment from “Custodial to “Maintain” based on significant public land acreage.

- Implement grazing schedule which provides periodic deferment or rest, in at least two of every three years.
- Address spring development design or abandon North Spring for riparian management in accordance with BLM policy.
- Implement an appropriate livestock grazing schedule to enhance Rock Creek riparian vegetation.
- Address noxious weeds (e.g. tamarisk) consistent with the district plan and BLM policy.

## **Northwest Mitchell Butte (10408\_02)**

### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method identified two inventory units in the area which includes Northwest Mitchell Butte Pasture. Dominant shrubs included greasewood and big sagebrush while dominant grasses included bluebunch wheatgrass and Sandberg bluegrass. Although records do not identify when, much of this pasture was seeded to crested wheatgrass. The pasture burned during the 1996 Cow Hollow Fire. No rehabilitation seeding was completed following the fire.

As a custodial allotment, no season of livestock use is prescribed. Use has been generally limited to late spring and summer in recent years.

### Evaluation of Monitoring Data

No long term monitoring studies have been established within Northwest Mitchell Butte Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected. A finding of static trend is based on professional judgment.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Northwest Mitchell Butte Pasture are consistent with those presented for the crested wheatgrass seeding in South Mud Spring Pasture of Nyssa Allotment. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3. Departures from desired conditions were primarily related to historic livestock grazing, the seeding of a nonnative species, and related to Cow Hollow Fire in 1996, resulting in a reduction in the potential expression of shrub and forb components within the vegetation community.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

#### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as presented for the South Mud Spring Pasture of the Nyssa Allotment. Departures from desired conditions were attributable to impacts described above for Standards 1 and 3.

#### Findings and Recommendations

Findings and recommendations for all pastures within Mitchell Butte Allotment are presented above under the heading for Middle Mitchell Butte Pasture.

#### **Northeast Mitchell Butte (10408\_03)**

##### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method identified one inventory unit in the area which includes Northeast Mitchell Butte Pasture. The dominant shrub was greasewood while dominant grass was bluebunch wheatgrass. Although records do not identify when, much of this pasture was seeded to crested wheatgrass. The pasture burned during the 1996 Cow Hollow Fire. No rehabilitation seeding was completed following the fire.

As a custodial allotment, no season of livestock use is prescribed. Use has been generally limited to late spring and summer in recent years

##### Evaluation of Monitoring Data

No long term monitoring studies have been established within Northeast Mitchell Butte Pasture, since it is managed custodially. Similarly, no annual actual use or utilization data are collected. A finding of static trend is based on professional judgment.

##### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Northeast Mitchell Butte Pasture are consistent with those presented for the crested wheatgrass seeding in South Mud Spring Pasture of Nyssa Allotment. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3. Departures from desired conditions were primarily related to historic livestock grazing, the seeding of a nonnative species, and related to Cow Hollow Fire in 1996, resulting in a reduction in the potential expression of shrub and forb components within the vegetation community.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

##### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the bunchgrass community, with departures of indicators from potential as presented for the South Mud Spring Pasture of the Nyssa Allotment. Departures from desired conditions were attributable to impacts described above for Standards 1 and 3.

#### Findings and Recommendations

Findings and recommendations for all pastures within Mitchell Butte Allotment are presented above under the heading for Middle Mitchell Butte Pasture.

#### **Mitchell Butte Canal (10408\_04)**

##### Management Setting

The 1979 Southern Malheur Modified Soil-Vegetation Inventory Method identified one inventory unit in the area which includes Mitchell Butte Canal Pasture. The dominant shrub was greasewood while dominant grass was bluebunch wheatgrass.

As a custodial allotment, no season of livestock use is prescribed. Use has been generally limited to late spring and summer in recent years. Mitchell Butte Canal Pasture is a poorly fenced parcel of primarily private land that has been grazed concurrent with Middle Mitchell Butte Pasture.

##### Evaluation of Monitoring Data

No long term monitoring studies have been established within Mitchell Butte Canal Pasture, since it is managed custodially and has a very small portion of public land. Similarly, no annual actual use or utilization data are collected. A finding of static trend in poor condition is based on professional judgment.

##### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Rangeland health assessments and determinations for Standards 1 and 3 in Mitchell Butte Canal Pasture are consistent with those presented for the Wyoming big sagebrush/bunchgrass vegetation communities dominated by annual species in Double Mountain Pasture of Dry Creek Allotment. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3 in the sagebrush/bunchgrass community dominated by cheatgrass. Departures from desired conditions were primarily related to a loss of perennial grasses and forbs and dominance by annual species, primarily cheatgrass. Shortfall from potential is likely related to historic grazing and other past surface disturbing activities.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

##### *Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the perennial grass community, with departures of indicators from potential as described below for the perennial grass community with cheatgrass in the Double Mountain Pasture of the Dry Creek Allotment. Departures from desired conditions are due to factors described above for Standards 1 and 3.

Findings and Recommendations

Findings and recommendations for all pastures within Mitchell Butte Allotment are presented above under the heading for Middle Mitchell Butte Pasture.

**Dry Creek Allotment (10411)**

Dry Creek Allotment is managed as an “M” category allotment and includes four pastures identified in the grazing schedule and a number of enclosures, exclosures and custodially management pastures. Nonnative seeding portions of the allotment include a portion of the 800 acre East Cow Hollow Seeding (Vale Project; 1966) in Cow Hollow Seeding and Double Mountain pastures. Additionally, portions of Double Mountain were seeded with a native or nonnative mix following the 1996 Cow Hollow Fire. Dry Creek Allotment was created in 2002 when Freezeout Allotment was divided and a separate management plan was implemented for Dry Creek Allotment. The location of Dry Creek Allotment is provided in Figure 1, while pasture acreage within Dry Creek Allotment is provided in Table 17.

Table 17: Dry Creek Allotment pasture ownership

Pasture	Total Acres	Public Domain Acres	Other Federal Acres	State Acres	Private Acres	Null
Cow Hollow Seeding	1602	1602			Trace	
Double Mountain	12657	12417			240	
South Freezeout	13004	12815	174		15	
Hurley Springs	33642	33071		71	500	
Russell FFR	5443	963			4480	
East Freezeout Creek FFR	1186	195			991	
Twin Springs Recreation Site	18	18				
Twin Springs Reservoir Enclosure	14	14				
DM Reservoir Exclosure	5	5				
Little DM Spring Exclosure	3	3				
DM Spring Sheep Corral	0.4	0.4				
Cow Hollow Spring Exclosure	1	1				
Twin Creek Pen	0.5	0.5				
Dry Creek Exclosure	26	26				

Following completion of the Southern Malheur RPS in 1984, an allotment management plan for Freezeout Allotment was drafted and implemented in August 1984. That

schedule was revised in 1989. The current grazing schedule for Dry Creek Allotment was implemented with the 2002 division of Freezeout Allotment to create Sourdough and Dry Creek allotments and implementation of Dry Creek Allotment Management Plan in 2002. The Dry Creek Allotment grazing schedule is presented in Table 18.

Table 18: Dry Creek Allotment grazing schedule implemented in the 2002 AMP

Pasture	Annual grazing schedule
Hurley Springs	9/1 to 11/31
South Freezeout	12/1 to 12/31
Double Mountain	1/1 to 3/31
Cow Hollow Seeding	1/1 to 3/31

One livestock operators is permitted to graze cattle in Dry Creek Allotment within pastures identified in the grazing schedule between September 1 and March 31 annually and within custodially managed pastures without a defined season of use, so long as damage to public land resources does not occur. An additional livestock operator is permitted to graze sheep in Dry Creek Allotment with flexibility between May 1 and May 22. Dry Creek Allotment grazing authorizations are listed in Table 19.

Table 19: Dry Creek Allotment grazing authorization summary

Permittee	AUMs from pastures identified in the grazing schedule	AUMs from custodial pastures	AUMs active authorization
Dry Creek Grazing Association (cattle)	4,661	125	5,901
Frank Shirts, Jr. (sheep)	266		266
		Total	6,167

The following summary lists the percent of cattle grazing authorization reported used in Dry Creek Allotment, or that portion of Freezeout Allotment that became Dry Creek Allotment with the 2002 division, during the past five years:

Winter 2005-06	83 percent
Winter 2004-05	100 percent
Winter 2003-04	82 percent
Winter 2002-03	92 percent
Summer 2001	100 percent

Actual use reported by the sheep operator, with grazing schedules being less defined by pasture fences and allotment boundaries, is less accurate on an allotment basis.

Special management areas within Dry Creek Allotment include Dry Creek Gorge ACEC and Dry Creek administratively suitable National Wild and Scenic River within Hurley Spring and South Freezeout pastures. Additionally, a portion of Dry Creek Wilderness Study Area is within the same two pastures.

Special status plants present within Dry Creek Allotment include Biddle's lupine, Mulford's milkvetch, and Malheur forget-me-not, all within Double Mountain and Cow Hollow Seeding pastures.

A table of the spring developments in this allotment identifying condition and maintenance needs is located in Appendix C.

### **Cow Hollow Seeding (10411\_01)**

#### Management Setting

Much of Cow Hollow Seeding Pasture was seeded with crested wheatgrass in 1966 as part of the 800 acre East Cow Hollow Seeding in association with the Vale Project (Heady and Bartolome, 1977). The northern portion of the pasture was seeded again with a mix including crested wheatgrass in 1996 following the Cow Hollow Fire (M754).

The allotment management plan, implemented in 2002, schedules annual late winter/early spring grazing use by cattle in Cow Hollow Seeding Pasture. Sheep use occurs during a slow trailing annually in late April.

Livestock water sources include troughs along Mud Spring Pipeline and a well near the corrals in the northeast corner of the pasture. The pipeline troughs have not been used since changing to winter/early spring use.

The Southern Malheur RPS identified a management objective for Cow Hollow Seeding to maintain ecological conditions. This objective was revised to maintain seeding condition and productivity in the 2002 allotment management plan to be more consistent with the nonnative seeding.

#### Evaluation of Monitoring Data

Actual use and utilization data for Cow Hollow Seeding Pasture (Appendix E) indicate that the AMP grazing schedule, with planned late winter/early spring grazing, has been followed since AMP implementation in 2002. Prior to 2002, fall and/or spring grazing use was made. The maximum allowable utilization level of 50 to 65 percent within nonnative seeded range has not been exceeded in recent years.

A trend plot has not been established in Cow Hollow Seeding Pasture. Professional judgment concerning recent trend in the seeded portion of Cow Hollow Seeding Pasture would identify a static trend with growing season grazing use now limited to early spring only. The limited success of nonnative seeding following the 1996 Cow Hollow Fire supports the professional judgment of static trend. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessment was documented for Standards 1 and 3 in Cow Hollow Seeding Pasture. The assessment area represents the vegetation communities in a Wyoming big sagebrush/bunchgrass range site seeded to created wheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a

finding of not meeting Standard 3 within the crested wheatgrass dominated vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
	Water flow patterns
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<i>Moderate to extreme departure from site description/reference area</i>	
	Gullies
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion
	Soil surface loss or degradation
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Deviation of litter amount from expected
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were primarily related to historic livestock grazing, the seeding of a nonnative species as part of the Vale Project, and related to Cow Hollow Fire in 1996, resulting in a reduction in the potential expression of shrub and forb components within the vegetation community.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

There were no riparian areas identified in this pasture.

*Standard 4 - Water Quality*

The standard was met due to meeting pertinent criteria in Standards 1 and 3.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the nonnative bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Non-native Bunchgrass Community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff

	Plant mortality / decadence
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions were primarily related to historic livestock grazing, wildfire (1996), and subsequent seeding of non-native perennial grasses. These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation community. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Scotch thistle and rush skeletonweed, invasive exotic forbs, are present in the area, with the potential to spread.

#### Additional Issues

Malheur forget-me-not, a state-listed threatened species, is found in this pasture.

#### Findings

- Rangeland Health Standard 1 was met in the portions of Cow Hollow Seeding pasture seeded to nonnative grass.
- Rangeland Health Standard 2 was not assessed, with no riparian areas identified in this pasture.
- Rangeland Health Standard 3 was not met in the potential Wyoming big sagebrush/bunchgrass vegetation communities seeded to crested wheatgrass due to the loss of perennial species, including shrubs, from historic grazing, vegetation manipulation, fire, and other surface disturbing activities.
- Rangeland Health Standard 4 was met in the pasture.
- Rangeland Health Standard 5 was not met in the potential Wyoming big sagebrush/bunchgrass vegetation communities seeded to crested wheatgrass due to the loss of forbs and shrubs.
- Rangeland Health Standard 5 was not evaluated for Malheur forget-me-not, a special status plant species. However, it is anticipated that the standard was met for this species.
- The AMP management objective to maintain seeding conditions was met with overall static trend identified from professional judgment

#### Recommendations

- Establish a line intercept and 3X3 photo monitoring plot in this pasture.
- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.

## Double Mountain (10411\_02)

### Management Setting

Much of the eastern, southern, and western portions of Double Mountain Pasture within the 1965 8,400 acre Double Mountain Brush Control in association with the Vale Project (Heady and Bartolome, 1977). The northern portion of Cow Hollow in Double Mountain pasture was seeded with crested wheatgrass in 1996 as part of rehabilitation actions following the Cow Hollow Fire. Rehabilitation action following the 2005 Double Mountain Fire resulted in seeding a native mix of grasses and forbs on a number of accessible sites throughout the pasture.

The allotment management plan, implemented in 2002, schedules annual late winter/early spring grazing use by cattle in Double Mountain Pasture. Sheep use occurs during a slow trailing annually in late April.

Livestock water sources include two troughs along Mud Spring Pipeline and developed springs. The pipeline troughs have not been used since changing to winter/early spring use.

The Southern Malheur RPS identified a management objective for Double Mountain Pasture to improve ecological conditions. This objective was carried forward into the allotment management plan.

Riparian monitoring points were not historically established in this pasture.

### Evaluation of Monitoring Data

Actual use and utilization data for Double Mountain Pasture (Appendix E) identify annual winter and early spring use in accordance with the revised allotment management plan. The maximum allowable utilization level of 50 percent within native range has not been exceeded in the past twenty years.

Upland vegetation trend data for Double Mountain Pastures were analyzed and summarized. Two photo trend plots were established in the pasture in 1969. Trend plot number one was not found in 1985 or successive years. A line intercept was added to trend plot number two in 1985. The plot and line were measured again in 1987 and again in 2002 in preparation for this GMA assessment. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

Year	Recorded Cover	Number of Plants	Average Intercept	Standard Deviation
1985	0.71	8	0.0888	0.0636
1987	0.78	6	0.1300	0.1060
2002	1.92	5	0.3840	0.2327

Recorded basal cover of bluebunch wheatgrass has increased consistently during the seventeen year period between 1985 and 2002, with an increase in plant size and a reduction in the number of plants recorded. Cover of Thurber's needlegrass has followed the same trend with 0.11 percent cover in recorded in 1985, 0.11 percent cover recorded

in 1987 and 1.07 percent cover recorded in 2002. At the same time, the mapped 3X3 plot shows only a change in the location of bunchgrass species between the mid-1980s and 2002, but no apparent increase in cover. The photos would lead to a conclusion of an increase in bunchgrass dominance over the same period, but could be misleading with no utilization by livestock in the year when the 2002 data were collected. Professional judgment concerning recent trend in the Double Mountain Pasture is consistent with the finding of upward trend in recent years based on the success of rehabilitation seeding of native species following the 1996 Cow Hollow Fire and due to the change in the period of annual use by livestock to late winter/early spring only. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Two upland rangeland health assessments were documented for Standards 1 and 3 in Double Mountain Pasture. One key area represents the vegetation communities in a Wyoming big sagebrush/bunchgrass range site, while the second represents those portions of the pasture with potential to support the same vegetation community but now are dominated by annual species including cheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 in both vegetation communities and supporting a finding of meeting Standard 3 in the sagebrush/bunchgrass community but not meeting standard 3 in the cheatgrass dominated vegetation community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrass range site</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Pedestals and/or terrecettes
	Litter Movement
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate departure from site description/reference area</i>	
	Bare ground
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Soil surface loss or degradation
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures from desired conditions within the healthy Wyoming big sagebrush/bunchgrass communities were primarily related to a loss of perennial forbs, a reduction in native bunchgrass dominance and an increase in sagebrush cover. Fire during 2005 subsequent to data collection has removed most of the sagebrush from portions of the pasture where it remained in 2002 when data were collected. Shortfall of indicators from potential is likely related to historic grazing.

<b>Wyoming big sagebrush/bunchgrass range site dominated by cheatgrass</b>	
<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Rills
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<i>Moderate to extreme departure from site description/reference area</i>	
	Plant mortality/decadence
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

Departures from desired conditions in the annual species dominated communities were primarily related to a loss of perennial grasses and forbs, loss of sagebrush, and dominance by annual species, primarily cheatgrass. Shortfall from potential is likely related to historic grazing, other surface disturbing activities, and the frequent fire return.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on DM Spring and its associated riparian area. This system is protected in the drainage by large rocks and protected at the spring source by an enclosure fence. Willows were dying, but the reason was unidentified at the time of the assessment. The risk to this riparian area is the potential to dewater the site by allowing overflow to not correctly be returned to the drainage.

The standard was not met on Cow Hollow Spring and its associated drainage. There was trailing, compaction, and hummocking occurring. There were dead and decadent willows, but no regeneration was occurring. The channel was constrained laterally by the main road through this pasture with a crossing locally impacting the stream functionality. The enclosure area around the headbox does not entirely protect the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring developments, improper spring development design, and weed species invasion.

The standard was not met on Twin Butte Spring and its associated drainage. There was trailing, bank shearing, and excessive bare banks occurring. The willows present were being replaced by saltcedar and perennial pepperweed. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring development, improper spring development design, and weed species invasion.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/bunchgrass range site dominated by annual grasses, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/bunchgrass range site dominated by cheatgrass</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
<i>Moderate to extreme departure from site description/reference area</i>	
	Plant mortality / decadence
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants
<i>Extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/ bunchgrass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Departure of functional structural groups from site potential
	Plant mortality/decadence

Departures from desired conditions are primarily related to historic livestock grazing and wildfire (2005). These disturbances resulted in a reduction in the potential expression of shrub and forb components within the vegetation communities. Departures do not appear related to current livestock management practices. Potential forb and shrub components in the vegetation community are not present. Scotch thistle and rush skeletonweed, invasive exotic forbs, are present in the area, as is cheatgrass. These invasives have the potential to spread. This area needs targeted fire suppression to limit the expansion of grasslands. The area is historic mule deer and antelope winter range, but with the loss of the shrub components as a result of increased fire frequency and size, it is less effective wintering habitat.

### Additional Issues

Wildfire in 2005 removed a considerable amount of sagebrush cover. As a result, Standard 3 – Ecological Function would likely not be met in the entire pasture. Standard 5 would likely not be met.

Two special status plant species, Mulford's milkvetch and Malheur forget-me-not, are found in the Double Mountain Pasture. Both populations of the milkvetch were burned in the Double Mountain fire of 2005. The species is vulnerable to habitat modification through grazing and fire, resulting in subsequent plant community composition changes, e.g. bunchgrass habitats converted to cheatgrass. It is also vulnerable to invasions of noxious weeds, the most imminent threat being rush skeletonweed found within a mile of the known populations in this pasture. Mulford's milkvetch observed near an enclosure site constructed for Malheur forget-me-not appears to have survived the wildfire intact, with many small plants remaining established in spring of 2006. There is a possibility that sheep may find this fine-leaved forb palatable, but no studies have been implemented to verify this concern.

An enclosure to study livestock impacts to Malheur forget-me-not was constructed in the Double Mountain Pasture in 1988. The initial quantitative studies inside and outside the enclosure showed no differences in plant numbers or vigor. More recent qualitative evaluations at the same location continued to indicate no differences inside and outside the enclosure. However, an assessment of the site in spring of 2006 indicates that the wildfire of 2005 had a major impact on survival and the vigor of remaining forget-me-not plants, with few plants observed and even less blooming.

### Findings

- Rangeland Health Standard 1 was met in both the Wyoming big sagebrush/bunchgrass and the annual rangeland vegetation communities of Double Mountain Pasture.
- Rangeland Health Standard 2 was not met in various riparian areas and several developed springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the annual rangeland vegetation communities due to the loss of perennial species from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the Wyoming big sagebrush/bunchgrass vegetation communities, but not in the grassland community resulting from recent fire due to the loss of perennial forbs and shrubs from historic grazing, vegetation treatment, fire, and other surface disturbing activities.
- Rangeland Health Standard 5 was met for Malheur forget-me-not and Mulford's milkvetch, special status plant species, prior to the wildfire of 2005.
- The AMP management objective to improve ecological conditions was met with overall upward trend recorded.

## Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for drainages from Cow Hollow, DM and Twin Butte Springs, and other springs in this pasture.
- Address spring development design for riparian management at Cow Hollow and Twin Butte Springs in accordance with BLM policy.
- Implement actions at spring developments to avoid de-watering the sources.
- Address noxious weeds (e.g. rush skeletonweed throughout the pasture, and perennial pepperweed and tamarisk at Twin Butte Spring) consistent with the district plan and BLM policy.

## **South Freezeout (10411\_03)**

### Management Setting

South Freezeout Pasture is predominantly dominated by shrub/steppe vegetation with Wyoming big sagebrush in the overstory and bunchgrasses, primarily bluebunch wheatgrass, in the understory. The 2002 allotment management plan schedules annual winter grazing use by cattle in South Freezeout Pasture. Prior to 2002, the grazing schedule in the pasture was a three year rotation with one year of growing season use followed by two years of deferment from grazing until after the growing season. Authorized sheep use occurs during April and May annually.

Livestock water sources include spring developments, stock water reservoirs, and Dry Creek.

The Southern Malheur RPS identified a management objective for South Freezeout Pasture to maintain ecological conditions. This objective was changed to improve in the allotment management plan as a result of the significant areas dominated by annual species.

### Evaluation of Monitoring Data

Actual use and utilization data for South Freezeout Seeding Pasture (Appendix E) identify annual fall/winter grazing use in accordance with the 2002 revised allotment management plan. The maximum allowable utilization level of 50 percent within native range has not been exceeded in the past ten years.

No trend plot remains in South Freezeout Pasture. Trend plot number nine in Freezeout Pasture of Freezeout Allotment was established in 1967 prior to pasture division. Attempts to find the plot in later years, including in 2004, were not successful. Professional judgment concerning recent trend in South Freezeout Pasture would identify a static to upward trend with winter grazing and growing season grazing use limited to fall green-up. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

There are aerial photos of Dry Creek within this pasture flown in 1998 and 2002. The photos do not show any significant change in this short timeframe.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was documented for Standards 1 and 3 in South Freezeout Pasture. The assessment area represents the vegetation communities in a Wyoming big sagebrush/bunchgrass range site, with a high occurrence of annual species including cheatgrass. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of not meeting Standard 3. Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Water flow patterns
	Bare ground
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Deviation of litter amount from expected
<b>Standard 3: Ecological processes</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality/decadence
	Deviation of litter amount from expected
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
	Reduction reproductive capability of perennial plants

Departures from desired conditions were primarily related to a loss of perennial grasses and forbs, some reduction in sagebrush, and dominance by annual species, primarily cheatgrass. Shortfall from potential is likely related to historic grazing and other surface disturbing activities.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on the East Spring drainage and tributary of Twin Springs Creek. Both of these riparian areas are rock wall protected and very steep so livestock and wildlife access is limited. The only risk to these areas would be perennial pepperweed and saltcedar invasion from nearby sources.

The standard was not met on Dry Creek. This segment of Dry Creek is an interrupted perennial stream with a wide open valley bottom. There was trailing, trampling, excessive bare banks, and sloughing occurring in the riparian area. The stream width depth ratio is too high in this reach. Historically, the stream has downcut so the channel is recreating a new floodplain. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of enclosure fence, and weed species invasion.

The standard was not met on Twin Springs Creek, a tributary of Twin Springs Creek, and a tributary to the East Spring drainage. These riparian areas had trailing, trampling, loafing areas, and sloughing occurring. All of these riparian areas had woody riparian vegetation with some regeneration occurring, but none of it was surviving. Twin Springs Creek and the tributary to Twin Springs Creek had some perennial pepperweed and saltcedar present. Contributing factors to not meeting the standard were current and historic livestock grazing and weed species invasion.

The standard was not met on East Spring tributary. The sagebrush along the fringes of the riparian area were drowning and the vegetation was being replaced with Baltic rush which indicates an improvement in the riparian area. The system was still at risk due to the trailing, compaction, and trampling physically limiting the expansion of the riparian area. The woody riparian vegetation component was heavily browsed by wildlife and livestock. The spring development was located within the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing and improper spring development design.

The standard was not met on Sourdough Gulch, Upper Sourdough Spring, and Bull Shirt Spring and its associated drainage. These riparian areas were located in ashy, lacustrine soils that historically downcut. The streams were trying to reestablish a new floodplain in the incised drainage, although there was the potential for more downcutting. There was trailing, trampling, and sloughing occurring. The herbaceous riparian vegetation component was made up of mid seral species. Both spring developments were located within the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring developments, improper spring development design, and weed species invasion.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

*Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of not meeting Standard 5 within the Wyoming big sagebrush/annual grass community, with departures of indicators from potential as compared to ecological site descriptions/reference areas as follow:

<b>Wyoming big sagebrush/annual grass community</b>	
<b>Standard 5: Native, Threatened &amp; Endangered, and Locally Important Species</b>	
<i>Moderate departure from site description/reference area</i>	
	Problems with plant community composition and distribution relative to infiltration and runoff
	Plant mortality / decadence
<i>Moderate to extreme departure from site description/reference area</i>	
	Departure of functional structural groups from site potential
	Annual production
	Invasive plants
	Reduction in the reproductive capability of perennial plants

Departures from expected conditions were primarily due to historic livestock grazing. This disturbance resulted in less than expected perennial herbaceous vegetation in the understory, with increased vulnerability to invasive species in some areas within the pasture. Some areas within this pasture are subject to increased amounts of cheatgrass and medusahead. Fire management should retain the communities present to the extent possible, and when effective techniques are available, restoration of annual-dominated areas should be considered. The change in season of use to winter in 2002 has limited the effect of livestock management on this area.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identify the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge and Sourdough riparian and meadow habitats in the vicinity springs and adjacent to Twin Springs Creek and Dry Creek have the potential to be important habitat.

Populations of sterile milkvetch, a state-listed threatened species, in the South Freezeout Pasture remain stable, and the reader is referred to discussions of this species in the Dry Creek Butte Pasture of Wallrock Allotment. Snowball cactus in South Freezeout Pasture has received little attention as a BT species; however, inventories in 2004 resulted in expansion of its known range and in assessments that indicated this species is thriving and stable in this locality.

#### Findings

- Rangeland Health Standard 1 was met in all rangeland vegetation communities.
- Rangeland Health Standard 2 was not met in Dry Creek, various riparian areas and several developed springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was not met in the Wyoming big sagebrush/bunchgrass vegetation communities with a dominance of annual species due to the loss of perennial grasses and forbs from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was not met in the Wyoming big sagebrush/bunchgrass vegetation communities with dominance by annual species due to the loss of perennial grasses and forbs from historic grazing and other surface disturbing activities.
- Rangeland Health Standard 5 was met for two special status plant species, sterile milkvetch and snowball cactus.
- The AMP management objective to improve ecological conditions was met with overall static to upward trend identified by professional judgment.

## Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Twin Springs Creek, Twin Springs Creek Tributaries, Dry Creek, and drainages associated with East Spring, and other springs in this pasture.
- Address spring development design for riparian management at East, Bull, and Upper Sourdough Springs in accordance with BLM policy.
- Implement actions at spring developments to avoid de-watering the sources
- Address noxious weeds (e.g. perennial pepperweed and tamarisk within the pasture) consistent with the district plan and BLM policy.
- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

## **Hurley Spring (10411\_04)**

### Management Setting

Hurley Springs Pasture is predominantly dominated by shrub/steppe vegetation with Wyoming big sagebrush in the overstory and bunchgrasses, primarily bluebunch wheatgrass in the understory. The allotment management plan, implemented in 2002, schedules annual early winter grazing use by cattle in Hurley Springs Pasture. Prior to 2002, the grazing schedule in the pasture was a three year rotation with one year of growing season use followed by two years of deferment from grazing until after the growing season. Authorized sheep use occurs during April and May annually.

Livestock water sources include spring developments, stock water reservoirs, and Dry Creek.

The Southern Malheur RPS identified a management objective for Hurley springs Pasture to maintain ecological conditions. This objective was carried forward into the allotment management plan.

### Evaluation of Monitoring Data

Actual use and utilization data for Little Valley Seeding Pasture (Appendix E) identify annual fall/winter grazing use as scheduled in the 2002 allotment management plan. The maximum allowable utilization level of 50 within native range has not been exceeded during that twenty-four year period.

Upland vegetation trend data for Hurley Spring Pastures were analyzed and summarized. Trend plot number 10 was established in the pasture in 1967. A line intercept was added in 1985. The plot and line were measured again in 1987 and 2002. Statistical analysis of the recorded basal cover of bluebunch wheatgrass data are as follow:

<u>Year</u>	<u>Recorded Cover</u>	<u>Number of Plants</u>	<u>Average Intercept</u>	<u>Standard Deviation</u>
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1985	2.47	20	0.1235	0.1332
1987	3.20	23	0.1391	0.1800
2002	5.79	24	0.2413	0.2682

Recorded basal cover of bluebunch wheatgrass has increased consistently during the seventeen year period between 1985 and 2002. The increase has occurred with a slight increase in the number of plants and an increase in average plant size, although variability in plant size has also increased. The mapped 3X3 plot supports a static to upward trend, with combined cover somewhat static and the number of plants greater in 2002 than in previous years. Professional judgment concerning recent trend in Hurley Spring Pasture is consistent with the finding of upward trend based on the 100 foot line and the 3X3 plot, considering the change to annual scheduled grazing use outside the active growing period. A trend summary for all pastures in Dry Creek GMA is presented in Appendix D.

There are aerial photos of Dry Creek within this pasture flown in 1983, 1995 and 2003. The photos do not show any significant change throughout most of the stream. There is a slight long-term increase in riparian vegetation in the lower segment, but no significant change in the short-term. There are three photo points that were established in 1989 in this pasture. Overall, these photos show no change in the stream characteristics with a slight upward trend in the photo upstream of the Dry Creek Gorge.

#### Rangeland Health Assessments and Determinations

##### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

One upland rangeland health assessments was documented for Standards 1 and 3 in Hurley Springs Pasture. The assessment area represents the vegetation communities in a Wyoming big sagebrush/bunchgrass range site. The indicators of upland watershed function and ecological processes provide a preponderance of evidence supporting a finding of meeting Standard 1 and supporting a finding of meeting Standard 3.

Departures of indicators from potential as compared to ecological site descriptions/reference areas are as follow:

<b>Standard 1: Upland watershed function</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Pedestals and/or terrecettes
	Bare ground
	Reduction of soil surface resistance to erosion
<b>Standard 3: Ecological processes</b>	
<i>Slight to moderate departure from site description/reference area</i>	
	Reduction of soil surface resistance to erosion

Departures from desired conditions were primarily related to a slight loss of forbs and microbotic crust. Shortfall from potential is likely related to historic grazing and other surface disturbing activities.

##### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not met on Dry Creek both above and below the Dry Creek Gorge. Historically, this creek has downcut and is reestablishing a new floodplain within the incised channel. The riparian areas had trampling, trailing, excessive bare banks, and sloughing occurring. Woody vegetation is browsed heavily by livestock and wildlife. There were saltcedar plants scattered through the lower segment in this pasture. The stream reach above the Gorge was better protected by large rocks and canyons. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse, weed species invasion, and road containment and crossings.

Standard 2 was not met on Wall Rock Creek. The riparian areas had trampling, trailing, hummocking, and sloughing occurring. Woody vegetation is browsed heavily by livestock and wildlife. The herbaceous riparian vegetation is vigorous and regenerating. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse, impacts associated with historic cow camp upstream on private lands, and road containment and crossings.

Standard 2 was not met on Juniper Creek. This riparian area is an intermittent system with perennial flows. The riparian areas had some trailing and bank shearing occurring. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse, and impacts associated with historic cow camp upstream on private lands.

Standard 2 was not met on Hurley Spring, Hurley Spring Creek, and Slim and Fatty Spring. All of the riparian areas had trampling, trailing, and compaction occurring. Woody vegetation is browsed by livestock and wildlife. The herbaceous riparian vegetation consists mostly of early seral species. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse, improper spring development design, and lack of maintenance of spring development.

Standard 2 was not met on Ingram Spring. The spring development is not functioning due to a lack of maintenance. Flow from the bottom of the rusted out trough is creating a large headcut that is ripping the riparian area apart near the spring source. Livestock use of this water source is concentrated on this cut due to limited access to water along this drainage. Woody vegetation is heavily browsed by livestock and wildlife. Contributing factors to not meeting the standard were historic and current livestock grazing, wildlife browse, improper spring development design, and lack of maintenance of spring development.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

#### *Standard 5 - Locally Important Species*

The indicators of rangeland health for native, Threatened & Endangered, and locally important species provide evidence supporting a finding of meeting Standard 5 within the Wyoming big sagebrush/perennial bunchgrass community, with only slight to no

departures of indicators from potential as compared to ecological site descriptions/reference areas.

Departures from desired conditions were minimal and within those expected under natural processes. Departures do not appear related to current livestock management practices.

#### Additional Issues

The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000) identifies the value of moist habitats such as meadows for sage-grouse use from four weeks following chick hatch through the summer. With leks located on Freezeout Ridge, Sourdough, and Wallrock Ridge, riparian and meadow habitats in the vicinity of springs, and adjacent to Dry Creek have the potential to be important habitat.

Populations of sterile milkvetch in the Hurley Spring Pasture remain stable, and the reader is referred to discussions of this species in the Dry Creek Butte Pasture of Wallrock Allotment.

#### Findings

- Rangeland Health Standard 1 was met in the Wyoming big sagebrush/bunchgrass vegetation communities in Hurley Springs Pasture.
- Rangeland Health Standard 2 was not met in Dry Creek, Wall Rock Creek, Juniper Creek, Hurley Spring Creek, various riparian areas, and several developed springs due to current livestock management practices and other factors.
- Rangeland Health Standard 3 was met in the Wyoming big sagebrush/bunchgrass vegetation communities in Hurley Springs pasture.
- Rangeland Health Standard 4 was not met in the pasture due to not meeting Standard 2.
- Rangeland Health Standard 5 was met in the Wyoming big sagebrush/bunchgrass vegetation communities in Hurley Springs Pasture.
- Rangeland Health Standard 5 was met for sterile milkvetch, a special status plant species.
- The AMP management objective to maintain ecological conditions was met with overall upward trend recorded

#### Recommendations

- Maintain a grazing schedule/season of use which continues to meet upland pasture objectives and the SRH.
- Add riparian management objectives for Juniper Creek, Dry Creek, and Wallrock Creek, Hurley Spring and associated drainages, and other springs in this pasture.
- Address spring development design for riparian management at Ingram, Hurley, and Slim and Fatty Springs in accordance with BLM policy.
- Implement actions at spring developments to avoid de-watering the sources.
- Address noxious weeds (e.g. perennial pepperweed and tamarisk on Dry Creek) consistent with the district plan and BLM policy.

- Manage livestock use in Greater sage-grouse breeding, nesting, and brood-rearing habitats consistent with The Greater Sage-grouse and Sagebrush-Steppe Ecosystems Management Guidelines (BLM 2000, also see Landscape Level Recommendations at the end of the document).

### **Russell FFR (10411\_05)**

#### Management Setting

Russell FFR is predominantly private land with some public domain land included. Internal fencing further divides the area identified in BLM files. The pastures are managed custodially and livestock management actions are defined by the permittee so long as damage to public land resource does not occur.

#### Evaluation of Monitoring Data

No monitoring studies for upland and riparian trend have been established, due to past management priority for FFR.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

#### Recommendations

- Maintain custodial management, which continues to meet RMP objectives.

### **East Freezeout Creek FFR (10411\_06)**

#### Management Setting

East Freezeout Creek FFR is predominantly private land with some public domain land included. The pasture is managed custodially and livestock management actions are defined by the permittee so long as damage to public land resource does not occur.

#### Evaluation of Monitoring Data

No monitoring studies for upland and riparian trend have been established, due to the past management priority for FFR.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the limited public acreage.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

#### Recommendations

- Maintain custodial management, which continues to meet RMP objectives.

### **Twin Spring Recreation Site (10411\_07)**

#### Management Setting

Twin Spring Recreation Site was excluded from livestock grazing by Twin Spring Protective Fence (JDR 1920) constructed in 1967. The recreation site is somewhat developed with a pit toilet and tables. The spring remains the water source for livestock watering from a trough placed downslope and outside the fence.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size and management with livestock exclusion.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met at Twin Springs and the drainage associated with the spring. Although the riparian area was functioning properly there were still impacts from trespass livestock grazing, recreation use, and weed species invasion that have the potential to put the system at risk in the future.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

#### Recommendations

- Address noxious weeds (e.g. perennial pepperweed within the enclosure) consistent with the district plan and BLM policy.

## **Twin Spring Reservoir Enclosure (10411\_08)**

### Management Setting

Twin Springs Reservoir Enclosure provides access to water in Twin Springs Reservoir when South Freezeout Pasture is scheduled for use. Although the enclosure is adjacent to Grassy Mountain Pasture of Nyssa Allotment, water at Frog Pond Spring is a more reliable source for livestock. The reservoir was constructed in 1968 to hold winter and spring runoff for mid-summer livestock water and has not been managed for riparian values. Due to the small size of the enclosure and the objective for construction of the enclosure, no periodic monitoring of upland or riparian resources has been implemented. Similarly, information to complete standards assessments was not gathered in preparation for this evaluation.

### Evaluation of Monitoring Data

No monitoring studies for upland and riparian trend have been established, due to the small size of the enclosure and the objective for its construction.

### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

### Recommendations

- Maintain the reservoir enclosure for livestock watering when water is available.

## **DM Reservoir Exclosure (10411\_09)**

### Management Setting

DM Reservoir Exclosure encloses DM Spring (JDR 1540), DM Reservoir (JDR 4666), and down stream riparian resources with two adjoining enclosure fences. DM Exclosure Fence (JDR 6254) encloses the spring and reservoir. DM Springs Wildlife Enclosure (JDR 5559) protects riparian resources down stream. Water from the spring is piped to a trough northwest of the enclosure.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the exclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on DM Reservoir and its associated riparian area. This system is protected by an enclosure fence. Willows were dying, but the reason was unidentified at the time of the assessment. The risk to this riparian area is the potential to dewater the site by allowing overflow from the spring development to not correctly be returned to the drainage.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Implement actions at spring developments to avoid de-watering the sources.

### **Little DM Spring Enclosure (10411\_10)**

#### Management Setting

Little DM Spring Enclosure (JDR 5981) was constructed in 1995 in conjunction with the development of Little DM Spring (JDR 5980) to exclude livestock from riparian resources. Water from the spring is piped outside the enclosure fence to a trough east of the spring and across the Twin Springs Road.

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was met on Little DM Spring. This riparian area is protected with an enclosure fence. Currently, the riparian vegetation is herbaceous with some rose. The risk to this riparian area is the potential to dewater the site by allowing overflow to run into a pit below the trough. This risk could be mitigated by eliminating overflow.

#### *Standard 4 - Water Quality*

The standard was met due to meeting Standard 2.

### Recommendations

- Implement actions at spring developments to avoid de-watering the sources.
- Address noxious weeds (e.g. perennial pepperweed and tamarisk within the pasture) consistent with the district plan and BLM policy.

### **DM Spring Sheep Corral (10411\_11)**

#### Management Setting

DM Spring Sheep Corral is a livestock management pen which is not recorded in BLM project files. It is located immediately east of DM Reservoir Exclosure.

#### Evaluation of Monitoring Data

No monitoring studies for upland and riparian trend have been established, due to the small size of the corral and the objective for its construction.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*  
Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*  
Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*  
Standards were not assessed in this pasture.

#### Recommendation

- Determine the need for this livestock handling facility and abandon if it is no longer needed.

### **Cow Hollow Spring Exclosure (10411\_12)**

#### Management Setting

Cow Hollow Spring Exclosure is a livestock exclusion fence which protects riparian resources downstream of Cow Hollow Spring. The fence is not recorded in BLM project files

#### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the exclosure and the objective for its construction.

Riparian monitoring points were not historically established in this pasture.

#### Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Cow Hollow Spring and its associated drainage. There was trailing, compaction, and hummocking occurring. There were dead and decadent willows, but no regeneration was occurring. The enclosure area around the headbox does not entirely protect the riparian area. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of spring development, improper spring development design, and weed species invasion.

*Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

Recommendation

- Implement actions to protect spring source and downstream riparian communities.

**Twin Creek Pen (10411\_13)**

Management Setting

Twin Creek Pen is a woven wire enclosure not documented in the Bureau's projects files. It may have been built to corral sheep for management needs, but has not been used in recent years.

Evaluation of Monitoring Data

No monitoring studies for upland and riparian trend have been established, due to the small size of the enclosure and the objective for its construction.

Rangeland Health Assessments and Determinations

*Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the pen.

*Standard 2 – Watershed Function: Riparian/Wetland Areas*

Standard 2 was not assessed in this pasture.

*Standard 4 - Water Quality*

Standards were not assessed in this pasture.

Recommendations

- Abandon and remove the pen which no longer serves a purpose for BLM or for livestock operators.

## **Dry Creek Enclosure (10411\_14)**

### Management Setting

Dry Creek Enclosure encloses a one-half mile reach of Dry Creek upstream of the Twin Springs Road crossing of Dry Creek. It includes Dry Creek Corrals (JDR 0195) constructed in 1945 under a cooperative agreement at the confluence of Dead Horse Canyon and Dry Creek. The enclosure fence is not recorded in BLM project records.

### Evaluation of Monitoring Data

No monitoring studies for upland trend have been established, due to the small size of the enclosure.

Riparian monitoring points were not historically established in this pasture.

### Rangeland Health Assessments and Determinations

#### *Standard 1 - Watershed Function: Uplands and Standard 3 - Ecological Processes*

Information to complete upland standards assessments was not gathered in preparation for this evaluation due to the small size of the enclosure.

#### *Standard 2 – Watershed Function: Riparian/Wetland Areas*

The standard was not met on Dry Creek. This segment of Dry Creek is fenced, but the fence is not entirely functional so it gets grazed with the South Freezeout Pasture. There was trailing, trampling, excessive bare banks, and sloughing occurring in the riparian area. The stream width depth ratio is too high in this reach. Contributing factors to not meeting the standard were current and historic livestock grazing, lack of maintenance of enclosure fence, and weed species invasion.

#### *Standard 4 - Water Quality*

The standard was not met due to not meeting Standard 2.

### Recommendation

- Rebuild/maintain/repair fences for comparison purposes on grazed portions of Dry Creek.
- Remove all internal fencing determined to be unnecessary.
- Retain as livestock exclusion area.
- Protect and monitor cottonwood regeneration.
- Address noxious weeds (e.g. perennial pepperweed and tamarisk within the enclosure) consistent with the district plan and BLM policy.

## ***Riparian***

A total of approximately 133 miles of riparian areas were assessed in the Dry Creek GMA. The Proper Functioning Condition ratings are 30 miles Proper Functioning Condition (23%), 17 miles Functioning At Risk Upward Trend (13%), 74 miles Functioning At Risk Not Apparent Trend (56%), 1 miles Functioning At Risk Downward Trend (1%), and 11 miles Non-Functioning (8%). The location of these assessed riparian areas is provided in Map 3.

There were a total of 107 both developed and non-developed springs that were assessed. The Proper Functioning Condition ratings are 17 springs Proper Functioning Condition (16%), 48 springs Functioning At Risk Not Apparent Trend (45%), 5 springs Functioning At Risk Downward Trend (1 %), and 37 springs Non-Functioning (35 %). The location of these assessed springs is provided in Map 4.

Specific information by pasture and allotment concerning riparian areas and springs is provided above, as well as in Appendix B, Appendix C, and Appendix F.

### ***Wildlife Habitat***

Terrestrial special status vertebrate species and other species of interest likely to inhabit Dry Creek GMA are listed below. Species associated with shrub steppe habitats that have declined substantially in the Interior Columbia Basin Ecosystem Management Project (ICBEMP) area since historical times are denoted with an asterisk (\*). FT = Federal Threatened; BT = Bureau Tracking species; BA = Bureau Assessment species.

*Landbirds* Ferruginous hawk, Swainson's hawk (BT), greater sandhill crane (BT), long-billed curlew (BT), \*Brewer's sparrow, \*horned lark, \*western meadowlark, \*black-throated sparrow, \*sage sparrow, \*loggerhead shrike (BT), \*sage thrasher, and \*greater sage-grouse (BA).

*Mammals* Townsend's big-eared bat, silver-haired bat (BT), white-tailed jackrabbit (BT), long-eared myotis (BT), Yuma myotis (BT), Preble's shrew (BT), pallid bat (BA), hoary bat (BT), California myotis (BT), fringed myotis (BA), pygmy rabbit (BA), pronghorn, mule deer, and Rocky Mountain elk.

*Reptiles* Northern sagebrush lizard (BT), desert horned lizard (BT), longnose leopard lizard (BT), and western ground snake (BT).

### ***Uplands***

Upland communities within Dry Creek GMA show attributes that can be expected to result in the long-term persistence of terrestrial wildlife, including greater sage-grouse and a wide variety of other animals that occupy sagebrush, mountain shrub, or forested habitats for all or a portion of their life cycle. These desirable conditions are in conformance with the SEORMP.

Important sagebrush steppe wildlife habitat components, which include forage, cover, and structure, are well distributed spatially across the assessment area. The structure and composition of plant species in the GMA are sufficient to sustain healthy, reproducing communities of wildlife. With some exceptions (see below), the structure and continuity of sagebrush communities is sufficiently providing for wildlife. Potentially negative consequences of habitat fragmentation from wildfire, invasive plant species, and vegetation treatments (i.e. seedings and chemical applications) over the last four decades are widespread in the evaluation area.

Dry Creek GMA public land habitats consist of approximately 366,700 acres of a mix of Wyoming and basin big sagebrush range sites with the potential to support big sagebrush habitats.

About 79% of all Wyoming and basin big sagebrush public land range sites in Dry Creek GMA (whether they have been seeded to crested wheatgrass or not) are currently Class 3, 4, or 5 wildlife habitats as described in the SEORMP, Appendix F, Table F-1 (2005, local GIS coverage data and field write-ups). In other words, they are complex, native or non-native shrubland communities capable of providing shrub-based habitat values including forage, cover, structure, and security vital to greater sage-grouse and other shrub dependent species of wildlife. Based on classic plant community succession models, these are areas where a long period of time has elapsed since wildfire or land treatment disturbance.

In contrast, 21% of all big sagebrush range sites in Dry Creek GMA are currently Class 1 and 2 wildlife habitats, also described in the SEORMP, Appendix F, Table F-1 (2002). These are grassland habitats that were formerly shrublands in a Class 3, 4, or 5 status, but they have been changed as a result of wildfire, conversion to annual plant species, or various forms of BLM land treatment. When big sagebrush range sites are disturbed by fire or land treatment, they change temporarily into grassland habitats and their values to wildlife also change dramatically depending on the distribution and extent of disturbance.

Composition of the herbaceous understory in most native range is diverse, made up of predominantly native species with specific site capabilities determined by soil, climate, and landform. In wildfire and land treatment areas, understory diversity and density is relatively weak with respect to site capability.

“Thorough search” grazing use, which can have potentially negative influences on wildlife by reducing hiding cover for small animals and forage availability for wildlife, is generally limited within the assessment area. Poor shrub structural quality, i.e., umbrella-form shrubs with heavily grazed understories (USDI, BLM Technical Reference 1996) due to livestock use, was observed in some big sagebrush patches found within the area. Generally, however, impacts from grazing were confined to areas close to water sources.

### ***Streams and Meadows***

Dry Creek GMA supports an extensive network of dry and wet meadow complexes. Some wet meadow habitats showed heavy livestock utilization, leaving little residual cover available in the fall.

Pronghorn, mule deer, and other wildlife also utilize riparian areas, but, due to their current low numbers, big game have significantly fewer impacts on riparian areas than domestic livestock.

In most meadow areas, plant community composition is diverse and comprised of grasses, sedges, rushes, and forbs. Invasive and noxious plant species are limited in their

presence and dominance. Nevertheless, rest and/or other seasonal grazing adjustments that avoid repeated summer use are needed to promote revegetation of bare banks and improvement in plant vigor and composition.

Woody riparian habitat quality and structural character varied significantly by stream. Refer to Appendix F, Proper Functioning Condition Ratings for Streams by Pasture and Allotment, and the Range Health Determinations for specific information. Some isolated water sources that support woody species and are accessible by livestock (in both wet meadow and stream habitats) were heavily utilized and trampled. These areas show highly modified growth forms consistent with severe hedging as described in the Cole browse monitoring methodology.

**Vegetation Manipulation Areas**

Seedings and brush control projects have influenced about 79,300 acres, or approximately 21% of Dry Creek GMA. Most existing land treatments occurred during the Vale Project era between the early through the mid 1960's. In contrast to other rangeland within Malheur County, Dry Creek GMA has sustained a relatively small proportion of land treatment disturbance. Class 1 and 2 crested wheatgrass rangelands support substantially fewer species of wildlife in comparison to native shrublands. However, these areas support more species than annual dominated rangelands.

**Big Game Forage Demand**

Refer to SEORMP Appendix F, Section F-10 (2002), Calculation of Big Game Forage Demand, for an explanation about the origin and calculation of forage demand for mule deer, elk, and pronghorn.

The current *seasonally adjusted* competitive forage demand for big game at state management plan objective levels is as follows:

**Big Game Forage Demand**

Allotment	Pronghorn			Mule Deer		
	#	Season	Competitive AUMs	#	Season	Competitive AUMs
Chalk Butte	15 25	Summer Winter	3.4	10 15	Summer Winter	6
Butte	25 25	Summer Winter	4.3	150 200	Summer Winter	71.3
Wallrock	100 125	Summer Winter	19.3	200 300	Summer Winter	101.9
Keeney Creek	100 100	Summer Winter	17.1	100 50	Summer Winter	30.6
Nyssa	15 15	Summer Winter	2.6	20 50	Summer Winter	14.3
Sourdough (Combined w/ Dry Creek)	100 100	Summer Winter	17.1	250 50	Summer Winter	61.1

Allotment	Pronghorn			Mule Deer		
	#	Season	Competitive AUMs	#	Season	Competitive AUMs
Mitchell Butte	0		0	15 25	Summer Winter	8.2
Dry Creek (was Freezeout, combined w/ Sourdough)						

Based on the general habitat conditions observed, upland habitats (exclusive of meadows) are providing more than enough forage to support healthy and sustaining mule deer and pronghorn populations. Summer and fall forage availability for wildlife using upland meadows and riparian habitats is being limited due to livestock grazing use. This situation could be remedied by incorporating periods of rest or removing livestock earlier so re-growth of vegetation in meadows and riparian areas may occur.

In the near future, there will be a need to adjust big game forage demand figures disclosed in the SEORMP, as the ODFW has proposed changes in their management objectives that will require an adjustment in forage demand for mule deer. Pronghorn management objectives are not currently under review, and it is anticipated that no changes will be needed in the forage demand detailed in the SEORMP. When ODFW finalizes their management objectives, the big game forage demand figures will be addressed separately from the SRH effort.

### ***Sagebrush Steppe Rangeland Management Thresholds***

Shrubland and grassland threshold objectives for Dry Creek GMA wildlife discussed in this document are calculated on the basis of the best available survey data which indicate that approximately 366,700 acres of Dry Creek GMA are comprised of Wyoming and basin big sagebrush communities. This figure will be used as the basis for calculating cumulative effects impacts of land treatment and wildfire in future alternative analyses.

In the SEORMP ROD, Appendix F directs BLM to practice multiple spatial scale management of Wyoming, basin, and mountain big sagebrush communities at the activity plan level in order to conserve habitats important to greater sage-grouse and other animals that occupy sagebrush habitats. Multiple scale management means the agency will consider habitat character for wildlife at the Resource Area, GMA, and pasture level and then prescribe multiple use management prescriptions based on those findings.

### ***Special Status Fish and Aquatic Species***

Five native fish species occur in Dry Creek and include interior redband trout, bridgelip suckers, redband shiners, speckled dace, and an unidentified sculpin. Interior redband trout are a BLM special status species listed as BT. These fishes range throughout the GMA portion of Dry Creek and utilize deep scour pools as refuges during periods of low

flow. Smallmouth bass, a non-native species, moves up Dry Creek from Owyhee Reservoir but usually is restricted to lower reaches.

Dry Creek GMA includes short segments of lower Squaw Creek and Cottonwood Creek near Harper. Redband trout, redband shiners, speckled dace, and bridgelip suckers occupy these streams upstream, but the reaches within Dry Creek GMA are intermittent and dry at low flow. Keeney Creek in Keeney Creek Allotment supports speckled dace and bridgelip suckers in its perennial reaches. Trout are not known to occur in this system but may swim upstream from Cottonwood Creek during high flows.

#### *Inland Redband Trout*

This species is one of the most complex taxonomically in Oregon, probably consisting of multiple subspecies, none of which have been formally recognized. The inland Columbia Basin redband trout is the subspecies inhabiting the GMA, although the steelhead component of the population has been extirpated by dam construction. Life history studies of redband trout in southeastern Oregon indicate that in a stream environment many populations mature by the third or fourth year of life and then die following spawning. Spawning most commonly occurs in April through May, but is contingent on rising water temperatures. Trout require clean, well-oxygenated gravels for redd construction and embryos are vulnerable to suffocation from sediment.

Native redband trout in southeastern Oregon have evolved adaptations to live in harsh environments characterized by great extremes of water temperature and flow. In these situations, hatchery strains of rainbow trout may not be effective predators or competitors. However, hatchery trout have hybridized with most populations of resident redbands in much of the Columbia River basin and undoubtedly a considerable amount of genetic diversity has been lost during the last 100 years.

Redband populations are negatively affected when irrigation diversions and livestock grazing modify river channels, remove riparian vegetation, block migration corridors, decrease summer flows, and increase water temperatures. Many populations have retreated to headwater areas as a result of these activities, causing extensive population fragmentation and decline in numbers.

In MRA, redband trout are found in most basins, and many populations have been genetically tested. The upper Malheur Basin historically supported abundant populations of both resident and anadromous steelhead trout until construction of Warm Springs Dam on the Middle Fork Malheur (1919) and Agency Dam on North Fork Malheur (1935) blocked runs of anadromous fish. Construction of the Hells Canyon Dam complex eliminated any steelhead access to the Malheur Basin.

Trout populations in the mainstem Malheur River below Warm Springs Reservoir are believed to be predominately naturalized hatchery fish. Extensive chemical treatment projects have occurred in these areas (1963—1987) with subsequent releases of hatchery coastal rainbow trout. Several of the isolated populations of Malheur River redband trout have been analyzed genetically. Within Dry Creek GMA, populations with allelic

frequencies mostly representative of native redband trout were found in North Fork Squaw Creek and Cottonwood Creek (Harper) (Currens 1994, 1996). North Fork Squaw Creek trout were somewhat hybridized with hatchery rainbow trout, but Cottonwood Creek trout lacked hatchery alleles and were “pure” redbands. However, all redband/rainbow trout populations in the District need to be re-examined genetically in light of recent advances and refinements in genetic analysis techniques.

In the Owyhee River drainage, anadromous steelhead were lost with completion of Owyhee Dam in 1932. Resident redband trout probably existed throughout much of the mainstem Owyhee River until additional dam construction and chemical treatment projects eliminated them. Within Dry Creek GMA, trout with redband genetic characteristics occur in Dry Creek. Dry Creek trout collected in 1989 from stream mile 15.5 were analyzed electrophoretically and were found to have genetic characteristics typical of inland redband trout, with no evidence of hatchery introgression (Currens 1994, 1996).

### **Amphibians and Aquatic Reptiles in Dry Creek GMA**

#### ***Columbia spotted frog***

Within the GMA, this frog has been documented only along Dry Creek and Butte Creek (Map 5). Columbia spotted frogs range throughout much of the Northwest, but because populations occurring in the Great Basin (such as in Dry Creek GMA) are isolated and declining, the USFWS designated the Great Basin population of the Columbia spotted frog as a Candidate for listing (USFWS 1993). Threats to the frog include extensive impacts on riparian habitats primarily from livestock grazing, conversion of wetland habitats to irrigated pasture, and dewatering of river areas by irrigation practices. Because Candidates are species for which the USFWS has sufficient information on biological status to propose them as endangered or threatened under the Endangered Species Act, environmental planning efforts and resource management actions that alleviate threats could remove the need to list these taxa.

The Columbia spotted frog inhabits wetlands, ponds, and low gradient streams with permanent water. Adults tend to be found in oxbows or pools with sandy substrates, submerged vegetation, and algal mats. They require a high water table and therefore are associated with willow or sedge/rush riparian communities rather than sagebrush (Engle 2001). Breeding sites generally have quiet water with muddy substrates and associated springs. After breeding, frogs may disperse along watercourses to occupy areas some distance away. Primary frog predators in Dry Creek are trout, large predaceous aquatic insects such as dragonflies, and garter snakes.

Columbia spotted frogs have been observed along the entire length of Dry Creek within the GMA, although breeding is known to occur at only a few sites. These sites include side channels and shallow scour pools that are separated from fish-bearing portions of the stream, and which allow tadpole development free of fish predators. Dry Creek forms a series of deep, disjunct pools which retain perennial water in summer. These pools provide permanent habitat for spotted frogs as well as redband trout and other native fishes.

Inventory and monitoring efforts concerning Columbia spotted frogs on Dry Creek include a preliminary survey contracted with Boise State University (Munger et al. 1998), and five years of population monitoring along a representative 2 mile reach (Engle 2001, 2002, 2003, 2004, 2005). Results from this long term monitoring suggest that frog population levels are correlated with precipitation; frog numbers increased in 2004 and 2005 coincident with higher annual precipitation (BLM, unpublished data). Long term monitoring in Dry Creek is scheduled to continue through 2007, after which more information on population trends will be available.

### **Threats**

Spotted frogs often do not breed, feed, and hibernate in the same site and therefore need suitable habitat between those sites to act as corridors of movement. The corridor must be moist to provide protection from desiccation and must provide cover as protection from predators. Additionally, bank-stabilizing rushes, sedges, and willows are needed to increase the abundance of slow-water oxbows, side channels, and meadows necessary for frog breeding habitat.

In the Dry Creek corridor, livestock grazing is the predominant land management action, but the magnitude and nature of grazing's influence on Columbia spotted frogs has not yet been determined. Livestock have been observed to cause direct injury or mortality by trampling spotted frogs and eggs and to impact spotted frog movement by defoliating and dewatering migration corridors and collapsing banks along ponds used for overwintering sites (Ross *et al.* 1999; Engle 2001). Reaser (2000) suggested that cattle grazing was an important factor limiting the distribution and densities of spotted frogs in her Nevada study sites. Sites rested from grazing appeared to have higher frog densities and age distributions than grazed sites, perhaps attributable to better water quality, higher water table, adequate vegetation cover, and absence of trampling. However, her inferences were correlative and not a controlled study of grazing impacts. Engle (2001) also concluded that the main threat to spotted frog habitat in the Owyhee Mountains of Idaho was livestock grazing, but again no controlled experiments were conducted. Bull and Hayes (2000) compared Columbia spotted frog reproduction and recruitment in grazed and ungrazed ponds in northeastern Oregon, and found no significant effects of grazing. However, grazing duration and intensity, elevation, and pond type varied considerably among ponds, which may have confounded possible effects of livestock. Results obtained in the mesic, forested frog habitats of their study are not necessarily applicable to other spotted frog habitats, such as Great Basin deserts and sagebrush-steppe.

In some situations, some amount of grazing may be beneficial to spotted frog habitat. By reducing the density of bank vegetation, grazing could allow increased solar input, raising water temperatures that would benefit egg and larval development and provide basking sites for adults (Bull 2005). In Washington, where reed canary grass had invaded wetlands, Oregon spotted frogs preferred habitats where moderate grazing had opened the grass canopy. Both ungrazed and heavily grazed areas of reed canary grass were unsuitable to frogs (Watson *et al.* 2000). Enlightened land management agencies are increasingly moving to fencing to protect frog habitat from grazing, and more research is

needed on the effects of grazing (or not grazing) on spotted frogs, especially in arid areas, and the grazing levels, if any, which optimize the completion of all life history stages.

### Other Species

The *Pacific treefrog* is abundant and well distributed along GMA streams, breeding in side channels, sloughs, and pools. Treefrogs also occur at springs and reservoirs, such as Freezeout Spring and Negro Rock Canyon, often isolated by several miles of inhospitable sagebrush steppe. Pacific treefrogs are particularly adapted to arid ecosystems, opportunistically laying eggs in almost any small body of temporary water and, during dry periods, taking refuge under rocks or in rodent burrows. Reservoir habitat for treefrogs in the GMA is generally heavily utilized by livestock and is characterized by reduced vegetative cover and trampling of pool margins. While lack of cover probably affects vulnerability of treefrogs to predation, few studies have quantified the impacts of grazing on amphibians.

*Western* and *Woodhouse toads* are likely distributed throughout Dry Creek GMA, but have only been documented at Little Twin Reservoir, where both species occur and breed. Western toads also breed in Squaw Creek Reservoir, outside the western edge of the GMA. These species require ponds or slow backwaters for breeding, but transformed individuals are highly terrestrial and can range far from water.

*Western spadefoot toads* are likely abundant but are secretive and only observable during wet breeding periods. They are capable of using ephemeral pools and reservoirs, and can co-occur with Pacific treefrogs and other toads. Spadefoot adults have been documented in North Fork Squaw Creek at the western edge of the GMA.

Both *common* and *wandering garter snakes* are found near water at reservoirs and along GMA streams such as Dry Creek. They are especially abundant where fish and tadpole prey is concentrated in isolated pools and sloughs. Although these snakes forage on open stream banks, they utilize vegetative or structural cover, such as shrubs, herbaceous plants, or rock, for escape and may be impacted by complete removal of riparian cover by livestock. Wandering garter snakes are more abundant than the common garter snakes, and both are primary predators on Columbia spotted frogs in Dry Creek. Numbers of garter snakes encountered along a two mile transect of Dry Creek (Engle 2005) are shown below:

Year	Wandering garter snakes	Common garter snakes
2001	*	*
2002	14	1
2003	40	2
2004	14	0
2005	15	0

### **Aquatic Invertebrates in Dry Creek GMA**

Limited information is available on invertebrates, and more is known about aquatic than terrestrial species. Although stream invertebrates are often collected as part of the fisheries habitat monitoring program, no invertebrate sampling has occurred in Dry Creek GMA. Freshwater mussels, large filter-feeding mollusks that require perennial streams and fish hosts to complete their life cycles, have not been observed in the GMA.

Springs can be a source of unique, often endemic, assemblages of invertebrates that are adapted to the constant temperatures and distinctive geochemical environments that springs provide. Because these habitats are uncommon and isolated, a particular species, such as a snail or beetle, may be found only at that site and may have little opportunity for dispersal or migration to other areas. In some cases, these invertebrates are vulnerable to development that eliminates shallow pools and surrounding riparian vegetation. It is expected that spring systems that meet Standard 2 (Watershed Function--Riparian) should provide habitat that sustains healthy invertebrate communities, and that these systems will also meet Standard 5 for riparian species.

### **Overview of Aquatic Habitat Conditions**

The quality of aquatic habitat for fish and other species is closely related to the condition of riparian areas and the stream channel. Riparian vegetation moderates water temperatures, adds structure to the banks to reduce erosion, and provides overhead cover. Intact vegetated floodplains dissipate stream energy, store water for later release, and provide rearing areas for juveniles. Water quality, especially in regard to factors such as temperature, sediment, and dissolved oxygen, also greatly affects aquatic habitat.

Fisheries and aquatic habitats in Dry Creek GMA include perennial streams, intermittent streams that support fish and other species through at least a portion of the year, and reservoirs. There are about 45 miles of fishbearing waters (Map 5). Non-fishbearing stream reaches, springs, and seeps support other aquatic species such as amphibians, reptiles (wandering garter snakes), and invertebrates.

### **Dry Creek**

Dry Creek supports the largest population of redband trout and other fishes in the GMA, as well as a significant population of Columbia spotted frogs. It flows primarily through BLM lands from the State Block to Owyhee Reservoir and crosses both Wall Rock and Dry Creek allotments. Although the stream is intermittent, it has long sections of permanent water and deep scour pools that provide habitat and refugia for native fishes and frogs. Although most of Dry Creek is indeed dry during low flow (63% of the stream channel was dry in Summer 2000), the majority (61%) of the wetted areas remaining consisted of scour pools. Table 20 below shows pool frequency and size during a stream habitat survey conducted by ODFW on Dry Creek (ODFW 2000):

Table 20: Pool frequency and size during a stream habitat survey conducted by ODFW on Dry Creek (ODFW 2000)

Distance of reach from Twin Springs	No. pools	Average pool area (ft <sup>2</sup> )	Max pool depth (ft)	Average pool depth (ft)
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Road (miles)				
0—16.5	22	1736	8.2	4.4
16.5—25	48	1283	16.4	6.2
25—33	10	2470	16.4	8.5

These pools not only store water but their depths provide a source of cooler water temperatures during the summer months. Dry Creek stream temperatures frequently exceed 30° C close to the surface, far above the upper lethal limit for most salmonids.

Although Dry Creek has permanent water and habitat for aquatic species, there were no riparian pastures designated along Dry Ck in BLM's RPS of the Management Framework Plan (1983). Because no riparian objectives were developed for those pastures, livestock management was not designed for the protection or enhancement of riparian values. Consequently, condition of riparian cover is poor on some stream segments. No trees and no woody vegetation other than mock-orange, red osier dogwood, coyote willow, and a few whiplash willow are present throughout the GMA, although anecdotal evidence exists that cottonwoods at one time grew near King Brown's cabin. Dominant riparian species are sedges and grasses, which are abundant in protected gorge areas but are heavily utilized in sites accessible to livestock. Clearly some alteration in livestock management is warranted. However, the changes in grazing must coordinate with pasture, allotment, and ownership needs, and involvement by State and private landowners will be necessary.

### ***Special Status Plants***

No species of plants proposed for listing or listed under the Endangered Species Act or which are Candidate species being considered for listing are known to occur in the Dry Creek GMA. However, the area supports numerous special status plant species which are of management concern.

The northeast portion of the GMA falls within a portion of the sand hills which ring the town of Vale and which support Mulford's milkvetch and Malheur forget-me-not, special status plant species associated with these sandy soils. Both species are listed by the state of Oregon, with Mulford's milkvetch listed as Endangered and Malheur forget-me-not listed as Threatened. Both are Species of Concern with U.S. Fish and Wildlife Service (USFWS).

Unusual yellow ash hills are found in the northwest part of the GMA near the town of Harper; these hills support several populations of Malheur fiddleneck, a species which is known globally only from this small area. The species is listed by the state of Oregon as Threatened and is a USFWS Species of Concern. Also in the northwest portion of the GMA are ash clay pockets on which Malheur prince's plume and playa buckwheat have been found in limited locations and numbers. The prince's plume is a BLM Sensitive (BS) species and a USFWS Species of Concern, and the buckwheat is a BLM Assessment (BA) species.

Northwest of Dry Creek and Twin Springs campground is an extensive series of sites supporting snowball cactus, a BLM tracking (BT) species. Three special status species, two of which are northern range extensions of California species, are found within the Owyhee River corridor and include salt heliotrope and Bigelow's four-o'clock, both BA species, at the northern edge of their global range, along with one site of Mulford's milkvetch, occurring south of Snively Hot Springs on its typical sandy habitat.

Biddle's lupine, a BT species, is found in the north central portion of the GMA. The taxonomy of this species is still being sorted out, with a recent treatment in the Intermountain Flora submerging this species into a closely related species. However, several Oregon botanists believe Biddle's lupine to be a distinct species of conservation concern. At one time, this species was identified as a Species of Concern by the U.S. Fish and Wildlife Service. Numerous sites have been identified for this species, and it is the most widely occurring geographically of all the rare plant species in the Dry Creek GMA.

Unusual ash substrates associated with volcanic activity of the Owyhee uplift and which are found in the vicinity of Dry Creek and west of the Owyhee Reservoir support a series of endemic plants restricted on a global basis to Malheur County, Harney County, and a few sites in western Idaho. The rarest of these on a global basis is sterile milkvetch, a rhizomatous milkvetch listed by the state of Oregon as Threatened. BLM tracking species in this area include Cusick's chaenactis and golden-tongue beardtongue.

Additional information on the status and habitats for these species can be found in the PSEORMP FEIS.

## **Weeds**

Much of the lower elevations lands associated with early settlement of Harper Valley, Vale, and Nyssa, as well as travel routes to old homesteads and communities, are degraded and infested with a conglomerate of mostly annual noxious weeds or weedy species. Heavy infestations of cheatgrass are common where livestock congregate near water sources, bed grounds and salt licks as well as near the population centers and many of the ranches and old homesteads, and historical military and freight routes. Much of the land closest to towns and communities has been historically overgrazed and possibly farmed and abandoned. Other common annual or bi-ennial weeds associated with these areas include a variety of mustards, such as clasping pepperweed, tumble mustard, blue mustard and flixweed, lambsquarter, kochia, Russian thistle, and prickly lettuce. Bur buttercup is an insidious, competitive, annual invasive that is beginning to occupy many disturbed acres, from which it then works its way into interspaces in fair to good condition land.

Rush skeletonweed, saltcedar and perennial pepperweed are the most abundant, highly invasive weeds within the GMA. Drainages associated with the Owyhee reservoir, including Dry Creek, and Owyhee River below the dam are especially effected by saltcedar and pepperweed. Negro Rock Canyon and Government Corral spring area also have scattered infestations of saltcedar. Another tree of concern is Russian olive. It is

increasing in some drainages, at water development sites, and has successfully invaded most of Kane Springs enclosure and waterway. Skeletonweed does especially well on the light textured, sandy soils associated with much of the rangeland south of Vale. It has been identified as far south as Double Mountain and nearly to Mitchell Butte.

A few sightings of diffuse and spotted knapweed have been reported along road sides as well as a very small spotted knapweed site at Sagebrush Spring. Two Himalayan blackberry bushes have also been discovered at Sagebrush Spring.

Numerous sites of heart-podded and globe-podded whitetop species exist along the road systems, especially Twin Springs and Crowley roads, and are spreading into surrounding rangeland. Russian knapweed occurs less frequently, but still maintains a presence. The largest known sites of Russian knapweed have been found at Antelope Flat corrals, Eddy Spring and Ferguson Spring.

Several introduced thistle species exist within the GMA. Large populations of Scotch thistle can be found close to Vale and Harper, but densities lessen farther out. Canada thistle and bull thistle are mostly found in moister sites and meadow areas associated with riparian or ephemeral stream areas.

Occasional sightings of spiny cocklebur have been reported in Freezeout Ridge and Grassy mountain areas. A two-acre site of chicory was reported near Mud Springs. Medusahead rye occurs in small to moderate sized plots, especially north of Twin Springs and just outside of the GMA boundary east of Cottonwood Creek, near Shearing Plant. Jointed goatgrass, another invasive grass, has been found around Ferguson Spring.

Mediterranean sage and halogeton is known to exist just outside of the GMA boundary near Vines Hill . While not a competitor, halogeton easily moves along road systems and into disturbed, non-vegetated areas. Curlycup gumweed is also mostly associated with roads and disturbed areas.

The healthier plant communities associated with the higher elevations, such as Dry Creek Buttes and Grassy Mountain, have fewer weed problems from mid to upper slopes over the top.

Priority treatment is given to county "A" listed weeds and state "A" and "T" listed weeds, mainly knapweeds and rush skeletonweed. Treatments are made on lower priority listed weeds as funding allows, to protect high value lands and/or in areas where few weeds exist. Road systems and recreation areas are also treated to prevent or lessen spread by vehicles into uninfested areas. Biological control has been initiated on saltcedar and will be augmented with further releases as insects become available. Isolated saltcedar plants are also being treated by cutting/lopping of stems followed immediately by chemical application.

## **Fire History, Regime, and Condition Class**

An assessment of Fire Regime and Fire Regime Condition Class (FRCC) was completed for the Dry Creek GMA using methods outlined in the Fire Regime Condition Class Interagency Guidebook (Version 1.2, May 2005) utilizing information from vegetation type, vegetation condition, and fire history/severity data.

The role that fire would play across the landscape in the absence of modern human intervention is defined as the Fire Regime (Agee, 1993). Fires ignited by lightning and aboriginal peoples are included in the classification. Fire regimes is also a reflection of the past and current vegetation. Five historical fire regimes have been identified based on the average number of years between fire events (fire frequency) and the fire severity (Hann and Bunnell, 2001; Schmidt et al., 2002) (Table 21).

Table 21: General fire regime condition classification and description

Fire Regime	Frequency (years)	Description
I	0-35	Frequent, low to mixed severity fires. Less than 75.0 percent of the dominant overstory vegetation replaced by burning. Surface fires are common.
II	0-35	Frequent, high severity fires. Greater than 75.0 percent of the dominant overstory replaced by burning. Stand replacing fires common.
III	35-100+	Fire return is frequent to long term and has mixed severity. Less than 75.0 percent of the dominant overstory is replaced by burning.
IV	35-100+	Fire return is frequent to long term and has mixed severity. Less than 75.0 percent of the dominant overstory is replaced by burning.
V	>200	Fires are infrequent and high severity; these can be stand replacing fires.

The Dry Creek GMA is classified as primarily Fire Regimes III and IV. This determination is based on the estimated historical dominant vegetation (Wyoming big sagebrush/perennial grass).

Recent wildfires have indicated that many of the areas are not operating within their historical fire regimes. Many of the current fires are burning more frequently with greater severity. To quantify this situation a secondary classification was also developed. Condition class indicates the departure from historical conditions (Table 22). Many conditions can cause a shift in condition class; vegetation characteristics, fuel composition, fire frequency, fire severity, fire pattern.

Table22: Condition class description and potential based on fire behavior, post-fire vegetation conditions, suppression efforts, and risk of losing native species following burning

Condition Class	Description	Potential Risks
1	Plant communities exist under historical conditions and fire is playing its historical role	<p>Fire behavior, effects, and other associated disturbances are same as those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the wildfire regime and associated vegetation and fuel characteristics.</p> <p>Composition and structure of vegetation and fuels are same as the historical regime.</p> <p>Risks of losing key ecosystem components are low.</p>
2	Moderate departure from historical conditions.	<p>Fire behavior, effects, and other associated disturbances are moderately different from historical conditions. Frequency and severity are either greater or less than historical conditions. Composition and structure of vegetation and fuels are moderately altered.</p> <p>Uncharacteristic conditions range from low to moderate.</p> <p>Risk of losing key ecosystem components is moderate.</p>
3	High departure from historical conditions	<p>Fire behavior, effects and associated disturbances are highly altered. Frequency and severity are either greater or less than historical conditions.</p> <p>Composition and structure of vegetation and fuels are highly altered.</p> <p>Uncharacteristic conditions range from moderate to high.</p> <p>Risks of losing of key ecosystem components are high.</p>

FRCC is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes. Assessing FRCC can help guide management objectives and set priorities for treatments. The assessment is done at the coarse scale and is used to help develop priorities for land management activities.

An assessment of FRCC was completed for the Dry Creek GMA. Overall the Dry Creek GMA can be considered to be predominately in Fire Regime Condition Classes 1 and 2, meaning fire is playing its' ecological role across the GMA as would be expected under historic conditions. However, there are portions of the GMA that are rated to be in Fire Regime Condition Class 3. These areas are predominately located in the north and east portion of the GMA. The rating of FRCC 3 is predominately due to vegetative conversion to annual grassland and a more frequent fire return interval than would be expected under historic conditions. The assessment identified the following allotments/pastures as having areas rated in FRCC 3:

Nyssa Allotment:

- South Rock Creek
- Sagebrush
- North Rock Creek
- South Mud Spring
- North Mud Spring

Mitchell Butte Allotment:

- M. Mitchell Butte
- Mitchell Butte NE
- Mitchell Butte NW

Dry Creek Allotment:

- Double Mountain

Sourdough Allotment:

- Canyon
- North Kane Springs
- Sand Hollow Seeding

Keeney Creek Allotment:

- Chukar
- Drip Springs
- North Butte Creek
- Little Valley Seeding

Butte Allotment:

- South Racehorse

Wallrock Allotment:

McNulty North

## **RECOMMENDATIONS:**

Recommendations related to fire management are to improve the FRCC within the GMA where consistent with other resource objectives. This includes improving areas in FRCC 2 and 3 areas while maintaining areas in FRCC 1. This could be accomplished through site specific restoration projects designed to improve vegetative condition (reduce areas dominated by annual grasslands), utilizing the Appropriate Management Response to wildland fire events, and/or prescribed fire to help achieve overall resource objectives within the GMA.

### ***Standards for Rangeland Health***

Assessments of rangeland health are provided by pastures in narrative specific to each allotment and pasture in earlier sections of this evaluation document. This approach was taken since impacts associated with livestock can be a significant factor to not meeting rangeland health standards and 43 CFR 4180 regulations provide timeframes for implementation of appropriate actions upon determining that existing grazing management is contributing to not meeting standards. Appendix B is a summary of those determinations. For greater detail concerning indicators which lead to these determinations, please refer to the narrative specific to the allotment and pasture of interest.

## **Landscape Level Recommendations**

### ***Wildlife Habitat***

In the SEORMP ROD, Appendix F directs BLM to practice multiple spatial scale management of Wyoming, basin, and mountain big sagebrush communities at the activity plan level in order to conserve habitats important to greater sage-grouse and other animals that occupy sagebrush habitats. Multiple scale management means the agency will consider habitat character for wildlife at the Resource Area, GMA, and pasture level and then prescribe management based on those findings.

Appendix F of the SEORMP ROD states that, over the long term, 30% or less of Wyoming, basin, and mountain big sagebrush range sites in MRA should exist as grassland communities (Class 1 and 2 habitats, as specified in Appendix F). Based on the best current information, these grassland habitats types will be distributed within MRA GMAs as shown in Table 23.

Table 23: Thresholds for Grassland Habitat Types by GMA within MRA.

<b>GMA Assessment Priority</b>	<b>GMA</b>	<b>Estimated total public land acres with big sagebrush potential</b>	<b>Estimated % of total MRA potential sagebrush-steppe rangelands</b>	<b>Maximum allowable % of grassland permitted in Wyoming, basin, and mountain big sagebrush range sites, including wildfire and land treatments</b>
1	Bully Creek	193,676	11.7%	<b>15%</b>
2	North Fork Malheur River	104,490	4.5%	<b>25%</b>
3	Dry Creek	366,702	22.2%	<b>30%</b>
4	Mainstem Malheur	184,533	11.2%	<b>15%</b>
5	Succor Creek	185,012	11.2%	<b>50%</b>
6	Owyhee	232,465	14.1%	<b>15%</b>
7	South Fork Malheur/Stockades	215,505	13.0%	<b>25%</b>
8	Sand Hills	91,249	5.5%	<b>90%</b>
9	Willow Creek	77,178	4.7%	<b>50%</b>

***DRY CREEK GMA TERRESTRIAL WILDLIFE RECOMMENDATION 1:***

Terrestrial species of management importance in Dry Creek GMA are identified as the following: Brewer’s sparrow, horned lark, western meadowlark, black-throated sparrow, sage sparrow, loggerhead shrike, greater sage-grouse, sage thrasher, pygmy rabbit, pronghorn, mule deer, and northern sagebrush lizard. Management actions prescribed in the area should address impacts to this suite of species according to current law, policy, and guidance.

***DRY CREEK GMA TERRESTRIAL WILDLIFE RECOMMENDATION 2:***

Management of Temporary Non-renewable (TNR) livestock grazing use authorizations.

- Allow for periodic fall TNR grazing use authorizations in crested wheatgrass or other exotic perennial grass seedings. Livestock utilization on fall green-up is allowed and will protect wildlife values as long as it does not exceed 40% by key forage plant method estimates.
- In Dry Creek GMA native rangelands, protect herbaceous forage, cover, and structure values important to terrestrial wildlife by denying requests for TNR grazing.

***DRY CREEK GMA TERRESTRIAL WILDLIFE RECOMMENDATION 3:***

Consistent with the mid-scale level landscape objective of providing no less than 70% of

habitat acres capable of providing sagebrush cover values for wildlife exhibiting cover classes 3, 4, and 5 (as described in Appendix F of the SEORMP), the fine-scale, pasture-level recommendation is to:

- Maintain 50-75% of the surface acreage of native rangeland sagebrush habitats with cover values in classes 3, 4, and 5.
- Maintain 25-50% of the surface acreage of seeded rangeland sagebrush habitats with cover values in classes 3, 4, and 5.
- Seeded rangeland herbaceous understory species should include one or more adapted forb species.

### ***Special Status Plants***

Land use plan objectives as identified in the SEORMP ROD for special status plant species (p. 43) incorporate application of management actions to conserve specifically identified species throughout the planning area. Management actions will be evaluated and modified if necessary to accommodate conservation of these species within the Dry Creek GMA.

### ***Weeds***

The SEORMP ROD identifies priorities for control of introduction and proliferation of noxious weeds across a landscape level (p. 41). To the extent possible the evaluation process for Dry Creek GMA will identify the highest priority areas for noxious weed control within the overall GMA area.

### ***Recreation***

Recreation actions will be reviewed for management actions as outlined in the SEORMP ROD (p. 68) as specific evaluations within the Dry Creek GMA lead to management changes within the geographical area.

### ***Special Management Designations***

Areas of critical environment concern, which includes research natural areas, will be reviewed for management actions as outlined in the SEORMP ROD (p. 68) as specific evaluations within the Dry Creek GMA lead to management changes within the geographical area.

### ***Wilderness Characteristics Identified by the Public***

A wilderness characteristic review will be conducted on wilderness inventories submitted by the public.

### ***Fire History, Regime, and Condition Class***

Recommendations related to fire management are to improve the Fire Regime Condition Class within the GMA where consistent with other resource objectives. This includes improving areas in FRCC 2 and 3 areas while maintaining areas in FRCC 1. This could be accomplished through site specific restoration projects designed to improve vegetative condition (reduce areas dominated by annual grasslands), utilizing the Appropriate

Management Response to wildland fire events, and/or prescribed fire to help achieve overall resource objectives within the GMA.

Pastures in Fire Regime Condition Class 3 (primarily those pastures dominated or co-dominated by annual grasslands) would benefit from vegetation treatments designed to improve composition and structure of vegetation and fuels that would be expected under the historic fire regime. These types of projects would improve vegetative function and FRCC.

Pastures in Fire Regime Condition Class 1 or 2 should be managed to maintain or improve composition and structure of vegetation and fuels that would be expected under the historic fire regime. Prescribed fire, where compatible with other resource objectives, would be the desired treatment method to maintain proper vegetative function. Where prescribed fire is not desired and/or compatible with other resource objectives, mechanical methods of treatment could be utilized to effect maintenance of desired vegetative function.

### ***Standards for Rangeland Health***

Impacts associated with livestock can be a significant factor to not meeting rangeland health standards and 43 CFR 4180 regulations provide timeframes for implementation of appropriate actions upon determining that current grazing management actions are contributing to not meeting standards. Recommendation of actions necessary to meet rangeland health standards, where determinations identified a need for a change of management actions, are presented by pastures in recommendations specific to each allotment and pasture of the recommendations section and also in these landscape level recommendations. Appendix B is a summary of the determinations within each pasture of each allotment. For greater detail concerning recommended changes to management actions, please refer to the recommendations specific to the allotment and pasture of interest.