Argenta Fall Monitoring Summary

October 21-23, 2014

Mount Lewis Field Office, BLM

October 31, 2014

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Background:

The Argenta Allotment is located southeast of Battle Mountain, Nevada and encompasses 331,518 acres, of which 141,689 acres are public land administered by the Bureau of Land Management (BLM). The primary resource values are greater sage-grouse priority habitat, emergency stabilization and rehabilitation (ESR) post-fire seeding treatments, riparian and wetland habitat and isolated communities of aspen stands that provide habitat for an array of avian species and forage for big game such as mule deer. The riparian areas managed by BLM on public lands are associated with 42 miles of perennial stream, 329 miles of intermittent/ephemeral stream, and 43 springs (*US Geological Survey's National Hydrography Dataset*, Version 210 (released 5/7/2014)). However, additional riparian/wetland areas are present on intermingled private lands that are owned by a plethora of individuals/groups, as well as the permittees. No wild horse and burro herd management areas (HMAs) are present within the Argenta Allotment.

The Battle Mountain District (BMD) Mount Lewis Field Office (MLFO) conducted drought monitoring within the Argenta Allotment during 2012, 2013 and earlier in 2014. Monitoring indicated that throughout much of the allotment, livestock grazing during the last two years of extreme drought had resulted in degradation of both uplands and riparian areas. The Battle Mountain District Drought Management Environmental Assessment (Drought EA) EA# DOI-BLM-NV-B000-2012-0005-EA was completed on June 2012.

Thus far in 2014, in response to continued drought, the BMD has reached agreements documented in signed grazing applications with MLFO permittees, identifying over 100,000 AUMs of voluntary nonuse. As a response to two consecutive years of drought and documented impacts, numerous discussions and meetings occurred between the Argenta permittees and BLM prior to the beginning of the 2014 grazing year. The purpose of these pre-turn out discussions was to ensure that areas within the allotment that had been overgrazed during the preceding two years were afforded the opportunity to recover from drought and the adverse impacts from repeated overgrazing. Resting areas, modifying the season of use and livestock removal tied to Drought Response Triggers (DRT) were the basis for these discussions. As of February 2014, very little residual forage growth was observed throughout the allotment and evidence of widespread riparian degradation was documented. The allotment received favorable spring moisture from March 2014 through May of 2014, which resulted in significant growth of annuals such as cheatgrass in certain areas. However, this moisture was not enough to pull the area out of the extreme drought category, as indicated by the maps and information provided by the U.S. Drought Monitor for the month of May. Currently the entire Argenta Allotment is in the extreme drought category, according to the U.S. Drought Monitor. Currently, the Vegetation Drought Response Index (VegDRI) shows that the Argenta Allotment is mostly in the Out of Season Category.

BLM interdisciplinary teams and the permittees and/or their hired consultants conducted drought monitoring from July 9-11, 2014 on key upland and riparian sites throughout the Argenta Allotment. The basis of this monitoring was to collect Drought Response Trigger (DRT) data at key sites, in accordance with the approved agreement.

As a result of the July monitoring, a letter was sent to the permittees on July 23, 2014 informing them that nine of the Use Areas had exceeded triggers and that they were required to remove livestock from those areas by July 30, 2014. This was in accordance with the June 6, 2014 decision, which implemented the 2014 Grazing Agreement. A compliance inspection was conducted in the nine Use Areas on August 7-8, 2014, which showed 326 cattle still within the nine areas. Several other compliance inspections continued to show that cattle remained within the use areas and a trespass was eventually issued. The trespass was finally settled after compliance inspections showed that an insignificant number of cattle remained in the nine Use Areas, as of September 18, 2014.

Also as a result of the July monitoring, seven of the 20 use areas in the Argent Allotment have been closed to grazing for the duration of the drought plus one growing season. Two other areas were closed to grazing for the duration of the 2014 grazing year and have a modified season of use for the remainder of the drought plus one growing season to allow for targeted grazing of cheat grass in early spring. This was implemented by the August 22nd Final Decision Effective on Issuance.

The purpose of this most current round of monitoring was to assess resource conditions in the allotment, as well as to monitor for drought triggers in the 11 Use Areas where triggers were not exceeded in July. Previously closed use areas were revisited to assess impacts caused by unauthorized use or recovery since livestock removal.

Methods:

October monitoring was conducted using the same Use Areas and monitoring sites that were identified in the July monitoring report, whereby the allotment was divided into twenty Use Areas as a function of topography, fences and historic utilization patterns. However, upland monitoring site AR-10 is now considered part of the Lewis Use Area, instead of the East Flat Use Area, because a new fence constructed in 2014 separates the site from the East Flat Use Area. Of the twenty Use Areas, twelve contain riparian resources and eight do not. Representative upland and riparian (if present) monitoring sites were selected for each Use Area, in cooperation with the permittees and their representatives. Previously established monitoring sites were surveyed. However, the use areas increased the level of landscape stratification. As a result, new sites were established with the permittees where 1) no previously established sites existed in the use areas (upland or riparian) and/or 2) BLM and permittees agreed that existing sites did not meet minimum monitoring requirements. A total of twenty-three sites were monitored; twelve riparian and eleven upland.

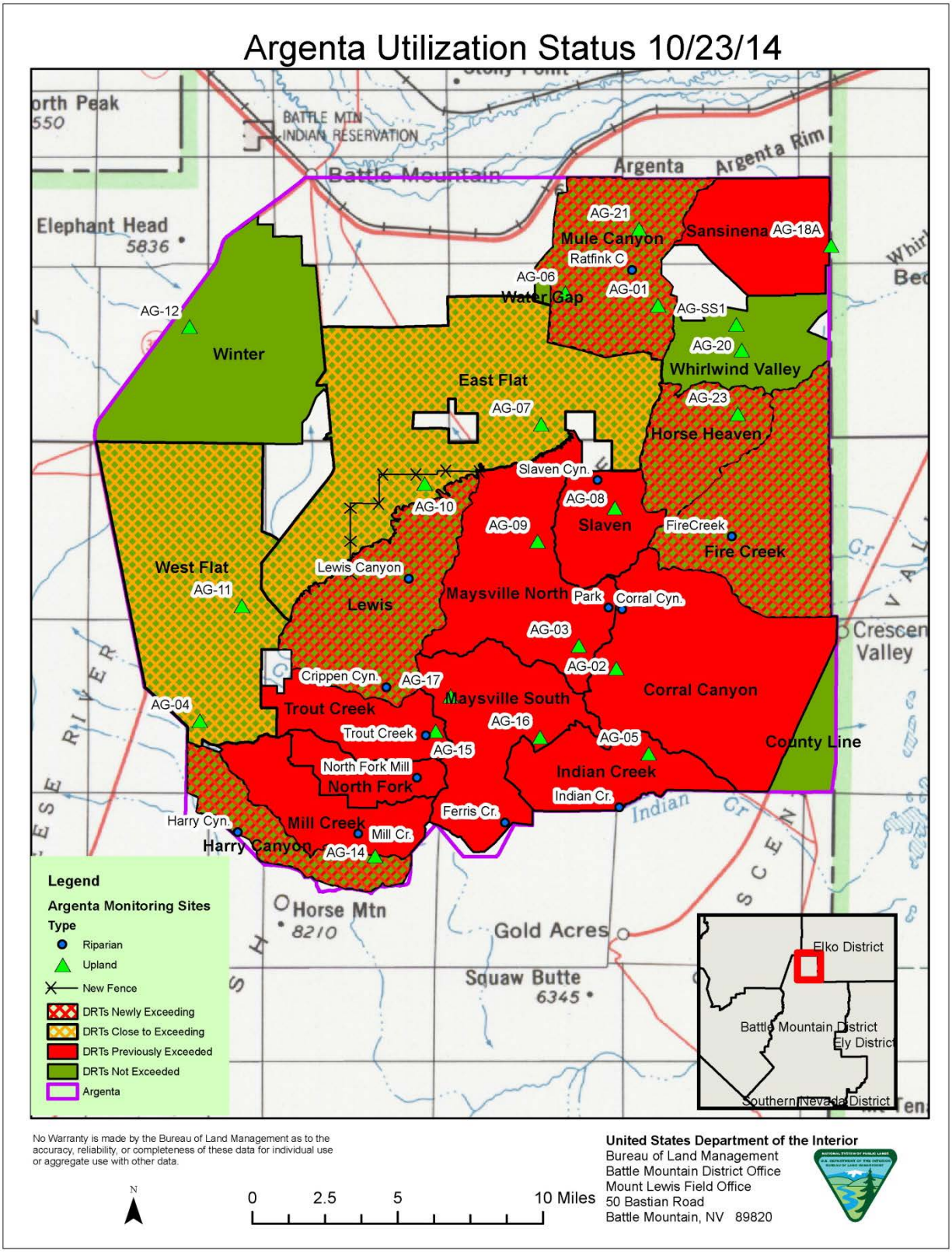
Per the March permittee agreement, stubble height and woody browse were measured using the Multiple Indicator Monitoring (TR 1737-23, 2011) protocol. Upland utilization was measured using the Key Species Method. To place riparian systems in context with natural channel form, Rosgen (2006; *Watershed Assessment of River Stability and Sediment Supply*) channel types were estimated visually. When possible, repeat photos were collected to show changes in resource condition over the course of the year. Sites were monitored by dividing MLFO resource Specialists into 3 interdisciplinary teams of 2-4 individuals. Two teams visited riparian Designated Monitoring Areas (DMAs) over the course of 3 days and one team visited the upland Key Areas over the course of 2 days.

Results:

Livestock were observed congregating on riparian areas and infrequently throughout the uplands, including the closed Use Areas (a follow up compliance inspection will need to be conducted). Drought conditions were present throughout the allotment and rangeland conditions were highly variable.

Of the 11 Use Areas not subject to the August 22nd Decision, five exceeded DRTs and six did not (Tables 1 & 2). Riparian DRTs were exceeded at all four of the open use areas with significant riparian habitat. Upland DRTs were exceeded at one of the 11 open Use Areas and nearly met at four of the open Use Areas. Riparian systems within the previously closed Use Areas received increased livestock pressure since the July surveys and resource conditions were further degraded.

Figure 1: DRT status map



Riparian:

As was observed during the July 2014 monitoring, surface water discharge was seasonally low. Several of the perennial streams were dry or nearly dry, suggesting hydrologic drought. Severe streambank trampling was observed at some of the riparian sites and impacts are compounded by livestock concentrating on the remaining water resources and corresponding riparian areas. Heavy utilization was observed in the four Use Areas where riparian DRTs were not previously exceeded. Because trespass livestock continued to graze the riparian complexes in the 8 closed riparian Use Areas, most of the sites that were subject to the August 22nd closure decision were severely overgrazed and further deterioration of riparian/wetland habitat was observed.

Although native riparian grasses, sedges (*Carex spp.)* and rush (*Juncas spp.)* were observed at most designated monitoring areas (DMAs), their relative abundance was too low for accurate statistical estimates of stubble height, nor to maintain channel stability. Therefore, it was often necessary to measure early seral and shallow rooted species such as red top (*Agrostis stolonifera)* and Kentucky bluegrass (*Poa pratensis*) (see Argenta Allotment monitoring plant species list). This shift towards poor stabilizing, early seral plants is common in highly disturbed riparian systems and was observed through-out the allotment. As herbaceous plants have either senesced or been heavily grazed in most Use Areas, livestock have shifted use to the woody plants. At several locations, woody browse was severe enough to compromise the health and vigor of the plants.

Upland:

Eleven upland sites were monitored within the Argenta Allotment. At each Key Management Area (KMA) the vegetation was evaluated for signs of drought stress and utilization, except utilization at AG-12 and AG-SS01. Vegetation composition, signs of livestock and/or wildlife and general characteristics of the KMA were also documented.

Throughout the KMAs, grasses had completed their growth cycles and were either expressing seedheads or were past seed shatter. Most grass plants have dried, and finished their growth cycles for the year.

Utilization transects were completed at most of the KMAs. Where initial observations revealed no indication of use, transects were not completed. Utilization was recorded for perennial species at the KMAs. Where the key perennial species were not present, utilization was measured on Sandberg's bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), crested wheatgrass (*Agropyron cristatum*) or other perennial grasses present in sufficient quantities for utilization transects. Utilization was not recorded on cheatgrass (*Bromus tectorum*). Five KMAs showed significant levels of utilization one exceeded the drought trigger and four others nearly approached them but did not exceed the upland trigger.

At most of the upland KMAs, vegetation composition reflects a departure from the potential native community identified in the Natural Resources Conservation Services (NRCS) Rangelend Ecological Site Descriptions (ESDs) for these sites. The most common issue documented was the absence of the deep rooted perennial grass species appropriate to the ecological site such as bluebunch wheatgrass (*Pseudoroegneria spicata*), Thurber's needlegrass (*Achnatherum thruberianum*) or Indian ricegrass (*Achnatherum hymenoides*). Instead, many of the KMAs were

dominated by Sandberg's bluegrass. Cheatgrass and other invasive annual, non-native species were prevalent in the understory of most KMAs.

Recommendations:

We recommend that livestock be removed from the East Flat, Fire Creek, Harry Canyon, Horse Haven, Lewis, Mule Canyon, and West Flat Use Areas for the remainder of FY2014 because upland and/or riparian DRTs were nearly met, met and/or exceeded (see Tables 1 & 2). Additionally, we recommend that the Fire Creek, Harry Canyon, Horse Haven, Lewis and Mule Canyon Use Areas be temporarily closed to livestock grazing for the duration of the drought plus one growing season. These areas constitute approximately 30% of the total BLM administered public lands on the allotment.

BLM should schedule another round of monitoring in the Use Areas that have not yet reached the DRTs at the conclusion of the grazing season. We continue to recommend that the nine Use Areas closed in the August 22, 2014 Final Decision remain closed to livestock grazing. Also, because livestock have been repeatedly observed grazing in the closed Use Areas, we recommend follow up compliance inspections.

Currently Open Use Areas:

East Flat Use Area: There are no riparian areas in this use area. Upland utilization triggers were nearly approached. Livestock removal for Grazing Year 2014 is recommended.

Fire Creek Use Area: Riparian utilization triggers for woody browse were exceeded. Riparian utilization triggers for herbaceous species were exceeded on 1of 4 species. Livestock removal for the remainder of the drought plus one growing season is recommended.

Harry Canyon Use Area: Riparian utilization triggers for woody browse were exceeded. Riparian utilization triggers for herbaceous species were exceeded. Livestock removal for the remainder of the drought, plus one growing season is recommended.

Horse Haven Use Area: There is one riparian area on private land in this use area. Upland utilization triggers were exceeded. Livestock removal for the remainder of the drought, plus one growing season is recommended.

Lewis Use Area: Riparian utilization triggers for woody browse were exceeded. Riparian utilization triggers for herbaceous species were exceeded. Upland utilization triggers were nearly approached. Livestock removal for the remainder of the drought, plus one growing season is recommended.

Mule Canyon Use Area: Riparian utilization triggers for woody browse were exceeded. Riparian utilization triggers for herbaceous species were not exceeded. Upland utilization triggers were nearly approached. Livestock removal for the remainder of the drought, plus one growing season is recommended.

West Flat Use Area: There are no riparian areas in this use area. Upland utilization triggers were nearly approached. Livestock removal for Grazing Year 2014 is recommended.

Whirlwind Valley Use Area: There are no riparian areas in this use area. Upland utilization was none to slight. Continue to monitor.

Winter Use Area: There are no riparian areas in this use area. Upland utilization was none to slight. Continue to monitor.

Currently Closed Use Areas:

Corral Canyon Use Area: Riparian stubble height and woody browse were previously exceeded and conditions have continued to worsen. Upland utilization triggers were not measured.

Indian Creek Use Area: Stubble height and woody browse triggers were previously exceeded. Resource conditions have continued to decline, but drought induced senescence precluded additional DRT measurements. Bare ground is abundant. Upland utilization triggers were not measured.

Maysville North Use Area: Riparian triggers were exceeded on all key riparian species and conditions have continued to decline. Stream bank and channel trampling were severe and the stream has completely dried out. One upland utilization trigger was exceeded in July. Upland measurements were not collected in October.

Maysville South Use Area: Riparian triggers were previously exceeded on all key riparian species and have continued to decline. Woody browse was heavy/severe. Upland utilization was not measured.

Mill Creek Use Area: Riparian utilization triggers were previously exceeded and conditions have continued to decline. Trampling was severe. Upland triggers were not measured.

North Fork Mill Creek Use Area: Riparian utilization triggers were previously exceeded and conditions have continued to decline. Adjacent riparian/wetland springs are severely altered by trampling and many have dried out. Bare ground is abundant.

Slaven Use Area: Stubble height triggers were previously exceeded on all key riparian species. Soil compaction and trampling were severe, but some recovery was observed. Upland utilization triggers were nearing triggers as of July, but were not re-surveyed in October.

Trout Creek Use Area: Riparian stubble height triggers were previously exceeded and conditions have continued to decline. Upland triggers were not measured.

Table 1: Average stubble height and woody browse at riparian monitoring locations

Argenta Allotment Average Stubble Height and Woody Utilization for MIM Sites							
Use Area	**MIM Site**	Species[1]	**# of plants**	**Avg. Stubble (inches)**	**Species[1]**	**# of plants**	**Avg. % Utilization**
Corral Canyon	Corral Canyon	POPR	64	1.5	ROWO	15	35.33
		JUBA	42	2.1	SALIX	7	83.33
		CANE2	7	2.1	RIBES	3	10
Fire Creek	Fire Creek	POPR	53	4.6	ROWO	79	39.37
		CANE2	35	5.1			
		AGST2	18	3.9			
		ELPA3	13	4.4			
Maysville South	Ferris Creek	AGST2	46	1.3	SALIX	22	59.09
		POPR	41	1.1	ROWO	12	71.67
		ELPA3	16	1.1			
		CANE2	9	1.3			
		JUBA	4	3			
Indian Creek	Indian Creek	-	-	-	-	-	-
Lewis	Crippen Canyon	POPR	45	2.2	SALIX	17	65.29
		AGST2	37	2.6	ROWO	14	62.86
		DECE	30	1.9	SYOR2	6	60
Trout Creek	Trout Creek	POPR	75	1.3	SALIX	10	72
		AGST2	40	1.6			
Mule Canyon	Ratfink	ELPA3	42	9.7	ROWO	48	73.75
		POMO5	31	7.4			
		JUBA	6	17.3			
Slaven	Slaven Canyon	POMO5	45	1.3			
		AGST2	35	1			
		POPR	15	1			
		ELPA3	6	1.2			
North Fork	North Fork Mill Creek	POPR	74	1.4			
		AGST2	68	1.8			
Mill Creek	Mill Creek	POPR	62	1.5	RIIN2	11	13.64
		AGST2	49	1.5	AMAL2	4	75

		CANE2	3		SALIX	3	
					ROWO	2	
	Harry Canyon	POPR	15		SALIX	18	
		ELPA3	7				
		AGST2	4				
	The Park	POPR	31				
		JUBA	30				

Table 2: Average utilization of key species at upland key management areas (KMAs)

Argenta Allotment Average Utilization (%) of Upland Key Species										
Use Area	**KMA**	**Ecological Site**	**Key Species[1]**							
			POSE	ELELE	LECI4	PSSPS	ELMU	BAPR5	PSJU3	AGCR	ACTH7
Mule Canyon	AG-01	025XY014NV	2.5					3.0		**26.3**	
West Flat	AG-04	024XY002NV	**29.1**								
Mule Canyon	AG-06	024XY002NV	3.9								
East Flat	AG-07	024XY002NV	**24.2**								
Lewis Canyon	AG-10	024XY005NV	**29.3**								
West Flat	AG-11	024XY002NV	3.0								
Winter	AG-12	024XY002NV	0								
Whirlwind Valley	AG-20	025XY019NV	2.5								
Mule Canyon	AG-21	025XY014NV								3.6	
Horse Heaven	AG-23	025XY019NV								**58.1**	
Whirlwind Valley	AG-SS1	025XY019NV	-	-	-	-	-	-	-	-	-

Red areas indicate sites that exceeded triggers

Orange areas indicate sites that triggers were closely approached

[1] Refer to Table 3 which displays the Argenta Allotment plant species, scientific names and USDA plant symbols.

Table 3: Argenta Allotment Monitoring Plant Species List

Upland and Riparian Grasses, Sedges and Rushes

Symbol	Scientific	Common Name
ACHY	*Achnatherum hymenoides*	Indian ricegrass
ACTH7	*Achnatherum thruberianum*	Thurber's needlegrass
ACWE3	*Achnatherum webberi*	Webber needlegrass
AGCR	*Agropyron cristatum*	crested wheatgrass
AGST2	*Agrostis stolonifera*	creeping bentgrass/red top
BRMA4	*Bromus marginatus*	mountain brome
CANE2	*Carex nebrascensis*	Nebraska sedge
CAREX	*Carex spp.*	sedge
ELEL5	*Elymus elymoides*	squirreltail
ELPA3	*Eleocharis palustris*	common spikerush
ELTRT	*Elymus trachycaulus ssp. trachycaulus*	slender wheatgrass
FEID	*Festuca idahoensis*	Idaho fescue
FERU2	*Fescue rubra*	red fescue
JUBA	*Juncus balticus*	baltic rush
JUEN	*Juncus ensifolius*	swordleaf rush
JUNCU	*Juncus spp.*	rush
LECI4	*Leymus cinereus*	basin wildrye
PASM	*Pascopyrum smithii*	western wheatgrass
POCU3	*Poa cusickii*	Cusick's bluegrass
POFE	*Poa fendleriana*	muttongrass
POMO5	*Polypogon monspeliensis*	rabbitsfoot grass
POPR	*Poa pratensis*	Kentucky bluegrass
POSE	*Poa secunda*	Sandberg bluegrass
PSJU3	*Psathyrostachys juncea*	Russian wildrye
PSSP6	*Pseudoroegneria spicata*	bluebunch wheatgrass

Forbs

Symbol	Scientific	Common
ASTRA	*Astragalus spp.*	milkvetch
CASTI 2	*Castilleja spp.*	Indian Paintbrush
CRAC 2	*Crepis acuminata*	tapertip hawksbeard
ERIOG	*Eriogonum spp.*	buckwheat
ERODI	*Erodium spp.*	Stork's bill
LUPIN	*Lupinus spp.*	lupine
PHLOX	*Phlox spp.*	phlox
PRIMU	*Primula spp.*	primrose
RANUN	*Ranunculus spp.*	buttercup
TAOF	*Taraxacum officinale*	common dandelion
TRIFO	*Trifolium spp.*	clover
VECA2	*Veratrum californicum*	California false hellebore
ZIGAD	*Zigadenus spp.*	deathcamas

BASA3	*Balsamorhiza sagittata*	arrowleaf balsamroot
DESCU	*Descurainia spp.*	tansy mustard

Invasive Annual Species

Symbol	Scientific	Common
LEPE2	*Lepidium perfoliatum*	clasping pepperweed
BRTE	*Bromus tectorum*	cheatgrass
HAGL	*Halogeton glomeratus*	halogeton / saltlover
SALSO	*Salsola spp.*	Russian thistle

Shrubs and Trees

Symbol	Scientific	Common
AMAL2	*Amelanchier utahensis*	Utah serviceberry
ARAR8	*Artemisia arbuscula*	low sagebrush
ARTRT	*Artemisia tridentata ssp. tridentata*	basin big sagebrush
ARTRV	*Artemisia tridentata ssp. vaseyana*	mountain big sagebrush
ARTRW8	*Artemisia tridentata ssp. wyomingensis*	Wyoming big sagebrush
ATCO	*Atriplex confertifolia*	shadescale saltbush
BAPR 5	*Bassia prostrata*	forage kochia
CHVI8	*Chrysothamnus viscidiflorus*	Douglas/green rabbitbrush
ERNA10	*Ericameria nauseosa*	rubber/gray rabbitbrush
GRSP	*Grayia spinosa*	spiny hopsage
GUZA2	*Gutierrezia sarothrae*	broom snakeweed
JUOS	*Juniperus osteoperma*	Utah juniper
PIDE4	*Picrothamnus desertorum*	bud sagebrush
PIMO	*Pinus monophylla*	singleleaf pinyon
PRAN2	*Prunus andersonii*	desert peach
PRVI	*Prunus virginiana*	chokecherry
PUGL2	*Purshia glandulosa*	desert bitterbrush
RIBES	*Ribes spp.*	currant
SALIX	*Salix spp.*	willow
SANIC5	*Sambucus spp.*	elderberry
SYAL	*Symphoricarpos albus*	common snowberry
TETRA3	*Tetradymia spp.*	horsebrush

USE AREAS UNAFFECTED BY THE AUGUST 22nd DECISION

East Flat Use Area

Livestock removal for Grazing Year 2014 is recommended

Upland KMA: AG-07 (024XY002NV Loamy 5-8"p.z.)

Background:
KMA AG-07 is located within the East Flat Use Area. The potential native plant community should be dominated by shadscale, bud sagebrush and Indian ricegrass. The potential vegetative composition for the Ecological Site is about 25% grasses, 5% forbs, and 70% shrubs with an approximate ground cover (basal and canopy) for this site is 10-15%. Total annual air-dry production for this site should be 450 lbs/acre in a normal year.

Field Observations:
This site is dominated with shadscale with an understory of Sandberg's bluegrass (*Poa secunda*) and cheat grass (*Bromus tectorum*). Other species observed at the site included redstem stork's bill (*Erodium cicutarium*), burr buttercup (*Ceratocephala testiculata,*) and pepperweed (*Lepidium spp.*). Drought stress was not apparent at the site. A utilization transect was done at the site using Sandberg's bluegrass as the key species, utilization was 24.2%. No utilization was observed during the July monitoring.

Photo 1a: AG-07 Long-Term Transect Overview - lack of key perennial grasses other than POSE.

Photo 1b: Comparison photo of the AG-07 location during July monitoring.

Summary:
Key perennial grass species are lacking with the exception of POSE and comprise a smaller portion of vegetative composition than what is expected for the site. Overall plant production appears normal for the site though expected grass species are not present. Cheatgrass and other invasive annuals are present and have begun to dominate much of the understory. The presence of cheatgrass increases the potential for wind and water erosion and limits the ability of the site to support perennial grass species.

Fire Creek Use Area

Livestock removal is recommended

Riparian DMA: Fire Creek

Fire Creek has unique channel segments that range from a poorly developed and deeply entrenched G type channel along a large emergent wetland, to more developed F and C segments down gradient. The streambed and banks are fine grained sediment, highly sensitive to disturbance and depend almost exclusively on vegetation for stability.

Current and historic trampling of the stream channel and banks has punctured root mats of stabilizing species and increased the likelihood of erosion and headcut development/movement. Furthermore, the in channel trampling has mechanically altered the stream, which is shallow, wide and poorly defined, with water flowing mostly between hoofprints. The channel is vertically unstable and multiple headcuts were observed. These instabilities not only threaten to incise the channel further, but to migrate up the wetland located above the site and to accelerate the rate at which it drains.

During the July surveys, only incidental livestock use was observed (photos 1b, 2b and 3b). Stubble heights did not exceed triggers and were 8.0, 8.4, 7.9, 6.9, and 6.4 inches on red top,

Nebraska sedge, spike rush, Baltic rush, and Kentucky bluegrass, respectively. Woody browse was <10% on whitestem gooseberry (*Ribes inerme*), not exceeding browse triggers. No utilization was observed on Wood's rose.

On October 22nd, 2014 utilization was much higher, especially on the woody plants. Stubble heights were highly variable. Although herbaceous plants in the open were heavily grazed, many were located under Wood's rose and were therefore protected and ungrazed. Whitestem gooseberry was completely dormant, making it difficult to differentiate between the current year's leaders and the previous year's growth. Since Wood's rose still had some leaf structure and current and previous year's growth were easily differentiated, it was used as the key woody species. Additionally, because Baltic rush (*Juncus balticus*) is less palatable and abundant than several other species at the site, it was not used as a key species for the October monitoring.

Table 1: comparison of DRT measurements for July to October 2014

Date	AGST2 (in)	CANE2 (in)	ELPA3 (in)	JUBA (in)	POPR (in)	RIBES (% use)	ROWO (% use)
7/9/2014	8.0	8.4	7.9	6.9	6.4	10	-
10/22/2014	3.9	5.1	4.4	-	4.6	-	39.37
Change	-4.1	-3.3	-3.5	-	-1.8	-	-

Photo 1a: Bottom of MIM site, looking upstream on 6/10/2014. Pre-livestock

Photo 1b: Bottom of MIM site, looking upstream on 7/9/2014. Incidental livestock use

Photo 1c: Bottom of MIM site, looking upstream on 10/22/2014. Continued utilization

Photo 2a: Top of MIM site, looking down stream on 6/10/2014. Pre-livestock

Photo 2b: Top of MIM site, looking down stream on 7/9/2014. Incidental livestock use

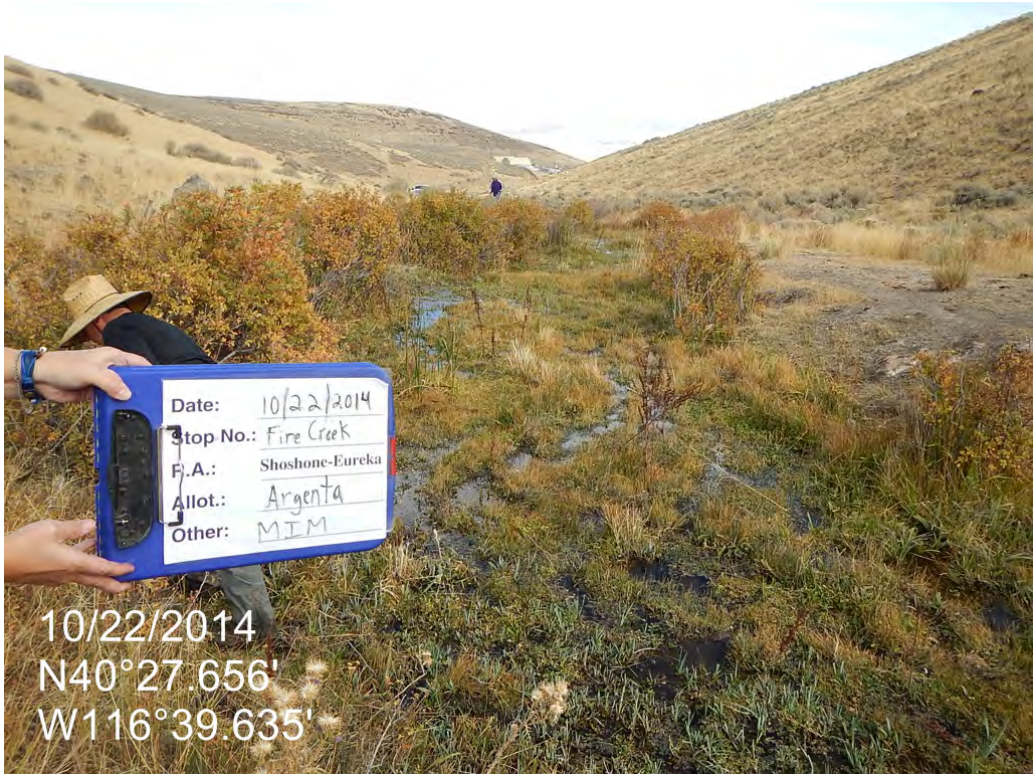


Photo 2c: Top of MIM site, looking down stream on 10/22/2014. Continued utilization

Photo 3a: Top of site, looking across the channel on 6/10/2014

Photo 3b: Top of site, looking across the channel on 7/9/2014

Photo 3c: Top of site, looking across the channel on 10/22/2014

Photo 4: Active headcut at the base of the MIM site, which is eroding/incising the channel and draining the riparian area

Photo 5: Trampled channel, banks and overview of woody use

Photo 6: Cattle have loafed on and heavily utilized the wet meadow above the MIM site

Photo 7: Cattle loafing below wetland and above MIM site.

Harry Canyon Use Area

Livestock removal is recommended

Riparian DMA: Harry Canyon

Harry Creek is a Rosgen B type channel along the DMA, which flows through Phase I and II Pinyon (*Pinus monophylla*) and Juniper (*Juniperus osteoperma*). Discharge was very low during site visits in June (site establishment), July and October, which is indicative of hydrologic drought. Cattle trampling and scat were observed through-out the site. A few hoof prints from horse and deer were observed, but were negligible in comparison to the livestock impacts. DRTs were exceeded on both woody and herbaceous plants.

Due to current and historic livestock trampling, the stream channel is poorly defined, wide and shallow (relative to potential), with water flowing from hoof print to hoof print. Bare ground tends to dominate the stream bank (mostly due to livestock trailing) in locations where mature willow are absent. As a result, many plots near the channel failed to meet the MIM greenline requirement of 25% foliar cover and/or less than 10 cm^2 of bare ground, necessitating that the greenline be moved toward the nearest upland shrubs/trees, where no key riparian species were present. Therefore, the number of stubble height measurements was reduced, relative to the July 2014 monitoring.

Average stubble heights were 3.1, 2.4 and 3.0 inches on Kentucky bluegrass, spike rush and red top, respectively. Average woody browse was ~36% on willow. Note, woody browse was not measured during the July 2014 surveys because no livestock had used the area and no utilization was observed.

Table 1: comparison of DRT measurements for July to October 2014

Date	AGST2 (in)	ELPA3 (in)	POPR (in)	SALIX (% use)
7/9/2014	15.1	5.9	5.4	-
10/21/2014	3.0	2.4	3.1	35.6
Change	-12.1	-3.5	-2.3	-

Photo 1a: Looking upstream near bottom of MIM site on 7/9/2014, before grazing

Photo 1b: Looking upstream near bottom of MIM site on 10/21/2014, after grazing

Photo 2a: Above MIM site, looking upstream at utilization cage on 7/9/2014, before grazing

Photo 2b: Above MIM site, looking upstream at utilization cage on 10/21/2014, after grazing

Photo 3: Utilization cage on 10/21/2014, which was emplaced in 2009

Photo 4: While some willows were severely browsed and adversely impacted, most were moderately browsed

Horse Haven Use Area

Livestock removal is recommended

Upland KMA: AG-23 (025XY019NV Loamy 8-10”P.Z)

Background:
This KMA is located within the Horse Heaven Use Area. The potential native plant community should be dominated by Thurber’s needlegrass, bluebunch wheatgrass and Wyoming big sagebrush. Potential vegetative composition for this Ecological Site is about 65% grasses, 5% forbs and 30% shrubs. Approximate ground cover (basal and canopy) for this site is 20-30% percent. The expected bare ground value is approximately 50%, depending on soil surface texture and surface fragments. Total annual air-dry production for this site should be 600 lbs/acre in a normal year.

Field Observations:
This site is dominated with Wyoming big sagebrush and Sandberg’s bluegrass. Other species observed included, crested wheatgrass, bottlebrush squirreltail, Douglas rabbitbrush, cheatgrass, and clasping pepperweed. The interspaces were dominated by Sandberg’s bluegrass and clasping pepperweed, with patches of cheatgrass. Bottlebrush squirreltail showed signs of reduced seed head growth and crested wheatgrass had reduced to no seed head production. Cattle sign was observed infrequently throughout the site. Utilization was determined to be 2.5% for Sandberg’s bluegrass and 58.1% for crested wheatgrass. Utilization in July was determined to be 2.5% for Sandberg’s bluegrass and 26% for crested wheatgrass.

Summary:
This is a Wyoming big sagebrush site that should have Thurber’s needlegrass and bluebunch wheatgrass dominating the understory. The understory of the site is dominated with Sandberg’s bluegrass and includes a prominent presence of cheatgrass and other annuals. The grass species at the site are reflecting drought stress. Single spring on private in use area had no water available this year and willows never even greened up.

Photo 1a: AG-23 Long-Term Transect Overview - note lack of perennial grasses and utilisation in October 2014

Photo 1b: AG-23 Long-Term Transect Overview - note lack of perennial grasses in June 2014

Lewis Use Area

Livestock removal is recommended

Riparian DMA: Crippen Canyon

Crippen Creek is a Rosgen A at the headwaters and a Rosgen B at the riparian DMA. A mixture of rock, trees/shrubs and herbaceous plants comprise the greenline. Livestock trailing and utilization were observed in the canyon bottom and there was very little use on the steep canyon hillslopes. DRTs were exceeded on both woody and herbaceous plants. Several headcuts were observed in the stream, which are actively incising the channel.

Stubble heights were 2.6, 2.2 and 1.9 inches on red top (*Agrostis stolonifera),* tufted hairgrass (*Deschampsia cespitosa*) and kentucky bluegrass (*Poa pratensis*), respectively. Woody browse was 65%, 63% and 60% on willow (*Salix spp.*), Wood's rose (*Rosa woodsii*) and mountain snowberry (*Symphoricarpos oreophilus*), respectively. Note, woody browse was not measured during the July 2014 surveys because livestock had not used the area and no utilization of the woody plants was observed.

Table 1: comparison of July and October 2014 DRT measurements

Visit	AGST2 (in)	DECE (in)	POPR (in)	ROWO (% use)	SALIX (% use)	SYOR2 (% use)
7/10/2014	7.1	8.0	11.8	-	-	-
10/21/2014	2.6	1.9	2.2	65.29	60	62.86
Change	-4.5	-6.1	-9.6	-	-	-

Photo 1: Spring near bottom of the DMA. Heavily trampled

Photo 2a: Bottom of MIM site, looking upstream on 7/10/2014.

Photo 2b: Bottom of MIM site, looking upstream on 10/212014. After grazing

Photo 3a: Middle of the MIM site on 7/10/2014. Plants ungrazed.

Photo 3b: Middle of the MIM site on 10/21/2014. Plants grazed.

Photo 4a: Spring below MIM site, 7/10/2014

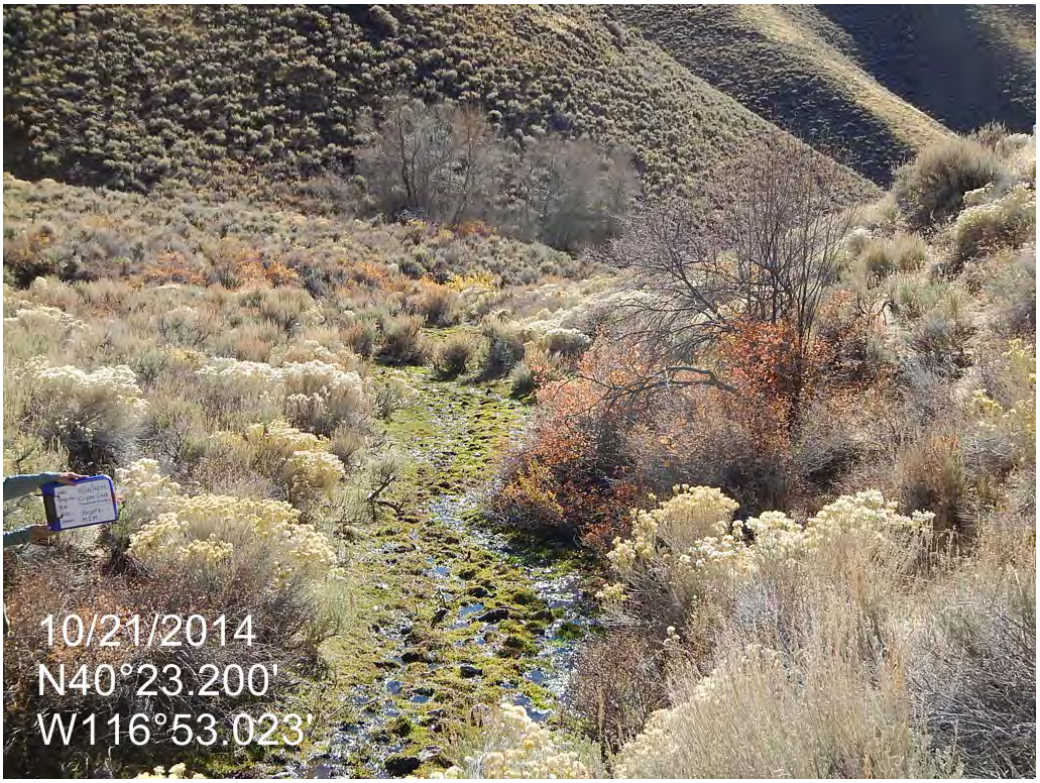


Photo 4b: Spring below MIM site, 10/21/2014. Heavy grazing and trampling

Photo 5: Headcut below MIM site indicates channel is vertically unstable

Photo 6: Hedged Salix. Heavy to severe woody browse was most common.

Photo 7: Hedged Wood's rose.

Photo 8: A few lightly browsed plants were scattered among the heavily/severely browsed plants.

Upland KMA: AG-10 (024XY005NV Loamy 8-10"p.z.)

Background:
According to the use area map this site is within the East Flat Use Area. However, a new fence constructed by the permittee on private lands places the key area within the Lewis Use Area. The potential native plant community should be dominated by Thurber's needlegrass and Wyoming big sagebrush. Potential vegetative composition for this Ecological Site is about 55% grasses, 5% forbs and 40% shrubs. Approximate ground cover (basal and canopy) for this site is 20-35%. Expected bare ground for the site is approximately 50%. Total annual air-dry production for this site should be 600 lbs/acre in a normal year.

Field Observations:

This site is dominated by Wyoming big sagebrush with an understory of Sandberg's bluegrass and a few scattered bottlebrush squirreltail plants no Indian ricegrass was observed like it was in July. Other species observed included shadscale and Douglas rabbitbrush. Cheatgrass and clasping pepperweed were observed throughout the site. Moderate pedestalling was observed toward the end of the utilization transect north of the KMA. Microbiotic crusts were observed throughout the area primarily at the base of the sagebrush plants. The site showed minimal signs of drought stress with utilization observed on Sandberg's bluegrass at 29.3%. Infrequent old cattle sign and infrequent fresh rabbit sign were observed in the area. No utilization was recorded during the July monitoring.

Summary:
This site is shrub dominated and is lacking perennial grass species within the understory. The lack of key perennial grasses has led to an increase in basal gap size, increasing the sites susceptibility to water erosion. The interspaces are dominated with Sandberg's bluegrass and gravel. Erosion will remove the topsoil and result in gravel dominated interspaces. As erosion increases, the ability of the site to support key perennial grass species is reduced. Pedestaling was prevalent across the site. This location has been shown on previous maps as in the East Flat Use Area. The site is in the same location however it is considered in the Lewis Use Area because of the new fence that Pete Tomera constructed this spring on his private. This fence effectively cuts this site off from the East Flat Use Area.

Photo 1: AG-10 Long-Term Transect Overview - note bare ground and Sandberg's bluegrass dominance

Photo 2: AG-10 Utilization cage – note the amount of annual growth to the use level outside of the cage.

Photo 3: AG-10 Pedestaling of grasses and shrubs a sign of erosion occurring at site.

Mule Canyon Use Area

Livestock removal is recommended

Riparian DMA: Ratfink Canyon

The stream is/has transitioned from a Rosgen B to the more entrenched and unstable Rosgen G type channel. Therefore, the degree of incision is highly variable from top to bottom and small headcuts were observed. Although the MIM site was initially established in 2009, the location was adjusted in collaboration with the permittees and their range consultants on 6/12/2014 to better represent the wetted and less incised portion of the stream. Interrupted flow was observed during site establishment on June 12, 2014. The channel was dry during the July 9, 2014 survey, but soils were still saturated. A couple meters of the reach had water during the 10/22/2014 survey, but nearly all of the herbaceous vegetation had senesced and the rest of the channel was completely dry.

According to the permittees in July, livestock were pushed through the riparian system at turnout, used the uplands for a couple weeks, and were pushed back out prior to site establishment in June. As a result, the channel was heavily trampled and utilization was limited to incidental use as livestock moved through the area before the July 9, 2014 surveys. Utilization levels did not exceed riparian DRTs. Average stubble heights were 9.6 inches on spike rush and 7.7 inches on rabbitsfoot grass (*Polypogon monspeliensis*). Average utilization on Wood's rose (*Rosa woodsia*) was less than 10%.

On October 22nd, 2014, it appeared that livestock had been grazing the site again. Heavy woody browse was observed (~74%), which exceeded DRTs. However, because the herbaceous plants senesced prematurely in response to drought stress, they were less palatable and showed little use, causing livestock forage preference to shift to the woody plants.

Table 1: comparison of DRT measurements for July to October 2014

Date	ELPA3 (in)	JUBA (in)	POMO5 (in)	ROWO (% use)
7/9/2014	9.6	-	7.7	<10
10/22/2014	9.7	17.3	7.4	73.75
Change	0.1	-	-0.3	-63.75

Photo 1a: Top of reach, looking downstream on 6/12/2014

Photo 1b: Top of reach, looking downstream on 10/22/2014

Photo 2a: Bottom of reach, looking across channel on 6/12/2014

Photo 2b: Bottom of reach, looking across channel on 10/22/2014. Channel completely dry

Photo 3a: Top of reach, looking across channel on 6/22/2014

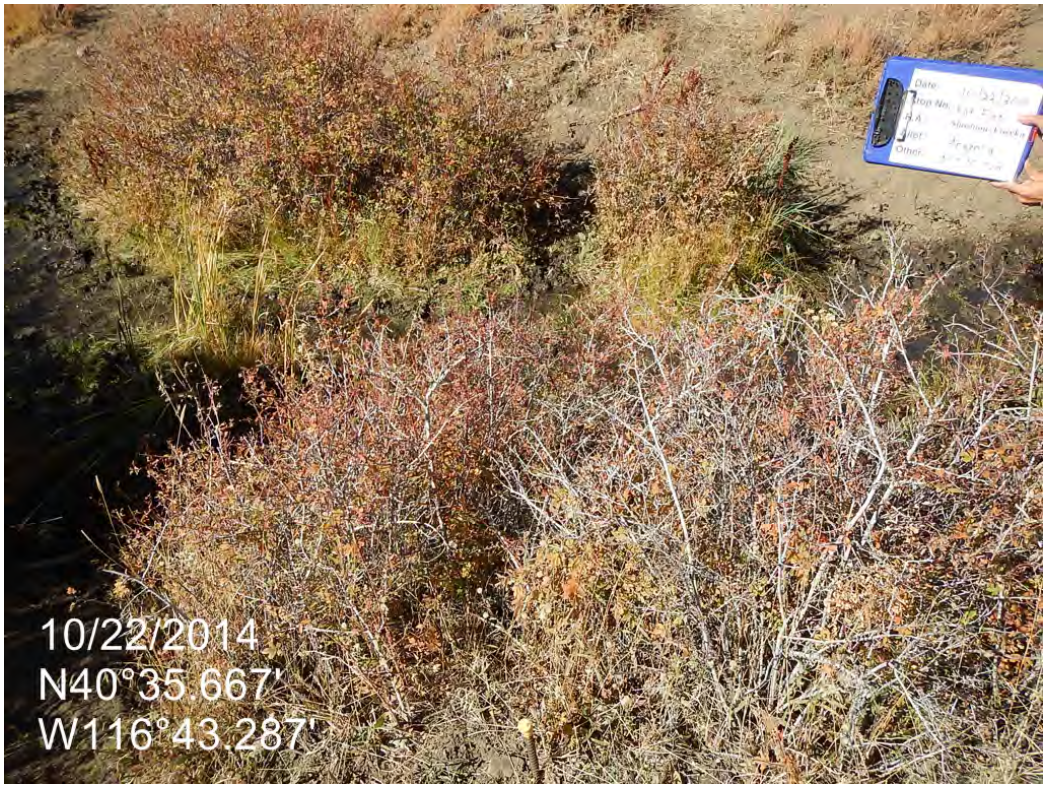


Photo 3b: Top of channel, looking across stream on 10/22/2014

Upland KMA 1: AG-06 (024XY002NV Loamy 5-8”p.z.)

Background:
This KMA is located within the Mule Canyon Use Area. The potential native community should be dominated by shadscale (*Atriplex confertifolia*), bud sagebrush (*Picrothamnus desertorum*) and Indian ricegrass. Potential vegetative composition for this Ecological Site is about 25% grasses, 5% forbs and 70% shrubs. Approximate ground cover (basal and canopy) for this site is 10-15%. Expected bare ground for the site is approximately 50-80%. Total annual air-dry production for this site should be 450 lbs/acre in a normal year.

Field Observations:
The site is dominated with shadscale and bud sagebrush with an understory of Sandberg’s bluegrass. Throughout the site, the majority of the shadscale plants observed were approximately 50% decadent with few leaves present on the plant. The interspaces between the shadscale and bud sagebrush were dominated with Sandberg’s bluegrass and scattered cheatgrass. Utilization of Sandberg’s bluegrass averaged 3.9%. Other annual species, occurring occasionally, included clasping pepperweed, Russian thistle and halogeton. Livestock sign was old.

Photo 1: AG-06 Long-Term Transect Overview in October 2014.

Summary:
The overall vegetative composition of the site is altered when compared to its potential as outlined in the Ecological Site Description. The site is dominated by shadscale as expected; however key perennial grass species are missing from the understory with invasive annuals becoming the dominant understory vegetation. The lack of key perennial species increases the risk for further proliferation by invasive annuals. Cattle were observed in the use area near this site during monitoring the approves season of use for the Mule Canyon Use Area ended in June a follow up compliance check is needed.

Upland KMA 2: AG-01 (025XY014NV Loamy 10-12"p.z.)

Background:
This KMA is located within the Mule Canyon Use Area. The potential native plant community should be dominated by bluebunch wheatgrass, Thurber's needlegrass and big sagebrush which may consist of basin, Wyoming or mountain big sagebrush. Potential vegetative composition for this Ecological Site is about 65% grasses, 10% forbs and 25% shrubs. Approximate ground cover (basal and canopy) for this site is 30-40%. Expected bare ground for the site is approximately 40%. Total annual air-dry production for this site should be 800 lbs/acre in a normal year.

Field Observations:
The site is dominated with forage kochia (*Bassia prostrata*) and Sandberg's bluegrass. Utilization of forage kochia was 3.0%, Sandberg's bluegrass was 2.5% and crested wheatgrass was 26.3%. Utilization in July of forage kochia was 6.5% and Sandberg's bluegrass was 2.5%. Toward the end of the utilization transect a fair amount of Thurber's needlegrass, Indian ricegrass and basin wildrye were observed and utilized. Crested wheatgrass and kochia appeared to have reduced growth. Livestock may have been attracted to the site by a mineral supplement placed near the monitoring area. Cheatgrass was present in the interspaces. Sign of cattle, rabbit and antelope was present at the site. Although past and present sign of cattle was observed, recent antelope sign appeared to dominate the site.

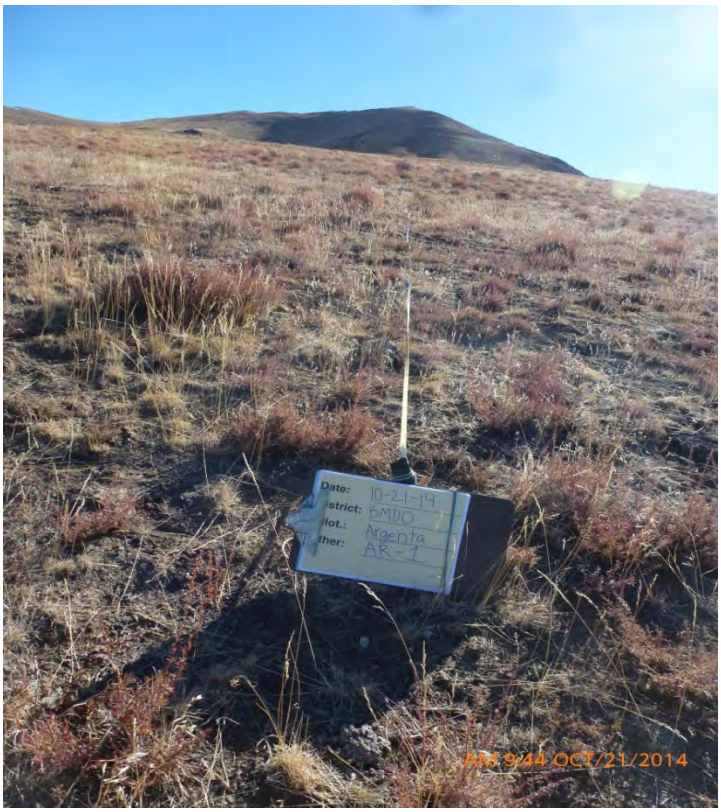


Photo 1a: AG-01 Long-Term Transect Overview – note the Sandberg's bluegrass and forage kochia in October 2014.

Photo 2b: AG-01 Long-Term Transect Overview –in July 2014.

Summary:
This site was affected by the Mule Canyon Fire in 1999. Subsequent rehabilitation successfully established forage kochia, crested wheatgrass and a variety of native species. A shift in vegetative composition has occurred, primarily due to the introduction of forage kochia and crested wheatgrass. The site is located in a saddle where mineral supplement had been placed. Cattle were observed in the use area near this site during monitoring the approves season of use for the Mule Canyon Use Area ended in June a follow up compliance check is needed.

Upland KMA 3: AG-21 (025XY014NV Loamy 10-12"p.z.)

Background:
This KMA is located within the Mule Canyon Use Area. The potential native plant community should be dominated by bluebunch wheatgrass, Thurber's needlegrass and big sagebrush which may consist of basin, Wyoming or mountain big sagebrush. Potential vegetative composition for this Ecological Site is about 65% grasses, 10% forbs and 25% shrubs. Approximate ground cover (basal and canopy) for this site is 30-40%. Expected bare ground for the site is approximately 40%. Total annual air-dry production for this site should be 800 lbs/acre in a normal year.

Field Observations:
This site burned in 1999 and re-seeded with crested wheatgrass, forage kochia and other native species. Other species within the site include bottlebrush squirreltail, Indian ricegrass and Sandberg's bluegrass. Cheatgrass is also present. Shrubs are infrequent and include serviceberry and scattered sagebrush. Vigor was noted as average and no indications of drought stress were documented. Sandberg's bluegrass had senesced, while bottlebrush squirreltail and crested wheatgrass were at full seed head expression and still green. Utilization was measured as 3.6% on crested wheatgrass. Utilization in July was measured as 8.75% on crested wheatgrass and 4.4% on bottlebrush squirreltail. Old cattle sign was frequent across the site with scattered fresh hoof tracks and droppings.

Summary:
The overall vegetative composition of the site is altered when compared to its potential as outlined in the Ecological Site Description. The burn and associated reclamation established a productive crested wheatgrass seeding with a compliment of other seeded and perennial species. Since cheatgrass is present, the risk for increase of this species exists. Cattle were observed in the use area near this site during monitoring the approves season of use for the Mule Canyon Use Area ended in June a follow up compliance check is needed.

Photo 1a: AG-21 Long-Term Transect Overview in October 2014

Photo 1b: AG-21 Long-Term Transect Overview in July 2014

West Flat Use Area

Livestock removal for Grazing Year 2014 is recommended

Upland KMA 1: AG-11 (024XY002NV Loamy 5-8"P.Z.)

Background:

KMA Ag-11 is located within the West Flat Use Area. The potential native plant community should be dominated by shadscale, bud sagebrush and Indian ricegrass. The potential vegetative composition for the Ecological Site is about 25% grasses, 5% forbs, and 70% shrubs with an approximate ground cover (basal and canopy) for this site is 10-15%. Total annual air-dry production for this site should be 450 lbs/acre in a normal year.

Field Observations

This site is dominated by shadscale with an understory of Sandberg's bluegrass. Other species include cheatgrass, budsage and clasping pepperweed. Drought related stress was present on shrub species most herbaceous species appeared normal for this time of year though growth was slightly reduced. Utilization at this site appeared to be limited due to distance from available water for livestock use. This site was not visited in July.

Summary

The overall vegetative composition of the site is altered when compared to its potential as outlined in the ESD. The site is dominated by shrubs (shadscale and bud sagebrush) as expected; however, the understory is dominated with Sandberg's bluegrass and scattered invasive annuals with Indian ricegrass absent from the site.

Photo 1: AG-11 Utilization cage showing this year's growth and use.

Upland KMA 2: AG-04 (024XY002NV Loamy 5-8"p.z.)

Background:
This KMA is located within the West Flat Use Area. The potential native community should be dominated by shadscale, bud sagebrush and Indian ricegrass. Potential vegetative composition for this Ecological Site is about 25% grasses, 5% forbs and 70% shrubs. Approximate ground cover (basal and canopy) for this site is 10-15%. Expected bare ground for the site is approximately 50-80%. Total annual air-dry production for this site should be 450 lbs/acre in a normal year.

Field Observations:
This site is dominated with shadscale and bud sagebrush with an understory of Sandberg's bluegrass and bottlebrush squirreltail. Other species observed included halogeton and scattered Wyoming big sagebrush. Grass species and bud sagebrush were senescent and shadscale was drying out. Sandberg's bluegrass appeared to have below normal proction and was the most abundant grass. Bottlebrush squirreltail appeared to be affected by drought and was 3 inches in height. Shrubs appeared to have low vigor and limited growth this year. Cattle sign was common and there was evidence of recent trailing and trampling. Utilization was measured for Sandberg's bluegrass because bottlebrush squirreltail was rare at the site. Utilization of Sandberg's bluegrass was 29.1%. Utilization of Sandberg's bluegrass was 3.5% in July 2014.

Photo 1: AG-04 Ground cover view – note lack of perennial reassess and ground cover.

Photo 2: AG-04 Utilization cage showing annual growth and use outside of cage.

Summary:
The overall vegetative composition of the site is altered when compared to its potential as outlined in the ESD. The site is dominated by shrubs (shadscale and bud sagebrush) as expected; however, the understory is dominated with Sandberg's bluegrass and scattered invasive annuals with Indian ricegrass absent from the site.

Whirlwind Use Area

Continue to Monitor

Upland KMA 1: AG-SS01 (025XY019NV Loamy 8-10"p.z.)

Background:
This KMA is located within the Whirlwind Valley Use Area. The potential native plant community should be dominated by Thurber's needlegrass, bluebunch wheatgrass and Wyoming big sagebrush. Potential vegetative composition for this Ecological Site is about 65% grasses, 5% forbs and 30% shrubs. Approximate ground cover (basal and canopy) for this site is 20-30 %. The expected bare ground value is approximately 50%, depending on soil surface texture and

surface fragments. Total annual air-dry production for this site should be 600 lbs/acre in a normal year. According to the ESD, as ecological condition declines, big sagebrush and rabbitbrush become dominant with an increase of Sandberg's bluegrass, bottlebrush squirreltail, phlox and other mat-forming forbs in the understory. Cheatgrass, halogeton, Russian thistle and annual mustards are species likely to invade this site. Utah juniper will invade this site where it occurs adjacent to these woodland areas.

Field observation:
This site is within an area burned on multiple occasions and dominated by cheatgrass. Other species observed included clasping pepperweed, halogeton, Sandberg's bluegrass, crested wheatgrass, storksbill (*Erodium spp.*) and a few scattered basin wildrye. Cattle were observed 100m from the utilization cage. Cattle sign was observed frequently at the site and ranged from fresh to old. A utilization transect was not conducted at the site due to the lack of key perennial species. Visually the area was utilized and small bare ground patches in the cheatgrass were beginning to form.

Summary:
This site should be dominated with Wyoming big sagebrush, Thurber's needlegrass and bluebunch wheatgrass. However, the site is dominated with cheatgrass and other annual species which is a departure from the ESD. Invasive annuals do not provide quality habitat for wildlife and potentially increases the frequency of fires.

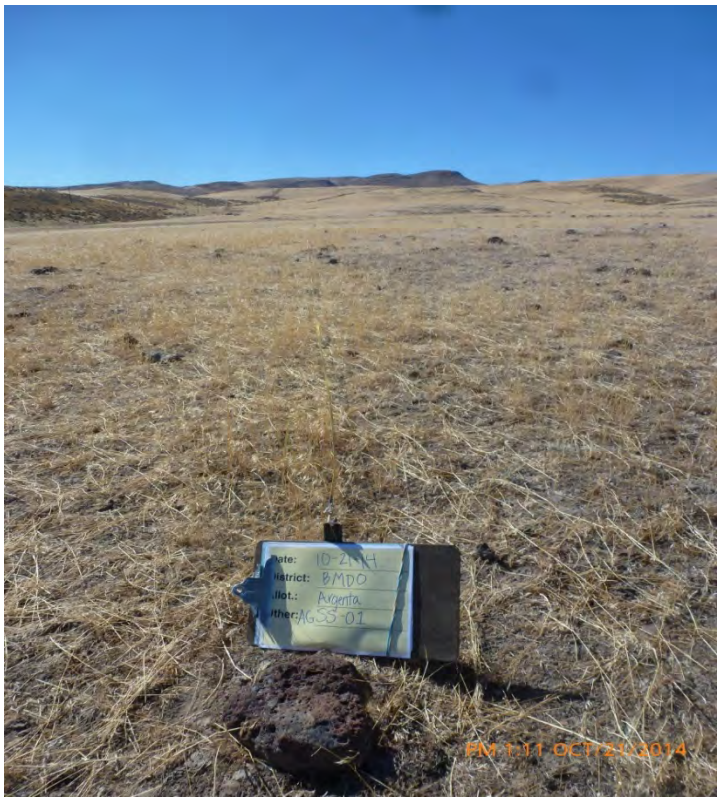


Photo 1a: AG-SS1 Long-Term Transect Overview - note dominance of cheatgrass and bare patches beginning to form.

Photo 1b: AG-SS1 Long-Term Transect Overview in July 2014

Photo 1c: AG-SS1 Long-Term Transect Overview in June 2014

Upland KMA 2: AG-20 (025XY019NV Loamy 8-10”p.z.)

Background:
This KMA is located within the Whirlwind Valley Use Area. The potential native plant community should be dominated by Thurber’s needlegrass, bluebunch wheatgrass and Wyoming big sagebrush. Potential vegetative composition for this Ecological Site is about 65% grasses, 5% forbs and 30% shrubs. Approximate ground cover (basal and canopy) for this site is 20-30 %. The expected bare ground value is approximately 50%, depending on soil surface texture and surface fragments. Total annual air-dry production for this site should be 600 lbs/acre in a normal year.

Field Observations:
This site is dominated with Wyoming big sagebrush with an understory of Sandberg’s bluegrass. Other species observed included bottlebrush squirreltail, Douglas rabbitbrush, shadscale, spiny hopsage, cheatgrass, and mustard. Sandberg’s bluegrass did not show signs of drought stress, but the sagebrush appeared to be drying and exhibited low to medium vigor. Utilization was conducted on Sandberg’s bluegrass and was determined to be 2.5%. Cattle and recent livestock sign was observed at the site.

Summary:
The overall vegetative composition of the site is altered when compared to its potential as outlined in the ESD. The site is dominated by Wyoming big sagebrush and Sandberg’s bluegrass. Key perennial species (Thurber’s needlegrass and bluebunch wheatgrass) are missing from the site.

Photo 1a: AG-20 Transect, note bare ground and Sandberg's bluegrass dominance

Photo 1b: AG-20 Transect in July 2014

Winter Use Area

Continue to monitor

Upland KMA: AG-12 (024XY002NV Loamy 5-8"P.Z.)

Background:

KMA AG-12 is located within the Winter Use Area. The potential native plant community should be dominated by shadscale, bud sagebrush and Indian ricegrass. The potential vegetative composition for the Ecological Site is about 25% grasses, 5% forbs, and 70% shrubs with an approximate ground cover (basal and canopy) for this site is 10-15%. Total annual air-dry production for this site should be 450 lbs/acre in a normal year.

Field Observations:
This site had no livestock use at the time of monitoring. Cattle were present in the use area however most of the public land in this use is a significant distance from available water for livestock grazing and cattle have not been in the use area for very long. Site was dominated by shadscale and bud sagebrush which was in poor condition. Limited grasses were present with reduced growth. Many of the shrubs were dead or senescing at the site. This site was not monitored in July since no livestock had been present there at the time in GY 2014.

Summary:
The overall vegetative composition of the site is altered when compared to its potential as outlined in the ESD. The site is dominated by shadscale and budsage. Key perennial specie (Indian ricegrass) is missing from the site. Limited grasses were present thought bottlebrush squirltail, Sandberg's bluegrass and cheatgrass were present. Annual invasive weeds such as Halogeton were present.

Photo 1: AG-12 Photo facing transect showing condition of drought stressed shrubs

USE AREAS AFFECTED BY THE AUGUST 22nd DECISION

Corral Canyon Use Area

CLOSED by August 22nd Decision

Riparian DMA: Corral Canyon

Corral Creek contains Rosgen B and C channel types, but heavy streambank alterations have adversely impacted channel dimension (width/depth ratio) and competence. Baltic rush is the primary stabilizer, but Kentucky bluegrass comprises a similar composition.

Stubble heights were exceeded in July and continued to decline through October. Most leaders on the palatable trees/shrubs had been consumed by July, so changes in woody browse metrics were negligible through October. Recent cattle sign was observed along the DMA of this closed Use Area.

A healthy age distribution of woody plants is missing, as nearly all willow are mature. Utilization data from 2013 and 2014 indicates that over-utilization on willow is a causal factor, whereby livestock consume the new plants before they can grow above the browse height. In 2013, willow use was 68%. In 2014, it was ~90%. However, because woody plants are so scarce, few were available to measure, making confidence tests difficult.

Table 1: comparison of DRT measurements for July to October, 2014

Date	JUBA (in)	POPR (in)	CANE2 (in)	RIBES (% use)	SALIX (% use)	ROWO (% use)
7/11/2014	2.3	2.4	-	23.33	90	-
10/21/2014	2.1	1.5	2.1	10	83.33	35.33
Change	-0.2	-0.9	-	13.33	6.67	-

Photo 1: Recent livestock use in this closed Use Area on 10/21/2014

Photo 2a: Top of DMA, looking downstream on 7/10/2014

Photo 2b: Top of DMA, looking downstream on 10/21/2014

Photo 3: Severe woody browse 10/21/2014, adversely impacting plant health

Photo 4: Unstable and eroding bank on 10/21/2014

Indian Creek Use Area

CLOSED by August 22nd Decision

Riparian DMA: Indian Creek

Indian Creek follows the Rosgen G, F and C evolutionary sequence and various segments are at different stages of channel succession, development and sensitivity. Current and historic livestock trailing, trampling and over-utilization has led to large areas of bare ground along the streambanks, as well as significant erosion potential. DRTs were exceeded in July and adverse drought impacts have intensified through October. Approximately 15 cattle were observed within the closed Use Area.

The site was completely dry during the October survey and drought induced senescence was observed. Because there was less than 25% foliar cover of live perennial herbaceous vegetation and/or shrub/tree seedlings rooted along the greenline, measurements were not collected and the site was visually inspected.

Table 1: comparison of DRT measurements for July to October, 2014

Visit	Species	# Plants	Height (in)	Species	# Plants	Use (%)
7/10/2014	AGST2	24	4.5	SALIX	13	46.92
	ELPA3	18	4.7	-	-	-
	POPR	5	2.4	-	-	-
10/23/2014	-	-	-	-	-	-

Photo 1: Livestock grazing within the closed Use Area on 10/23/2014. Large swaths of bare ground

Photo 2a: Representative photo of DMA on 7/10/2014

Photo 2b: Representative photo of DMA on 10/23/2014, showing adverse drought impacts

Photo 3a: Representative photo of DMA on 7/10/2014

Photo 3b: Representative photo of DMA on 10/23/2014

Photo 4: Heavy browse on willow

Photo 5: Bare ground with cattle on bench above Indian Creek, which was closed in July, 2014

Maysville North Use Area

CLOSED by August 22nd Decision

Riparian DMA: The Park

The Park is a broad, gently sloping basin that supports dry meadows, wet meadows, springs/seeps and a perennial stream. The channel has been severely altered by current and historic use and channel characteristics are highly variable. The upper-most segment of stream is downcut over ten feet and most resembles an F type channel. A headcut ~3 feet tall was observed and is likely to migrate during floods and cause it to revert back to an unstable G type channel, causing further declines in the shallow groundwater elevation. The stream is surrounded by patches of dry meadow and sagebrush.

The DMA is located in a Rosgen E, but channel dimension, pattern and profile have been altered by excessive use. It is classified as perennial, but due to the persistent drought, was dry during July and October surveys. Although a trickle of water was observed within a small segment (<1/4 mile) of the downcut section of channel during July, it was completely dry in October. Stubble heights were ~1.0 inches during both surveys, indicating that livestock had already grazed the area to the bite limit (stubble height at which a cow can no longer bite the grass) in July and continually overgrazed the site by consuming any regrowth.

Table 1: comparison of DRT measurements for July to October, 2014

Date	JUBA (in)	POPR (in)
7/10/2014	1.3	1
10/21/2014	1	1
Change	-0.3	0

Photo 1a: Bottom of DMA, looking upstream on 6/10/2014

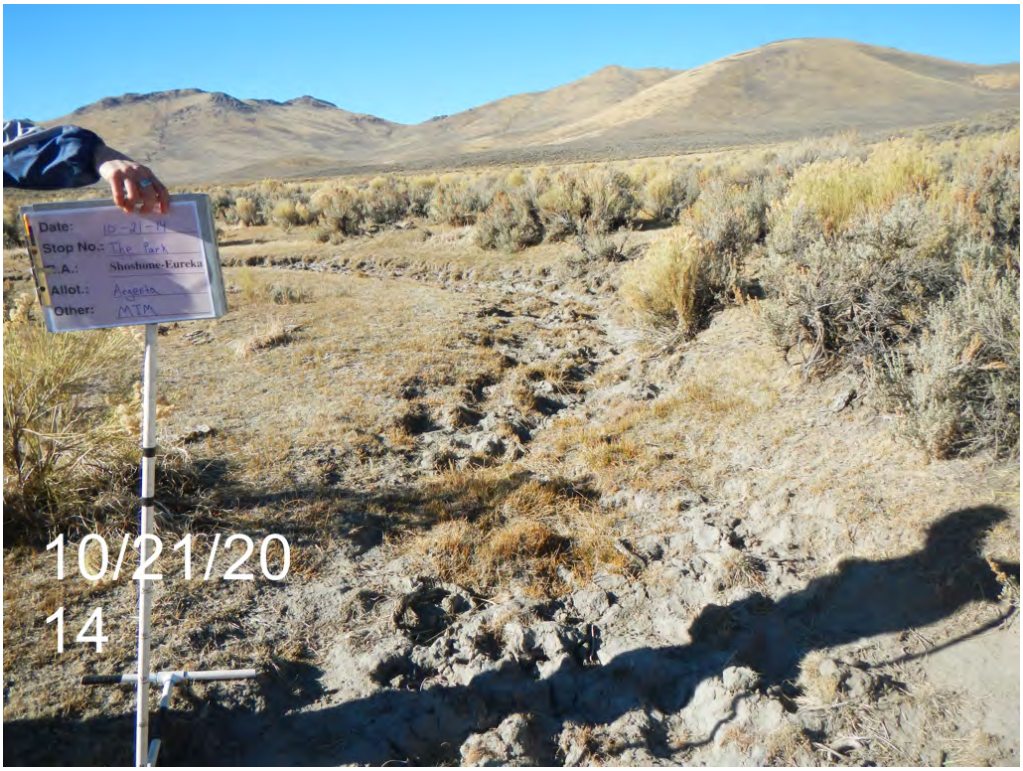


Photo 1b: Bottom of DMA, looking upstream on 10/21/2014. Completely dry and induced senescence

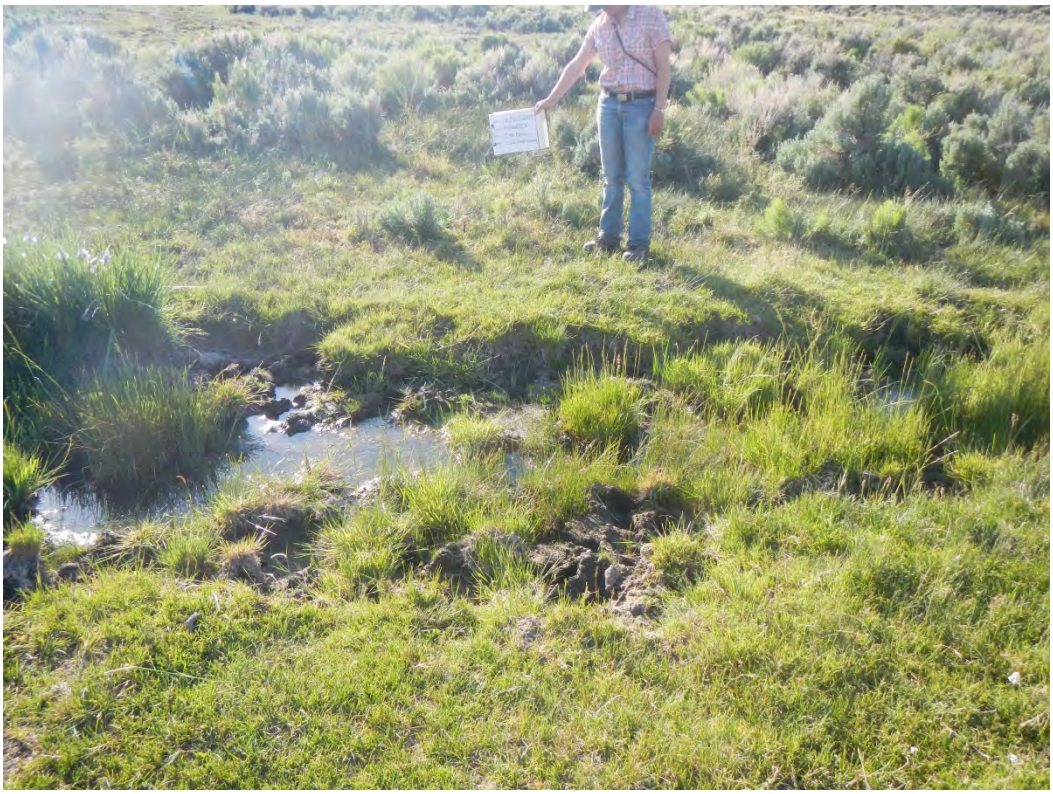


Photo 2a: Looking across channel on 6/10/2014, shortly after livestock began grazing the site

Photo 2b: Looking across channel on 10/21/2014, after authorized and trespass use

Maysville South Use Area

CLOSED by August 22nd Decision

Riparian DMA: Ferris Creek

Ferris Creek is transitioning through a G to F to C morphological sequence. This stream has the ability to maintain the resource values associated with a C channel type and even achieve an inset E type channel over time. However, vertical instabilities (headcuts) exist below the DMA and indicate that the channel may be degrading back to a G type channel.

Ferris Creek is dominated by red top and Kentucky bluegrass, but still has a minor component of riparian species spikerush (*Eleocharis palustris*) and Nebraska sedge (*Carex nebrascensis*), as well as willow. Stubble heights were less than four inches on all key species during the July surveys and have declined further. In July, it was noted that although livestock had not yet begun to graze the trees/shrubs, they would soon target the woody plants because herbaceous forage had already been consumed.

Since livestock were not removed in a timely manner, they congregated on the riparian sites within the use area and significantly overgrazed the vegetation, as is evidenced by the October monitoring data collected at the MIM site on Ferris Creek. All key riparian plants were grazed below 2 inches and woody browse was ~60% on Willow and ~72% on Wood's rose.

Table 1: comparison of DRT measurements for July to October 2014

Date	AGST2 (in)	CANE2 (in)	ELPA3 (in)	JUBA (in)	POPR (in)	SALIX (% use)	ROWO (% use)
7/9/2014	3.0	2.9	3.1	-	2.7	-	-
10/22/2014	1.3	1.3	1.1	3	1.1	59.09	71.67
Change	-1.7	-1.6	-2.0	-	-1.6	-	-

Photo 1a: Looking downstream from top of MIM site on 7/9/2014

Photo 1b: Looking downstream from top of MIM site on 10/22/2014. Notice the bank shearing caused by excessive livestock trampling

Photo 2a: Upper third of MIM site on 7/9/2014

Photo 2b: Upper third of MIM site on 10/22/2014. Repeatedly overgrazed. Insufficient residual vegetation to protect banks, capture sediment and support plant health

Photo 3a: Representative channel segment on 7/9/2014. Cattle had grazed herbaceous plants past triggers, but not yet shifted to the woody plants.

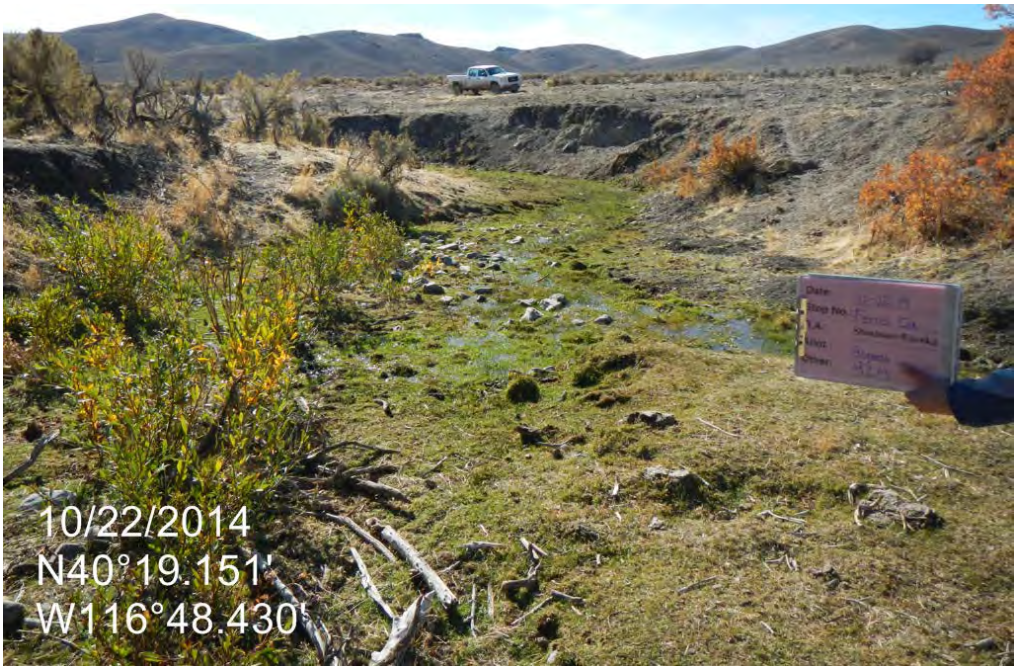


Photo 3a: Representative channel segment on 10/22/2014. After grazing the herbaceous plants too short for further use, cattle began grazing the woody plants.

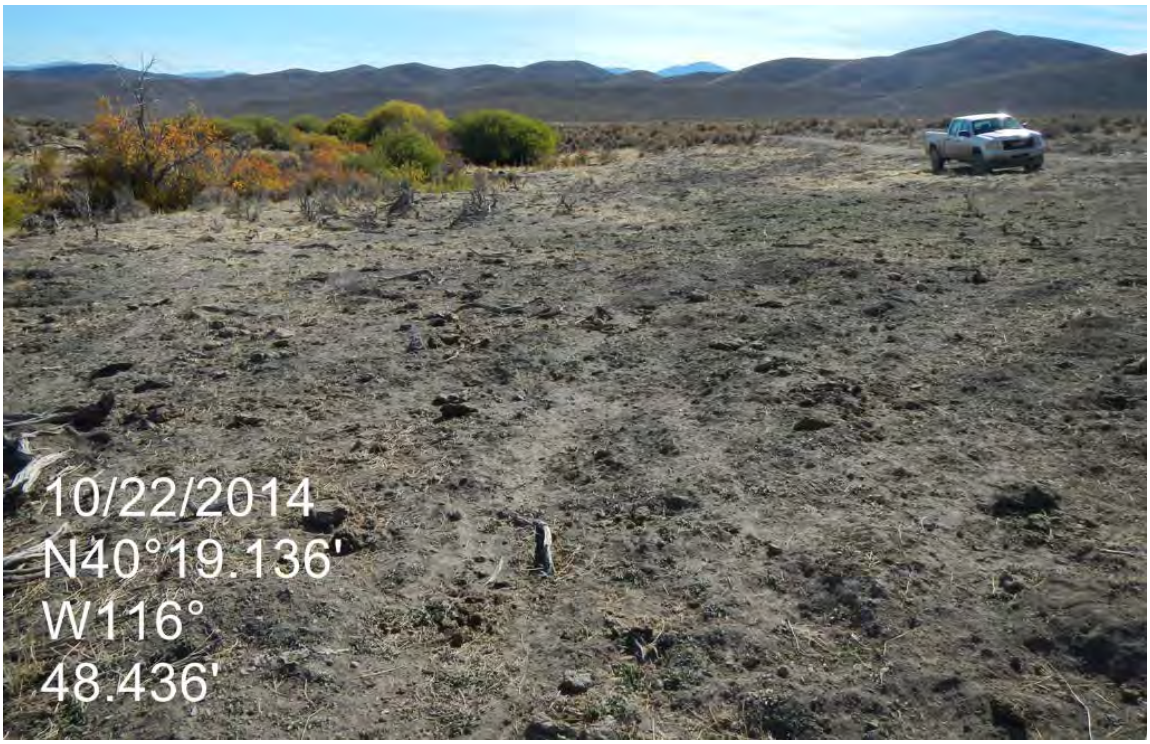


Photo 4: Cattle loafing next to stream channel have removed all vegetation and left bare ground exposed to wind and water erosion. Invasive weeds will reoccupy this site in 2015

Photo 5: Cattle heavily/severely grazed the Wood's rose that is within grazing height from the stream

Mill Creek Use Area

CLOSED by August 22nd Decision

Riparian DMA: Mill Creek

Mill Creek resembles a Rosgen G and F channel type and has been adversely impacted by current and historic road encroachment and overgrazing. Although it is normally perennial, interrupted flow was observed along the channel and discharge was minimal. A seep is located near the top of the DMA, which supports the desirable species Nebraska sedge (*Carex nebrascensis*) and Baltic rush (*Juncus balticus*). Due to frequent disturbance and heavy utilization, less desirable species such as clover, Kentucky bluegrass, red top and dandelion dominate.

Stubble heights were exceeded in July, but livestock had not yet grazed any of the woody plants. Because the permittees did not remove the livestock for many weeks after exceeding DRTs, the site was heavily overgrazed. Herbaceous plants were grazed to less than 2 inches and woody browse was 90% on both willow and Wood's rose. This extreme level of overgrazing has adversely impacted the health and vigor of the riparian plants and the functionality of the riparian habitat.

Table 1: comparison of DRT measurements for July to October, 2014

Date	AGST2 (in)	CANE2 (in)	POPR (in)	RIIN2 (% use)	AMAL2 (% use)	SALIX (% use)	ROWO (% use)
7/9/2014	2.7	-	1.9	-	-	-	-
10/22/2014	1.5	1	1.5	13.64	75	90	90
Change	-1.2	-	-0.4	-	-	-	-

Photo 1: Representative photo of the stream channel within the DMA

Photo 2: Cage established in 2009 on spring at top of site. Stubble height on Nebraska sedge was over 10 inches in the cage and ~1 inch outside.

Photo 3: Streambank near top of the DMA trampled

Photo 4: Dry segment of the stream channel near top of the DMA

North Fork (Mill Creek) Use Area

CLOSED by August 22nd Decision

Riparian DMA: North Fork

North Fork is a Rosgen B type channel and is dominated by Kentucky bluegrass, red top (to a lesser extent) and false hellebore (*Veratrum californicum*) (toxic, increaser). A series of seeps and springs are located uphill of the DMA and support discharge in the channel. DRTs were exceeded in July, but livestock loafed at the site for many more weeks, adversely impacting the riparian habitat. Large areas of bare ground and scat were present all along the stream channel and nearby springs. Stubble heights declined to 1.4 inches and although no key woody plants were rooted inside the DMA, woody browse appeared severe in nearby locations. Uprooted grasses were present along the stream where livestock were attempting to consume the already overgrazed plants.

The springs are severely trampled and the disturbance has altered surface/subsurface flow patterns and caused the formation of preferential flow paths that are accelerating the rate at which riparian/wetland soils drain and erode. As a result, the riparian/wetland extent is declining.

Table 1: comparison of DRT measurements for July to October 2014

Date	POPR (in)	AGST2 (in)
7/10/2014	2	-
10/23/2014	1.4	1.8
Change	-0.6	-

Photo 1: Severely browsed willow below DMA

Photo 2a: Spring 1, above MIM site on 6/11/2014, shortly after livestock began grazing the site

Photo 2b: Spring 1, above MIM site on 10/23/2014, after authorized and trespass use

Photo 3a: Spring 2, adjacent to stream channel on 6/11/2014 was trampled and draining

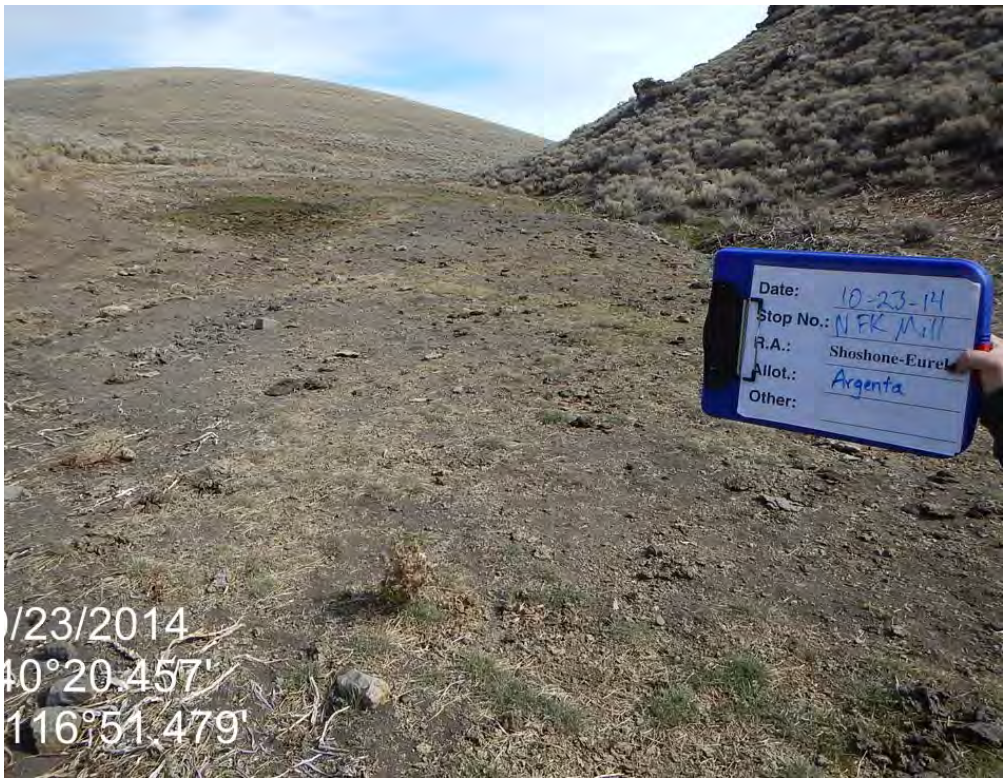


Photo 3b: Spring 2, adjacent to stream on 10/23/2014 has drained, soils are compacted and scat is abundant

Photo 4a: Spring 3, adjacent to stream on 6/11/2014 is draining through hummocks and trails

Photo 4b: Spring 3, adjacent to stream on 10/23/2014 has drained and soil is exposed to wind and water erosion, which will reduce future productivity and increase weed infestations

Photo 5a: MIM site on 6/11/2014. Shortly after livestock began grazing the site

Photo 5b: MIM site on 10/23/2014

Photo 6: Close up of Spring 1 on 10/23/2014, which is a primary headwater to the stream. Bare ground, pedestaling and accelerated drainage. Soil storage mechanism is reduced, which correspondingly reduces base flows and adversely impacts the aquatic life, including Brook Trout, which live down gradient. Note, non-predated fish mortality was observed during July, 2014 surveys.

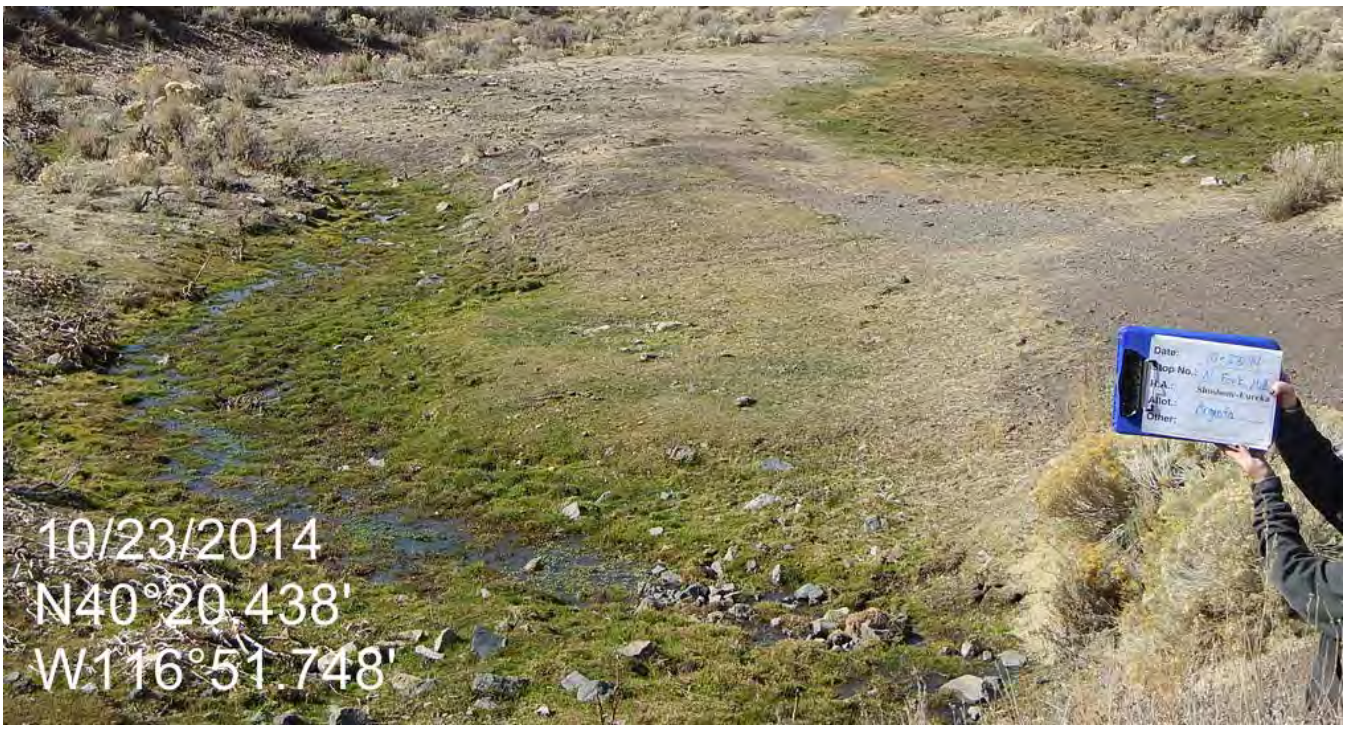


Photo 7: Stream channel and spring 4. Note loafing site and associated bare ground

Slaven Use Area

CLOSED and MODIFIED by August 22nd Decision

Riparian DMA: Slaven Canyon

Slaven Creek originates from a spring ~0.3 miles above the DMA. Current and historic use has altered the channel's morphology, which is most similar to a Rosgen G. The stream channel is nearly 100% altered by trampling. Stubble height triggers were exceeded in July and cattle were removed several weeks later, allowing some recovery within the channel. However, during the October survey, livestock were observed inside the closed Use Area and appear to have recently begun grazing the riparian area again, threatening the recovery of the system.

Table 1: comparison of DRT measurements for July to October, 2014

Date	AGST2 (in)	ELPA3 (in)	POMO5 (in)	POPR (in)
7/10/2014	-	2.8	2.9	1.7
10/23/2014	1	1.2	1.3	1
Change	-	-1.6	-1.6	-0.7

Photo 1: Livestock loafing near stream in the closed Use Area on 10/23/2014

Photo 2a: Slaven Creek DMA on 7/10/2014. Denuded after severe overgrazing

Photo 2b: Slaven Creek DMA on 10/23/2014. Note the start of regrowth after livestock removal

Photo 3a: Slaven Creek DMA on 7/10/2014. Denuded after severe overgrazing

Photo 3b: Slaven Creek DMA on 10/23/2014. Note the start of regrowth after livestock removal

Trout Creek Use Area

CLOSED by August 22nd Decision

Riparian DMA: Trout Creek

Trout Creek is a Rosgen B type channel. The greenline is composed of a mix of rock, herbaceous and woody plants. It has the potential to support willow and/or aspen communities and many immature plants were observed. Stubble height triggers were exceeded in the July survey, but the livestock had not yet shifted to the woody species. Because livestock were not removed in a timely manner after the DRT exceedances, stubble heights declined below 2 inches and over 70% of the current year's willow growth was grazed, adversely impacting the health of the plants, quality of the habitat and the riparian area's ability to capture sediment and withstand high flow events.

Table 1: comparison of DRT measurements for July to October, 2014

Date	AGST2 (in)	ELPA3 (in)	JUEN (in)	POPR (in)	SALIX (% use)
7/11/2014	3.2	2.8	1.7	1.8	-
10/23/2014	1.6	-	-	1.3	72
Change	-1.6	-	-	-0.5	-

Photo 1: Severely browsed willow

Photo 1a: Bottom of DMA on 7/11/2014, looking upstream

Photo 1b: Bottom of DMA on 10/23/2014, looking upstream. Note the hedged willow

Photo 2a: Top of DMA on 7/11/2014, looking downstream

Photo 2b: Top of DMA on 10/23/2014, looking downstream