Appendix G-Rangeland Resources, Vegetation, Livestock Management and Soils

Vegetation Communities

Forty-three upland vegetation communities have been identified within the Challis Field Office Area. All but four of these are found within the CHMA. The most dominate of these are sagebrush communities with varying understories of Idaho fescue (*Festuca idahoensis*), Bluebunch wheatgrass (*Pseudoroegneria spicata*), needleand-threadgrass (*Hesperostipa comata*) or Sandbergs' bluegrass (*Poa secunda*) and Cusick's bluegrass (*Poa cusickii*) species. Five species of sagebrush are prevalent in CHMA those being Basin Big Sagebrush (*Artemisia tridentata tridentata*), Mountain Big Sagebrush (*Artemisia tridentata vaseyana*), Wyoming Big Sagebrush (*Artemisia tridentata Wyomingensis*), Three Tip sagebrush (*Artemisia tripartita*) and Black Sagebrush (*Artemisia nova*). Also common are shadscale (*Atriplex confertifolia*) and chicken sage (*Sphaeromeria argentea*) communities with Swallen's needlegrass (*Achnatherum swallenii*), squirreltail (*Elymus elymoides*), and bluegrass understories on drier sites (<9 inch precipitation zones) and Douglas Fir (*Pseudotsuga menziesii*) and curled leaf mahogany (*Cercocarpus ledifolious*) communities on the higher elevation, wetter sites (>16" precipitation).

Trend Site Descriptions

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Table 1 below describes the ecological sites by study site and states trend and actual vs. expected vegetative cover.

		Latest	Range Site. Vegetation Type
Allotment	Site	Data	and Landscape Position
		Collection	
Mountain Springs	WH- 01	2011	Zeelnot-Meegernot-Adek Association 5-40% Slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID
Mountain Springs	WH- 02	2014	Venom-Cronks Complex 20-50% Slope South Slope Gravelly 11- 13"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID
Mountain Springs	WH- 03	2006	Nielsen-Gaciba Association 20-50% Slope North slope loamy 12-16" ppt. Threetip sagebrush/Idaho fescue 012XY010ID
Mountain Springs	WH- 07	2010	Donkehill-Zeebar Complex 8-50% Slope Shallow Loam 11-13" ppt. Mountain big sagebrush/ Idaho Fescue/Bluebunch wheatgrass 012XY002ID
Mountain Springs	ountain prings 08 2017 Hutchley-Nurkey Complex Limestone 10-40% Sour 11-13"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID		Hutchley-Nurkey Complex Limestone 10-40% South Slope Gravelly 11-13"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID
Warm Springs	WH- 11	2010Nitchley-Skibo-Rock Outcrop Complex 20-50% Limey Gravelly 8 13" ppt. Black sagebrush/Bluebunch wheatgrass 012XY001ID	
Bradbury Flat	WH- 13	1998	Nitchley-Skibo-Rock Outcrop Complex 20-50% Limey Gravelly 8- 13" ppt. Black sagebrush/Bluebunch wheatgrass 012XY001ID

 Table 1. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site

 Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

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Allotment	Site	Latest Data Collection	Range Site, Vegetation Type and Landscape Position		
Mountain Springs	SF-01	2009	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID		
Mountain Springs	SF-02	2014	Zeelnot-Gravelly Loam Low Precipitation 15-40% Slope Gravelly 13- 16"ppt. Threetipped sagebrush/Idaho Fescue 012XY033ID		
Mountain Springs	SF-05	2014	Xeric Torrifluvents 1-3% Slopes Alluvial Bottom 8-13"ppt. Basin big sagebrush/Western wheatgrass 012XY011ID		
Mountain Springs	SF-06	2013	Parkay-Friedman Association 20-50% Slope Loamy 16-22"ppt. Mountain big sagebrush/Idaho fescue 012XY021ID		
Mountain Springs	SF-08	2013	Reck-Threedot Complex 5-35% Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY034ID		
Mountain Springs	SF-10	2011	Dacont-Resoot-Nielsen Association 6-40% Slope South Slope Gravelly 11-13" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID		
Mountain Springs	SF-11	2016	Simeroi Gravelly Loam 6-15% Gravelly Loam 8-12" ppt. Wyoming big sagebrush/ Bluebunch wheatgrass 012XY004ID		
Mountain Springs	SF-12	2008	Zeelnot-Gravelly Loam Low Precipitation 15-40% Slope Gravelly 13- 16"ppt. Threetipped sagebrush/Idaho Fescue 012XY033ID		
Mountain Springs	SF-17	2009	Dawtonia Cold-Dawtonia Complex 2-5% Windswept 8-11"ppt. Silver chicken sage/Fringed sagebrush/Sandberg's bluegrass/Swallen's ricegrass 012XY006ID		
Mountain Springs	SF-18	2017	Friedman-Reck-Goldhill Complex 5-35% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID		
Mountain Springs	SF-19	2015	Zeebar-Nielsen-Povey Complex 20-70% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID		
Mountain Springs	WS-08	2012	Friedman-Reck-Goldhill Complex 5-35% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID		
Mountain Springs	RCB- 01	2010	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID		
Mountain Springs	RCB- 02	2010	Zeelnot-Meegernot-Adek Association 5-40% Slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID		
Warm Springs	WS-05	2009	Dawtoni-Frailton Complex 20-50% Slope South Slope Gravelly 11- 13" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID		
Warm Springs	WS-06	2009	Parkay-Zeebar Complex 5-20% Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue/Bluebunch wheatgrass 012XY021ID		
Warm Springs	WS-07	2009	Friedman-Reck-Goldhill Complex 5-35% Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue		

Allotment	Site	Latest Data Collection	Range Site, Vegetation Type and Landscape Position
			012XY021ID
Warm Springs	WS-14	2009	Parkay-Nurkey Complex 20-50% Slopes Loamy 16-22" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY021ID
Road Creek	RC-07	RC-072010Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. 1big sagebrush/Threetip sagebrush/Idaho Fescue 012XY012ID	
Split Hoof	SH-05	2006	Dacont-Resoot-Nielsen Association 6-40% slope South Slope Gravelly 11-13" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID
Bradbury Flat	radbury Flat BF-01 2006 1-10 Percent Slopes Alluvial fans, terraces a Wyoming big sagebrush/Bluebunch wheatgr 012XY009ID		Snowslide Gravelly Loam Dry 1-10 Percent Slopes Alluvial fans, terraces and drainages 8-12"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY009ID
Bradbury FlatBF-022006Nitchly-Skibo Roc 20-50 Percent Slopes Alluvial/colluvial slopes 8-13" ppt.Black sagebrush/Blueb 012X Y001		Nitchly-Skibo Rock Outcrop 20-50 Percent Slopes Alluvial/colluvial fans terraces and mountain slopes 8-13" ppt.Black sagebrush/Bluebunch wheatgrass 012XY001ID	
Bradbury Flat	BF-03	2006	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Threetip sagebrush/Idaho Fescue 012XY012ID
Bradbury Flat	BF-08	2006	Gany Gravelly Loam 30-60 Percent Slopes Alluvial/colluvial fans, terraces, and gentle foothills 13-16" ppt. Low sagebrush,/Bluebunch wheatgrass 043AY001ID
Bradshaw Basin	BB-01	2006	Parkay-Nurkey Complex 20-50% Slopes Loamy 16-22" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY021ID
Bradshaw Basin	BB-02	2006	Dacont-Zeebar Association 20-50% Slopes South Slope Gravelly 11- 13" ppt. Mountain big sagebrush/Bluebunch wheatgrass

Table 2 below describes by allotment the percent of AUMs used and what percentage of the allotment falls within the CHMA.

Allotment	AUMs Available	Actual AUMs Used 2017	% of Use	% of Allotment in CHMA	Allotment Acres Within CHMA	% of CHMA
Bradbury Flat	839	310	34%	100	15706	9
Bradshaw Basin	908	329	36%	100	8184	5
Mt. Springs	8884	5573	63%	59	55695	32
Frail Lands (unallotted)	0	0	0	100	19428	12
Road Creek	534	215	40%	98	9933	6
Split Hoof	268	51	19%	100	8520	5
Warm Springs	4632	2597	56%	79	50774	31
Total	16065	9075	56%		168648	100

Table 2. CHMA LIVESTOCK AUMS FOR THE 2017 BILLING CYCLE (March 1, 2017 to February 28, 2018)

Table 3 below depicts the authorized livestock use (number of animals and dates of use) in the CHMA on all of the allotments except Mountain Springs which is depicted in Table 4.

Table 3. AUTHORIZED LIVESTOCK USE

Allotment	Pasture	Rotation	Lives	stock	Grazing	Period	AUMS
		Туре	Number	Kind	Begin	End	
Bradbury	Lime Rock	Deferred/Rest	166	Cattle	5/16	7/30	415
Flat	Lime Rock North	Deferred/Rest	166	Cattle	5/16	7/30	415
	Bishop Spring	Deferred/Rest	166	Cattle	5/16	7/30	415
	RML	Deferred/Rest	166	Cattle	5/16	7/30	415
	Jensen Basin	Deferred/Rest	166	Cattle	5/16	7/30	415
	Lone Pine	Deferred/Rest	166	Cattle	5/16	7/30	415
Bradshaw Basin	Upper Bradshaw Basin	Deferred	279	Cattle	5/16	7/30	425
	Lower Bradshaw Basin	Deferred	279	Cattle	5/16	7/30	425
Split Hoof	Morraffio	Deferred	183	Cattle	5/16	6/15	187
	Pappas	Deferred					
Road Creek	Chicken Creek	Deferred	130	Cattle	5/16	8/31	207
	Dry Hollow	Deferred					

Allotment	Pasture	asture Rotation		stock	Grazing	Period	AUMS
		Туре	Number	Kind	Begin	End	
Warm	Spar Canyon	Deferred/Rest	490	Cattle	5/9	8/24	1705
Springs	Antelope Flat	Deferred	225	Cattle	5/15	6/15	213
	Antelope Flat	Deferred	225	Cattle	10/16	11/15	206
	Warm Springs	Deferred/Rest	512	Cattle	5/1	7/10	1171
	Warm Springs	Deferred/Rest	525	Cattle	11/1	1/7	1105

Mountain Springs Authorized Livestock Use and Rotation

	Year 1		Year 2		Year 3		Year 4	
	2012	2012	2013	2013	2014	2014	2015	2015
	Date	#/ AUMS	Date	#/ AUMS	Date	#/ AUMS	Date	#/ AUMS
Gooseberry **	10/1- 11/12	650/ 919	5/21-6/19	945/ 932	10/1-11/12	650/ 919	5/18- 6/15	945/ 901
Antelope Flat	10/2- 11/15	350/ 518	5/20-6/19	525/ 535	10/2-11/15	350/ 518	5/19- 6/16 9/12 T	525/ 501 700 /23
Sheep Creek**	8/25- 9/15	1400/ 1013	6/20-7/27	945/ 1181	8/13-9/11	1400/ 1381	REST	
Two Buttes**	5/18- 6/15	840/ 801	9/9-9/13 10/2- 11/12	1400/ 230 600/ 849	5/18-6/15	840 801	10/2- 11/14	600/ 868
Sage Creek**	5/18- 6/15	630/ 601	10/1-11/15	400/ 592	5/20-6/15	630/ 601	10/1- 11/15	400/ 592
Dry Canyon	7/28- 8/24	735/ 677	8/8-9/8 8/8-8/24	600/ 612 30/ 17	7/17-8/12	735/653	6/16 T 8/15- 9/12	945/ 31 735/ 701
Spring Basin*	7/28- 8/24	735/ 677	8/11-9/8 8/11-8/24	800/ 782 40/ 19	REST 7/14-7/16 T	735/ 73	6/17 T 7/17- 8/14	735/ 24 735/ 677
Broken Wagon	Rest		6/20-7/15 7/28-8/7	525/ 449 630/ 228	7/17-8/12	735/ 653	8/14- 9/11	700/ 667
N. Fork Sage Road Creek*	6/16- 7/13	735/ 677	REST		6/16-7/13	735/677	7/16- 8/12	735/ 653
Horse Basin	7/14- 7/27	1470/ 677	7/16-8/10 7/28-8/10	525/ 449 315/ 145	REST 7/14-7/16 T	735/ 73	6/17- 7/15 6/17- 7/15 8/1-8/4 T	525/ 501 210/ 200 735/ 24
Mosquito/Bear Creek	6/16- 7/13	735/ 677	REST		6/16-7/13	735 /677	6/18- 7/16	735/ 701

	Year 1		Year 2		Year 3		Year 4	
	2012	2012	2013	2013	2014	2014	2015	2015
Tetal		1470/		1470/		1470/		1470/
Total		7237		7020		7026		7064

**Outside CHMA, *Portion in CHMA, T- Trailing Action

Table 5.

<u>Key</u> <u>Area</u>	<u>Date</u>	<u>Key Species</u> <u>Average</u>	<u>All Species</u> <u>Average</u>	<u>Woody Use</u> <u>%</u>	<u>Alterations %</u>	<u>Туре</u>
<u>BRC-01</u>	<u>7/16/18</u>	<u>Photos</u>	<u></u>	<u>%</u>	<u>%</u>	
<u>CBX-01</u>	<u>8/07/18</u>	<u>CAUT 23.7"</u>	<u>21.3''</u>	<u>11.5%</u>	<u>2%</u>	
<u>RC-03</u>	<u>9/11/18</u>	<u>CAUT 11.05"</u>	<u>12.2"</u>	<u>30%</u>	<u>3%</u>	
<u>RC-04</u>	<u>9/11/18</u>	<u>CAUT 13.71"</u>	<u>13.7''</u>	<u>10.5%</u>	<u>1%</u>	
<u>RC-02</u>	<u>9/20/18</u>	<u>CAUT 10.57"</u>	<u>11.8''</u>	<u>10%</u>	<u>14%</u>	
<u>LHB-01</u>	<u>11/06/18</u>	<u>MG 3.98"</u>	<u>5.4''</u>	<u>16.7%</u>	<u>30%</u>	
<u>CBX-01</u>	<u>11/07/18</u>	Photos	<u></u>	<u>%</u>	<u>%</u>	
<u>HBC-01</u>	<u>11/07/18</u>	<u>CAUT 6.75"</u>	<u>8''</u>	27.5%	<u>10%</u>	

Soil Affected Environment

In such cases, surface flow and sediment transportation into streams can be pronounced, particularly on very steep slopes (>60 %). An exception to this is the "badlands" soils mostly associated with Malm Gulch and Sand Hollow Allotments (domestic livestock grazing privileges have been relinquished on both allotments) which make up approximately 8% (\approx 13,764 Acres) of the HMA. These soils are Dawtonia-Frailton Complex (20-50% Slopes), Farvant-Badland-Gradco Complex (25-60% Slopes), Frailton-Dawtonia Complex (15-50% Slopes), Frailton-Gradco Complex 35-60% Slopes), and Gradco-Farvant Complex (30-60% Slopes); these soils are considered sensitive due to their highly erosive nature. All the soil types within the CHMA have rapid infiltration rates although some may have a clay or calcic horizon within 20 inches of the surface that may perch surface water (USDA-NRCS 2002).

Impacts to the soil resource from large ungulate grazing activities include compaction (Wheeler 2002) and disruption or destruction of physical or micro-biotic soil crusts (Memmott 1998), which can result in soil erosion. Surface disturbance that disrupts or destroys physical or micro-biotic soil crusts can also lead to erosion. Erosion of the soil surface following disturbances would remove the litter layer and potentially portions of the A horizon (the uppermost, organic soil layer). Of the entire soil profile, the litter layer and the A horizon contain the greatest amount of organic matter which is the source of plant-available nutrients (Neff

2005). Alterations to the nutrient cycle via erosion can reduce plant community productivity and create conditions that are conducive to the introduction of nonnative species (Kourtev 2002). Impacts, which are generally caused by hoofing action, would be greatest in high use areas such as water troughs, fence lines, and crossings. However, the majority of the soil surface would be stabilized by root mass, organic matter (e.g., herbaceous/woody litter, manure from domestic livestock, wild horses and wildlife), decomposition products, and/or biological crust.

Wild Horse Utilization Photos

Warm Springs Corral Basin Creek CBC-KA-01 End of Season





Warm Springs Corral Basin Creek CBC-KA-01 End of Season





Lower Horse Basin LHB-KA-01 Middle Marker use cage End of Season



Corral Basin Spring Emergence

