BLM

Bruneau Field Office, Idaho

Assessments for Big Springs Allotment (0803)

Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Bruneau Field Office
Arnold Pike, Field Manager

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I. Interdisciplinary Team Members

The assessment was prepared by an Interdisciplinary Team (ID Team) shown in the table below.

Name	Title	Responsibility
Arnold Pike Mitchell Jaurena	Bruneau Field Office Manager	Assist with the preparation and editing of the Final Assessment.
John Biar	Assistant Bruneau Field Office Manager & District Rangeland Management Specialist	Assist with the preparation and editing of the Final Assessment.
Tim Carrigan	Assistant Bruneau Field Office Manager	Assist with the preparation and editing of the Final Assessment, Standard 8 (Threatened and Endangered Plants and Animals)
Jean Fend	District Resource Coordinator	Assist with editing of the Final Assessment.
Mike Boltz	Rangeland Management Specialist	ID team lead. Assist with preparation and editing of Standards 1 and 4. Supervision of statistical compilation and of interpretation of trend statistics and photo trend. Preparation of allotment information, livestock use history, and utilization studies.
Christina Handy	Range Technician	Statistical compilation, preparation of UPM GIS themes, charts, tables, actual use, utilization studies
Steve Leonard	Range Technician	Compilation of actual use and transect utilization, airphoto interpretation of riparian PFC, collection of greenline and stubble height data.
Lynell Deines	Ecologist (Term)	Collection and compilation of Rangeland Health Evaluation data and accompanying photographs.
Nika Lepak	Ecologist	Assist with editing of the Final Assessment.
Karen Colson Holly Beck	Botanist	Standard 4 (Native Plant Communities) and Standard 8 (Threatened and Endangered Plants and Animals) for this assessment, BLM Special Status Plants.
Gene Dana	Geographic Information Specialist	Preparation of maps.
Zig Napkora Pam Druliner	Hydrologist	Standard 7 (Water Quality)- Draft Assessment
Paul Seronko	Soil Scientist	Standard 1 (Watersheds)
Helen Ulmschneider Bruce Schoeberl	Wildlife Biologist	Standard 8 (Threatened and Endangered Plants and Animals) For this assessment, BLM Special Status Animals and wildlife habitat. Collection of Sage Grouse Habitat Assessment data, pygmy rabbit inventory.
Bruce Zoellick Pam Druliner	Fisheries Biologist	Supervision of stubble height, lentic and lotic PFC data, riparian photo trend, and water quality data collection. Collection of Standard 2 (Riparian Areas and Wetlands), Standard 3 (Stream Channel/Floodplain), Standard 8 (Special Status Fish). Standard 7 (Water Quality)- Final Assessment

II. Overview of Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management

In accordance with the Code of Federal Regulations (43 CFR 4180 2(b)), Idaho BLM adopted Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management (ISRH&GLGM, see Section **VII** on page 36). The Standards and Guidelines were developed in consultation with BLM Idaho's Resource Advisory Councils (RAC) and are in conformance with the Bruneau Management Framework Plan (MFP, see Section **VIII** on page 39). There are eight Standards and twenty Guidelines, which may or may not apply to any one parcel of public land.

Rangelands should be meeting or making significant progress toward meeting applicable Standards. Current livestock grazing management will be evaluated to determine if it maintains Standards or promotes significant progress toward meeting the Standards. When Standards are met, proper nutrient cycling, hydrologic cycling, and energy flow occur.

Rangeland Health is determined by comparing current physical and biological attributes to Standards required for healthy and sustainable rangeland. These attributes serve as indicators of physical and biological function to determine functional condition. The Indicators use quantitative and qualitative information that may include inventory data, monitoring data, health assessment information or other measurements and observations to evaluate the current condition of each Indicator for each Standard. The results are presented in the **"Upland Rangeland Health Evaluations and Trend"**, the **"Riparian Health Evaluations, Trend and Water Quality"**, and the **"Habitat Evaluation and Population Status of Dependent Wildlife and Sensitive Plants"** sections of each respective Assessment. A discussion of the monitoring methods used to evaluate the Standards is included in Section **V** (page 17).

Guidelines direct the selection of grazing management practices, and where appropriate, livestock management facilities to promote significant progress toward, or the attainment and maintenance of the Standards. Management practices include the manipulation of season, grazing duration, and intensity of use, as well as numbers, distribution, and kind of livestock. Management facilities include structures such as fences and water developments (See Map 8 on page 35). Current grazing management practices are described in the **"Grazing Management and Implementation Monitoring"** section of each respective Assessment and existing structures are discussed in the context of grazing practices or of resource conditions where relevant.

The BLM issued a draft Rangeland Health Assessment in June, 2005 and received one letter with comments on the draft from Western Watersheds Project. Verbal comments were provided informally by Joseph Black & Sons and by Sierra Del Rio. Comments, suggestions and submitted data and photographs were examined closely and incorporated into this final document where appropriate and possible.

A conclusion as to whether or not the individual Use Areas within the Big Springs Allotment are meeting or making significant progress toward meeting the Standards and Guidelines will be provided in separate Evaluation and Determination documents for each Use Area, entitled the Sierra Del Rio (SDR), Joseph Black & Sons (JB&S), and Dickshooter Cattle Co. (DCC) Use Area Evaluations and Determinations, respectively (2011). The interpretation of data in this document and the cause of the resulting resource condition will be identified in these respective Evaluations and Determinations. Since the Standards and Guidelines are in conformance with the Bruneau MFP, the evaluation of Idaho's Standards and Guidelines also addresses the MFP objectives for watershed, range, and wildlife resources.

III. Relationship of the Standards and Guidelines process to current livestock management

A. Identified Issues and Changes to Management During Current Grazing Permits

These Rangeland Health Assessments will mainly focus on the livestock grazing use that has occurred from 1987 through 2009 in the Big Springs Allotment. In 1987, grazing management in the Big Springs Allotment changed as a result of the 1987 Big Springs Allotment Decision. That Decision formally authorized separate Use Areas within the Big Springs Allotment (See Section **VI,** General Appendix - Map 1 (page 28)) that had been historically grazed in common by the three permittees since the late 1960's, with the sole exception of the Asa Black private allotment established in 1974. As a result, cattle from the multiple herds were prevented from congregating in preferred areas during the entire spring, summer, and early fall seasons. The Decision required that separation among cattle herds be maintained by herding until the necessary fences were completed in 1989.

Installation of the Use Area division fence in 1989, in conjunction with fencing around the Indian Crossing base property and with rimrock along Pole Creek, created three "pastures" within the SDR Use Area, enhancing control of timing and intensity of permitted livestock use. In the 1990's, changes in grazing practices and installation of new fences and exclosures eliminated livestock drift along the eastern boundary between the Northwest Allotment and the DCC Use Area, which still share a common permittee. Dickshooter Cattle Co. also has elected to turn out later in spring than did the previous permittee, Owens Ranches.

The Decision imposed the period of use and amount of permitted use specified by the Bruneau MFP, but with the qualification that the proposed reduction in the amount of use would be less if substantiated through monitoring. Monitoring has continued, but no permanent adjustments in the amount of use have been made except for minor adjustments to the Joseph Black & Sons permits resulting from a land exchange with the State of Idaho.

In 1993, Joseph Black & Sons modified their grazing practices within their existing permit to incorporate principles of Holistic Resource Management (HRM). Water in the Black Use Area is poorly distributed and is usually only available for a limited period after turnout. A Biological Plan was prepared; subdividing the JB&S Use Area into five subpastures (A, B, C, D, and F), which are further broken up into unfenced paddocks. The paddocks are centered around water sources, and intensive riding is used to confine use within the paddocks during the scheduled use period. Biological Plan Charts are prepared for each year to specify the timing and length of time during which each paddock will be grazed. The Biological Plan Charts reduce or prevent grazing during the critical growth period in successive years; and the scheduled use period is generally short, providing for more consistent regrowth after use.

In 1996, initial inspection of segments of Pole and Deep Creek revealed that a minimum four inch stubble height was not left at the end of the growing season in the SDR Use Area. A four inch stubble height stipulation was therefore imposed on the expiring permit for the SDR Use Area in 1997 and retained on the permit reissued in 1999. Pole and Camas Creeks within the JB&S Use Area easily met a 4 inch stubble height; and no four inch stubble height stipulation was therefore imposed on the expiring permit. In 1998, BLM identified a serious problem with downcutting of the Big Springs Creek stream channel in the DCC Use Area; and a four inch stubble height stipulation was therefore imposed on the permit reissued in 1999.

Full Evaluations and Determinations for the three Use Areas could not be completed prior to the 1999 reissuance of the permits, so stubble height stipulations were imposed to ensure that both MFP objectives and the Fundamentals of Rangeland Health would be met. An initial evaluation of the Bruneau MFP objectives as they relate to grazing management during 1987 through 2004 in the Big Springs Allotment is provided in the Initial Allotment and Permit/Lease Review (Appendix B) documents for the respective Use Areas.

B. Current Livestock Grazing

Pasture Designations for Purposes of Assessment and Land Ownership

The Assessment area includes a single allotment with approximately 187,825 acres of public land, 9,329 acres of state land, and 8,517 acres of private land (Table 1 and Map 1 (page 28)). There are three separate Use Areas within the Big Springs Allotment that retain the Big Springs name and allotment number, but have been managed independently since 1989. These Use Areas are grazed by Sierra Del Rio (SDR), Joseph Black & Sons (JB&S) and Dickshooter Cattle Co. (DCC), respectively. The included land within former Pasture 5 was retained by the Owen Family Trust and is no longer considered part of the allotment.

Table 1. Acreages (2010) by pasture/paddocks and ownership for the Big Springs Allotment, Owyhee County, Idaho.

Allotment/Use Area	Pasture/Paddocks	Public	State	Private	Total
Big Springs- SDR Use Area (0803)	7N (Slack Mountain)	15,840	471	694	17,005
	7NC (Lower Camel)	132	1		133
	7 (Indian Lake)	12,048	675	245	12,968
	7S (Big Point)	15,516	1,242	144	16,902
	Dry Lake Spring Management Exclosure	6			6
	7NA- Lower Avery	75		80	155
	7NB- Lower Avery	1		238	239
	ICN- Indian Crossing	21		7	28
	ICS- Indian Crossing	15		269	284
	Totals	43,654	2,389	1,677	47,720
Big Springs- JB&S Use Area (0803)	1	216		2	218
	4A.1 to 4A.6 group	18,072			18,072
	4B.1 to 4B.5 group	16,005		15	16,020
	4C.1 to 4C.4 group	18,396	640	46	19,082
	4D.1 to 4D.5 group, 4F.1	31,234	1,756	630	33,621
	Dickshooter Camp	7		17	24
	2A- Camas Creek Field	43		499	542
	2A- Desert Field	24		579	603
	Totals	83,997	2,396	1,789	88,182
Big Springs- DCC Use Area (0803)	8N	29,430	1,169	1,747	32,346
	8S	30,273	3,374	114	33,761
	2- Big Springs Ranch	380		2,249	2,629
	3, 3A, 3B- Battle Creek Ranch	87		632	719

	SM- Squaw Meadows	4		310	314
	Totals	60,174	4,543	5,052	69,769

The Big Springs Allotment also includes several smaller pastures listed separately and shaded in Table 1 which are primarily base properties for the three permittees. Grazing use on included public lands within these smaller pastures is not formally regulated by the existing permits.

The western portion of Big Springs Allotment is the SDR Use Area, and borders Deep Creek on the west. The central portion is the JB&S Use Area. The eastern portion is associated with the Big Springs Ranch, borders Battle Creek on the east, and is referred to in this Assessment as the DCC Use Area. The names of the Use Areas are abbreviated in many of the tables and in the text of the respective Assessments.

Each Use Area runs from the Owyhee River Canyon on the south to the vicinity of the Mud Flat Road on the north. Although the major canyon systems are still within the official allotment boundaries, they are largely inaccessible to livestock permitted within the respective Use Areas of the Big Springs Allotment.

The Big Springs Allotment has about 87 reservoirs within it that were constructed to provide livestock water in upland areas (Map 8, page 35). The allotment has few natural water sources other than the streams and scattered springs. Some of the reservoirs retain water from natural springs. Due to the typical clay layer in the soil, reservoirs are generally successful in capturing and holding runoff in intermittent drainages through the early part of the summer. Spring-fed reservoirs retain water throughout the summer and fall in most years. The majority were constructed from 1945 to 1975, with a few additional reservoirs constructed during 1978 through 1985.

Currently Permitted Use

The current total permitted use for livestock grazing in the Big Springs Allotment is shown below in Table 2. The former R. T. Nahas permit was transferred to Sierra Del Rio in 2003. The former Owens Ranches permit was transferred to Dickshooter Cattle Co. in 1995. The Joseph Black & Sons permit was split into two permits through transfer in 2002.

Table 2. Total permitted use, active permitted use, suspended use, Exchange-of-Use, permitted season of use, and nominal cattle numbers for individual permittees in the Big Spring Allotment (1987 - present).

Allotment	Permittee	Season of Use	Active Use	Suspended Use	Total Permitted Use	Exchange of Use	Total Use	% BLM AUMs	Numbers
Big Springs (0803)	Sierra Del Rio	May 1 – October 15	3,021	0	3,021	322	3,343	90	547
	Joseph Black & Sons	April 1 – October 31	2,793	0	2,793	225	3,018	92	394
	Joseph Black & Sons	April 1 – October 31	1,541	0	1,541	0	1,541	100	219
	Dickshooter Cattle Co.	April 1 – September 30	10,627	0	10,627	669	11,296	94	1747
	Total		17,982	0	17,982	1,216	19,198		

All four permits provide flexibility in livestock numbers as long as total AUMs are not exceeded and use is within the permitted period of use. Nominal livestock numbers shown in Table 2 are for cattle, but each permittee also licenses a small number of horses in the respective Use Areas.

IV. Allotment Description

A. Location, Physical Description and Special Designations

Located in Owyhee County, Idaho, near the towns of Grand View, Triangle, and Riddle, the Big Springs Allotment is located along the northern margin of the Owyhee River Canyon. Landmarks within or bordering the allotment include the Mud Flat Road (Backcountry Byway) on the north, Deep Creek Canyon on the west, Battle Creek Canyon on the east, and the Owyhee River Canyon on the south. Slack Mountain, Avery Table, Dickshooter Ridge, Big Springs Butte, Spencer Butte, and Frying Pan Basin are named landmarks within the boundaries of the allotment.

Elevations range from 6,132 feet on Big Springs Butte, 5,855 feet on Slack Mountain and around 6,000 feet in the area near Big Springs Ranch to about 5,100 feet along the rim of the Owyhee River Canyon. The terrain is a generally level plateau that slopes gradually downward from north to south toward the Owyhee River. The plateau is dissected by deep canyons tributary to the Owyhee River. Landforms consist of foothills and structural benches both in the higher elevation areas and in the lower elevation areas bordering the Owyhee River Canyon. Landforms consist of tablelands in the mid-elevation portions of the respective Use Areas.

Portions of the Big Springs Allotment lie within two Wilderness Areas (WAs) (Table 3 and Map 1 (page 28)).

Table 3. Acreage of Congressional and BLM Special Designations within the three Use Areas, Big Springs Allotment.

Special Designation	Acres[1]			
	SDR	JB&S	DCC	Pasture 5
Owyhee River WA	1,957	26,060	12,027	0
Pole Creek WA	4,714	7,223	0	0
Camas and Pole Creeks National Register District	8,126	20,038	389	87
Owyhee River Bighorn Sheep ACEC	4,233	15,971	9,449	0

[1]public land only, overlapping acreages

The Owyhee River Wilderness Area borders the allotment on the south and extends up the lower canyons of Deep Creek and Battle Creek from their confluences with Owyhee River. The Pole Creek Wilderness Area occupies the north-central portion of the allotment, extending along the canyons of Pole and Camas Creeks near the Mud Flat Road. The Wilderness Areas are centered on major canyon systems with high scenic values.

The Big Springs Allotment also includes portions of the Camas and Pole Creeks National Register District and of the Owyhee River Bighorn Sheep Area of Critical Environmental Concern (ACEC). The National Register District recognizes cultural resource values, and the ACEC benefits California bighorn sheep populations inhabiting the major canyon systems. The ACEC has a high degree of overlap with the Owyhee River WA; and the National Register District has substantial overlap with the Pole Creek WA.

B. Climate

Climatic conditions in the allotment area are typical of a cold desert environment on the Owyhee High Plateau. Common weather factors include low humidity, great variation in daily

temperatures, and breezy, predominately west winds. Annual moisture can vary from a low of 11 inches in the lower elevation areas to over 16 inches in the higher areas. Most of the precipitation comes in the form of rain or snow from storms tracking in typically from the northwest during the winter. Late summer is normally the driest period with occasional thunderstorms bringing in monsoon moisture to the region from the south. Extreme temperatures vary from the high 90's (^{O}F) in July/August to lows of -0 (^{O}F) in December/January. Day and night time temperatures can vary as much as 50 degrees. Windy periods typically occur during spring and autumn. Growth year precipitation during 1987 through 2010 is presented in Figures 2 and 3 on page 21.

C. Soils and Upland Vegetation

An ecological site is a distinct kind of land that differs from other ecological sites in its ability to produce a certain kind and amount of vegetation and in its response to management. Ecological sites result from the interaction of four major factors: 1) topography, 2) climate, 3) soils, and 4) vegetation. Soil types, species composition, site productivity, and other features are different on each ecological site. Therefore, rangeland condition is evaluated using standards specific to the potential of each individual ecological site. Table 4 provides a comparison of the major ecological sites located in the Big Springs Allotment.

The ecological site name includes a description of the basic soil feature and a range of average annual precipitation. Ecological sites having similar soil and topography may exhibit differences in their potential natural plant community due to climatic differences. Therefore, ecological sites with similar soils are further distinguished by including this precipitation information in the site name.

Erosion Potential

The erosion potential for the Clayey and Claypan sites is rated slight to moderate due to the level topography and stony surfaces generally associated with these sites. The erosion potential for the Loamy and Shallow Breaks sites is rated slight to high with slope being the main factor for the increased potential.

Soil-Vegetation Correlations

General patterns of shrub, woodland, or herbaceous community dominance within Big Springs Allotment are shown on Map 6 (page 33). Map 6 is based upon remote sensing and therefore does not differentiate areas dominated by particular shrub or herbaceous species, or woodland understory dominants. It does show locations and landscape positions of broad groupings of ecological sites that are described in more detail in Table 4 and in the following narrative.

Higher elevations result in higher effective precipitation than in areas bordering the Owyhee River Canyon (see precipitation data, Figure 2, page 21). Clayey, Stony Clayey and Churning Clay ecological sites predominate at higher elevations on Avery Table, around Big Springs Butte, and north of Frying Pan Basin and Dickshooter Creek. The Churning Clay (12-16) ecological sites occur in basins and bottoms. Loamy ecological sites intermingled with Claypan ecological sites predominate on Slack Mountain. Shallow Breaks 14-18"ecological sites which normally support scattered juniper are also present in that area and in Wagon Box Basin. Rubbleland occurs above the rim of tablelands, and supports the Stony Clayey ecological site.

Table 4. Ecological Site Descriptions within the Big Springs Allotment.

Ecological Site Name[a]	Soil	Potential Natural Community	Potential Natural Community			Deteriorated Community	Erosion Potential	Comments
			Shrub	Grass	Forb			
			% composition by weight					
			lbs/acre					
Loamy 10-13	Soils are moderately deep to deep and commonly exhibit good profile development.	Wyoming big sagebrush/ bluebunch wheatgrass	25-35%	45-55%	10-15%	Wyoming big sagebrush increases, bluebunch wheatgrass decreases. Sandberg, bottlebrush squirreltail, and cheatgrass can dominate the understory.	Slight to high (slope is the main factor for the increased potential).	Livestock tend to favor these sites over the claypan and stony clayey sites.
			750					
Loamy 11-13	Soils are moderately deep to very deep to bedrock or a duripan.	Basin big sagebrush/ bluebunch wheatgrass	20-30%	60-70%	5-10%	Basin big sagebrush increases, bluebunch wheatgrass decreases. Sandberg bluegrass and cheatgrass can dominate the understory.	Slight to high (slope is the main factor for the increased potential).	Livestock tend to favor these sites over the claypan and stony clayey sites.
			900					
Loamy 12-16	Soils are dominantly deep to very deep to bedrock or a duripan.	Basin big sagebrush/ Idaho fescue-bluebunch wheatgrass	20-30%	65-75%	5-10%	Basin big sagebrush increases, bluebunch wheatgrass and Idaho fescue decrease. Sandberg bluegrass and cheatgrass can dominate the understory.	Slight to high (slope is the main factor for the increased potential).	Livestock tend to favor these sites over the claypan and stony clayey sites.
			900					
Loamy 13-16	Soils are moderately deep to deep to bedrock or a duripan.	Mountain big sagebrush/ bluebunch wheatgrass-Idaho fescue	20-30%	50-65%	5-15%	Mountain big sagebrush increases, perennial grasses decrease. Sandberg bluegrass can dominate the understory.	Slight to high (slope is the main factor for the increased potential).	Livestock tend to favor these sites over the claypan and stony clayey sites.
			1000					
Very Shallow Stony Loam 10-14	Soils are dominantly very shallow, less than 10 inches to bedrock.	Low sagebrush/ Sandberg bluegrass	15-20%	65-75%	10-15%	Low sagebrush increases. One spike oatgrass and cheatgrass can dominate the understory.	Runoff is usually rapid or very rapid and the erosion hazard is moderate to high.	Vegetation cover is naturally sparse. Rock outcrops are common.
			200					

Ecological Site Name[a]	Soil	Potential Natural Community	Potential Natural Community			Deteriorated Community	Erosion Potential	Comments
			Shrub	Grass	Forb			
			% composition by weight lbs/acre					
Shallow Claypan 11-13	Soils have a restrictive layer at less than 20 inches (clay layer, bedrock, duripan, or a combination).	Low sagebrush/ bluebunch wheatgrass	20-40%	45-65%	10-20%	Low sagebrush increases, bluebunch wheatgrass decreases, sandberg bluegrass and cheatgrass can dominate the understory.	Slight to moderate.	Some stands have lower potential (concave intermound), Thurber needlegrass is the primary decreaser, one-spike oatgrass is an important increaser.
			550					
Shallow Claypan 12-16	Soils have a restrictive layer at less than 20 inches (clay layer, bedrock, duripan, or a combination).	Low sagebrush/ Idaho fescue-bluebunch wheatgrass	15-30%	40-60%	15-25%	Low sagebrush increases, Idaho fescue, bluebunch wheatgrass decrease. Sandberg bluegrass can dominate the understory.	Slight to moderate.	Some stands occur on low mounds, are preferred by livestock over intermound stands.
			600					
Shallow Breaks 14-18	Soils are shallow to moderately deep or fractured bedrock.	Western juniper/ understory dominants-mountain big sagebrush, Thurber's needlegrass, Idaho fescue	40-65% trees and shrubs	20-40%	5-10%	Sandberg bluegrass can dominate the understory.	Slight to high (slope is the main factor for the increased potential).	These sites occur in association with rock outcrops and areas of very shallow soils. Not well suited for grazing, understory production is low and often rocky.
			125					
Stony Clayey 12-16	Soils have a restrictive layer at less than 20 inches (clay layer, bedrock, duripan, or a combination).	Alkali sagebrush/ Idaho fescue	15-35%	40-55%	15-30%	Alkali sagebrush increases, Idaho fescue decreases. Sandberg bluegrass can dominate the understory.	Slight to moderate.	These sites have extremely stony surfaces and soil content of stones that lower production potential. Sites pond water during portions of the year.
			500					

Ecological Site Name[a]	Soil	Potential Natural Community	Potential Natural Community			Deteriorated Community	Erosion Potential	Comments
			Shrub	Grass	Forb			
			% composition by weight lbs/acre					
Clayey 12-15	Soils have a restrictive layer at less than 20 inches (clay layer, bedrock, duripan, or a combination).	Alkali sagebrush/ Idaho fescue-bluebunch wheatgrass	15-35%	40-60%	10-20%	Alkali sagebrush increases, Idaho fescue and bluebunch wheatgrass decrease. Sandberg bluegrass can dominate the understory.	Slight to moderate.	These sites tend to pond water during portions of the year. Frequently occur in association with churning clay in concave portions of landscape.
			600					
Churning Clay 12-16	Soils are moderately deep to deep with very clayey profiles. Wetting and drying of these soils results in surface cracking.	Silver sagebrush/ bluegrass	35-50%	40-50%	10-15%	Silver sagebrush increases, perennial understory becomes very sparse. Weedy forbs can dominate.	Slight to moderate.	Repeated early spring grazing can cause serious damage to this range site due to trampling and soil disturbance when soils are saturated.
			900					

[a] Names describe the major site characteristics and average annual precipitation (inches).

Shallow Claypan (12-16) ecological sites predominate south of the rimrock above Frying Pan Basin, Dickshooter Creek, and Indian Crossing; and in the Wagon Box Basin Pasture (4D3) (see precipitation data, Figure 3, page 21). The Shallow Claypan 12-16 ecological site replaces the Shallow Claypan 11-13 ecological site at higher elevations or on low mounds of deeper soil. The associated Very Shallow Stony Loam 10-14 ecological site occurs on soils that are too shallow to support other grass species. Indian Lake, a basin on Little Table, has a substantial area of the Churning Clay ecological site, and Clayey 12-15 ecological sites occur as inclusions on deeper soils in Frying Pan Basin.

Loamy ecological sites are intermingled with shallower soils throughout the allotment (see Map 6, page 33). Small areas of Loamy 10-13 ecological sites occur on deeper soils of canyon slopes and uplands immediately adjacent to the Owyhee River Canyon. Loamy 11-13 ecological sites occur on mounds of deep soil on The Flat, near Kincaid Reservoir, on Dickshooter Ridge, near Squaw Meadows and north of Dickshooter Creek Canyon. The Loamy 13-16 ecological site often occurs on tableland escarpments.

D. Riparian Areas

The canyons of Deep Creek and the Owyhee River form the western and southern boundaries of the Big Springs Allotment, respectively. Battle Creek and its associated canyon form much of the eastern and southeastern boundaries of the allotment. Both Deep and Battle creeks flow southerly to the Owyhee River. About 99 miles of stream are located on public land in the allotment that support more than 200 acres of riparian habitat. Approximately, 71 miles of stream are perennial, 17.6 miles are perennial to intermittent, and 10.9 miles are intermittent.

The majority of riparian habitat is located along Deep Creek and its tributaries including Nickel, Pole, Camas, Camel, and Dickshooter creeks (see Map 1 (page 28) and Map 4 (page 31). Battle Creek and Big Springs Creek, which is a tributary to Battle Creek, also support extensive areas of riparian habitat.

About 50 springs are located in the allotment, most supporting small areas of wetland and riparian habitat (See Map 5 (page 32). Ten springs have been developed to provide water for livestock. Four springs were developed by piping water to a trough, and small ponds were excavated in the wetlands located at six springs. The wetland at one of the developed springs was fenced to exclude livestock grazing.

E. Fish

Currently, 44 miles of stream in the Owyhee River basin in the Big Springs Allotment are inhabited by redband trout. Deep, Nickel, and Pole creeks provide the majority of the redband trout habitat on the allotment. Redband trout also may seasonally inhabit the lower portions of Dickshooter Creek. Redband trout formerly inhabited the Owyhee River upstream of the Deep Creek confluence, but are currently known to only occur in the river downstream of Deep Creek. Redband trout inhabit the headwaters of Big Springs Creek, which is a tributary to Battle Creek, but have not been recently sampled in Battle Creek.

Information on redband trout abundance in Deep, Nickel, and Pole creeks is limited. Trout densities were very low in Deep Creek (0.3 to 0.8 trout/100 m^2 at two sites located near the Deep Creek and Pole Creek confluences). Low densities of redband trout were observed in lower Nickel Creek and in Pole Creek downstream of the Camel Creek confluence in 1999. Redband trout density in streams in the Owyhee River drainage is low relative to other major drainages in

southwestern Idaho, averaging just 1.9 and 10.2 trout/100 m^2 in the 1970s and 1990s, respectively (Zoellick et al. 2005).

Other native fish species known to inhabit streams in the Big Springs Allotment include mountain whitefish, mottled and paiute sculpins, bridgelip and largescale suckers, northern squawfish, chiselmouth, speckled and longnose dace, and redside shiners. Smallmouth bass were introduced into the Owyhee River at the Idaho-Oregon border and now inhabit most of the length of Deep and Battle creeks and the Owyhee River in the Big Springs Allotment, and also are found in Pole, Camas, and Big Springs creeks.

F. Wildlife

The Big Springs Allotment contains the best habitat in the Bruneau Field Office for pronghorn antelope because of the extensive flats of low sage with abundant forbs in the spring (see Map 6 (page 33)). This area supports more forbs in the spring than any other comparable-sized area in the Field Office. During helicopter flights in spring of 2004, over 1000 antelope were counted in the area, scattered over the landscape in small groups averaging 4 in size, so that a group was almost always in sight.

Big Springs Allotment is also one of the best areas for sage grouse in southwest Idaho. Telemetry studies by the Idaho Department of Fish and Game (IDFG) from 2003 through present are finding that Big Springs functions as late summer habitat for grouse from surrounding areas, including the Owyhee Front. It's most important feature is the seasonally wet meadows that stay green late in the summer providing brood-rearing habitat. Unfortunately, the existence of these wet meadows was the reason that this area was one of the primary places West Nile Virus showed up during the Fall of 2006 and contributed a drastic decline in sage-grouse during 2007 and 2008 (IDFG 2007).

Most of the allotment is not naturally the best suitable nesting habitat because it lacks big sagebrush, though grouse will use some low sage for nesting. A group of over 100 sage grouse were seen in the summer of 2004 near Dry Lake Spring in Pasture 7 center, and permittee Chris Black reports seeing large groups of sage grouse frequently. During helicopter surveys in April 2004, 6 active sage grouse leks (communal breeding grounds) were found in the allotment, with 124 grouse. However, Chris Black reports seeing more leks near many of the reservoirs. Probably a number of leks were missed during the helicopter surveys, as observability is limited.

The allotment is mainly a very rocky plateau of low sagebrush, with shallow drainages that locally support seasonally wet meadows. Big sagebrush grows on slopes below rims, in some drainages, and in isolated pockets on flats. The mostly clay soils hold snowmelt and are very wet in spring, drying out later in the summer, making the plateau a mosaic of ephemeral wetlands. In the northwest part of the allotment, Slack Mountain, there are juniper woodlands and areas of juniper expansion. Along the southern border of the allotment, the canyons of Deep Creek, the Owyhee River and Battle Creek are home to the Owyhee herd of California bighorn sheep of 300-400 animals (2003 estimate IDFG).

Pygmy rabbits have been found in tall, thick big sagebrush patches mostly in the northern half of the allotment, and on all three Use Areas. The eastern tableland escarpment of Big Springs Butte supports a long strip of mountain sagebrush that pygmy rabbits inhabit. Strips such as that one function as connectors between the populations to the north in mahogany savannah along Mudflat road and the populations to the southeast in Blue Creek, Lost Valley and Dollar Butte areas.

A number of species classified as BLM "Sensitive Species" or State of Idaho "Species of Special Concern" are also known or likely to occur within this allotment. Spotted frogs are known from Camas Creek, Camel Creek, Pole Creek, and Big Springs Creek. Other sensitive species known to occur include loggerhead shrike, Brewer's sparrow, and sage thrashers. Table 5 lists additional special status species that are likely to occur within this allotment, their legal status, and their key habitat associations; including 14 bird species, 4 mammal species, 3 amphibian species, 4 reptile species, and 1 fish species.

Table 5. Special status animals known to or likely to occur in the Big Springs Allotment.

Species	Status	Key Habitat Associations
Prairie Falcon (*Falco mexicanus*)	S-Type 3	Cliff/canyon, big sagebrush, low sagebrush
Peregrine Falcon (*Falco peregrinus*)	S-Type 3	Cliff/canyon, open areas (low sagebrush)
Ferruginous Hawk (*Buteo regalis*)	S-Type 3	Cliff, rock outcrop, open juniper, big sagebrush, low sagebrush
Sage Grouse (*Centrocercus urophasianus)*	C-Type 1	Big sagebrush, low sagebrush, meadow, riparian
Burrowing Owl (*Athene cunicularia)*	W-Type 5	Various open or disturbed habitats
Willow Flycatcher (*Empidonax trailii)*	S-Type 3	Woody riparian, mountain shrub, juniper, big sagebrush
Loggerhead Shrike (*Lanius ludovicianus)*	S-Type 3	Big sagebrush, open juniper
Brewer's Sparrow (*Spizella breweri)*	S-Type 3	Big sagebrush
Sage Sparrow (*Amphispiza belli*)	S-Type 3	Big sagebrush
Sage Thrasher (*Oreoscoptes montanus)*	W-Type 5	Big sagebrush
Pygmy Rabbit (*Brachylagus idahoensis*)	S-Type 2	Big sagebrush
Spotted Bat (*Euderma maculatum)*	S-Type 3	Roosting/hibernation: Cliffs, canyons, rock outcrops Foraging: Juniper, sagebrush
Yuma Myotis (*Myotis yumanensis)*	W-Type 5	Roosting/hibernation: Caves, rock outcrops Foraging: Wetland/riparian, sagebrush, juniper
Townsend's Big-eared Bat (*Plecotus townsendii)*	S-Type 3	Roosting/hibernation: Caves, trees. Foraging: Juniper, sagebrush, canyon.
Western Pipistrelle (*Pipistrellus hesperus)*	W-Type 5	Roosting/hibernation: Caves, rock outcrops, burrows near water Foraging: Juniper, sagebrush, canyon
Western Toad (*Bufo boreas*)	S-Type 3	Wetland/riparian, all upland habitats
Columbia Spotted Frog *(Rana luteiventris)*	C-Type 1	Ponds, slow moving streams
Common garter snake *(Thamnophis sirtalis)*	S-Type 3	Near water, all habitats
Redband Trout (*Oncorhynchus mykiss gibbsi)*	S-Type 2	Aquatic

C = Federal Candidate Species for Listing as Threatened or Endangered, S = BLM Sensitive Species - Type 1 = Federally Threatened, Endangered, Proposed and Candidate Species, Type 2 = Rangewide/Globally Imperiled Species, Type 3 = Regional/State Imperiled Species, W = Watch Species (Type 5) not considered as a sensitive species.

G. Special status plants

BLM uses the term "special status plants" (SSP) to include: 1) Federally-listed and proposed species; 2) Federal candidate species; 3) State-listed species; and 4) BLM sensitive and BLM watch species. BLM sensitive and BLM watch species are those species that do not meet any of the first three criteria, but which are designated by the State Director for special management consideration.

Each of the BLM SSP is prioritized as either Type 1, 2, 3, 4, or 5 based on risk of extinction through all or a portion of their range. Type 1 species (Threatened, Endangered, Proposed, or Candidate species under the Endangered Species Act (ESA)) have federal status and have the greatest risk of extinction. Types 2-4 reflect the relative extinction risk in order, with Type 2 being of higher conservation concern and therefore greater extinction risk than Type 4 species, which have the lowest risk. Type 5 species are not BLM sensitive; they are referred to as BLM watch species, indicating that management may be necessary in the future if declines are observed to be significant. Table 6 below describes these Types in detail.

Table 6. Special Status Plant Type Definitions*.

Type	General Description	Definition
1	Threatened, Endangered, Proposed and Candidate Species	Species listed by the USFWS as threatened or endangered, or they are proposed or candidates for listing under the ESA.
2	Rangewide /Globally Imperiled Species (High Endangerment)	Species with a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors.
3	Rangewide /Globally Imperiled Species (Moderate Endangerment)	Species that are globally rare with moderate endangerment factors. Their global rarity and inherent risks associated with rarity make them imperiled species.
4	Species of Concern	Species that are generally rare in Idaho with small populations or localized distribution and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.
5	Watch List	These species are not considered BLM sensitive and associated sensitive species policy guidance does not apply. They include species that may be added to the sensitive species list depending on new information concerning threats and species biology or statewide trends.

*Extinction risks for a species of concern are associated with two primary factors: species rarity and species endangerment. Rarity is an expression of the intrinsic pattern of distribution and abundance of a species at a given time while endangerment refers to factors (typically anthropogenic) that may make a species more susceptible to decline or extinction (Morse 1996).

No federally listed threatened or endangered plant species are known to occur in the Big Springs Allotment although the U.S. Fish and Wildlife Service considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid. This plant occurs in spring, seep, and riparian habitats, but it has not been found during surveys of riparian and wetland sites in southwest Idaho, nor has it been found in this allotment. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

There are three BLM SSP species and one BLM watch list species that occur in the Big Springs Allotment:

- Owyhee River forget-me-not (*Hackelia ophiobia*), Type 3
- Bach's downingia (*Downingia bacigalupii*), Type 4
- Howell's one-flowered goldenweed (*Haplopappus uniflorus v. howellii*), Type 4
- Simpson's hedgehog cactus (*Pediocactus simpsonii*), Watch

There are two populations of Owyhee River forget-me-not known to occur in this allotment. This species has a very limited known distribution and a very restricted habitat, preferring well-shaded talus, cracks and crevices of rocky basaltic bluffs and cliffs, and steep banks of canyons. Because access is so difficult, thorough inventories for this species have not been conducted; therefore it is possible that this species exists at other undiscovered sites in the Owyhee River canyon.

Five populations of Bach's downingia are located in this allotment. This annual plant typically starts growing in late May and most individuals in a population will disperse seed and become dormant by the end of August. In the Big Springs Allotment, populations have been located in open areas on dried clays of rocky creek bottoms, in vernal pool depressions, and on dried clays around reservoirs.

Howell's one-flowered goldenweed is currently known from one population in the Big Springs Allotment, scattered within rocky openings of a mountain big sagebrush community. This plant typically grows in grassy springs or streambanks, and wet or dry meadows up to 8,200 feet in elevation. Without flowers, which typically appear from May to August, this plant is difficult to locate.

Two populations of Simpson's hedgehog cactus also occur in this allotment. Hedgehog cactus occurs on rocky or sandy benches and canyon rims. The Big Springs Allotment is largely comprised of a very rocky plateau of low sagebrush communities, which is appropriate habitat for this species. Due to the large amount of this habitat, there are likely more plants in the surrounding area.

V. Monitoring Methods

A. Grazing Utilization

Utilization data are important in evaluating the effects of grazing and browsing on specific areas of rangeland. Utilization is generally expressed as a percentage of available forage weight or number of plants, twigs, etc., that have been consumed or destroyed. Utilization is recorded in terms of current year's production removed. Generally, utilization transects are run at pre-determined key use areas (permanent nested plot frequency transect (NPFT) locations), however utilization may be collected in other areas of a pasture or allotment.

A number of methods may be used, including the Landscape Appearance Method, Key Species Method, Height-Weight Method, or Grazed Class Method (Interagency Technical Team 1996). In general, both the transect utilization data and the use pattern mapping reported in this Assessment were collected using the Landscape Appearance Method, which was formerly known as the Key Forage Plant Method.

The Landscape Appearance Method relies upon standardized descriptions to help the observer categorize the level of use into broad utilization classes. The stand as a whole is rated, rather than making measurements upon individual plants. The method can be used to rate utilization levels upon individual species, and is readily adapted to preparation of use pattern maps. It has also been adapted to measure utilization upon herbaceous riparian species and upland browse species. Use pattern mapping was completed for much of the allotment in 2000, 2005, and 2006, using standardized descriptions from the Landscape Appearance Method.

Transect Utilization Data

Limited transect utilization data are available for the three Use Areas within the Big Springs Allotment. Most BLM data were collected at BLM trend sites. In addition, some transect data, which were usually not collected at trend sites, are available from a multi-year bighorn sheep study in the late 1990's that was conducted by the US Geological Survey (Elroy Taylor, pers. comm.). USGS transect locations are shown on Map 7 (page 34) and again in each respective Use Area Assessment.

Use Pattern Mapping

The rating system and protocol used for Use Pattern Maps (UPM) in the Big Springs Allotment are according to Landscape Appearance Method for herbaceous species from: Utilization Studies and Residual Measurements, Interagency Technical Reference, August, 1996. The polygons on the UPM presented in this document were rated based on the dominant species (i.e., Posa, Feid, Agsp, etc.) within the dominant plant community in each polygon. Each polygon was given a single rating based upon the midpoint values for the utilization classes recognized by the Landscape Appearance Method according to the following table:

Table UPM. Utilization Classes, Midpoints, and Map Legends, Big Springs Allotment, 2000-2006.

Utilization Class	Range of Values (%)	Midpoint for Attribute (%)	Map legend
Not Surveyed	not rated	none	(no mapping)
No Use	0-5	2.5	nil
			0
			0-Sl
Slight	6-20	13	Sl
Light	21-40	30	Sl-L(21.5)
			L (30)
			L-LM (35)
			LM (40)
Moderate	41-60	50	LM-M (45)
			M (50)
			MMH (55)
			MH (60)
Heavy	61-80	70	MHH (65)
			H (70)
			HHSev (75)
			HSev (80)
Severe	81-94	90	Severe

Use Pattern Mapping Weighted Estimates

A weighted average of perennial grass utilization was calculated for portions of pastures that were use-pattern mapped (UPM).

The weighted average was calculated using the following formula:

$$\frac{\text{Sum of [(Acres by utilization class) X (Utilization class midpoint)]}}{\text{Total acres surveyed and rated in the pasture}}$$

Non-surveyed areas within a pasture are assumed to have the same distribution of use as surveyed areas for purposes of evaluating overall pasture utilization levels.

Riparian Stubble Height

Residual stubble height of perennial herbaceous riparian vegetation (sedges, rushes, and grasses) was measured along a pace-transect at monitoring sites that were selected to represent a stream segment (IDEQ 1992). The height of the herbaceous vegetation nearest to the tip of the toe of the observer was measured with a 12-inch ruler or yardstick at every other step along the pace-transect. Fifty measurements were made on each streambank for a total of 100 height measurements. The median stubble height (where half of the measurements are taller and half are shorter) was then calculated for each sample site.

B. Actual Use

Actual use was compiled for years when it had been submitted, and licensed use was compiled for years when actual use data were not available. Livestock use was not generally reported by pasture for the pastures located in the DCC and SDR Use Areas in earlier years. The annual Biological Plan Charts submitted by JB&S provide detailed information about the timing, duration, and intensity of livestock use within the pastures and paddocks of the JB&S Use Area beginning in 1993.

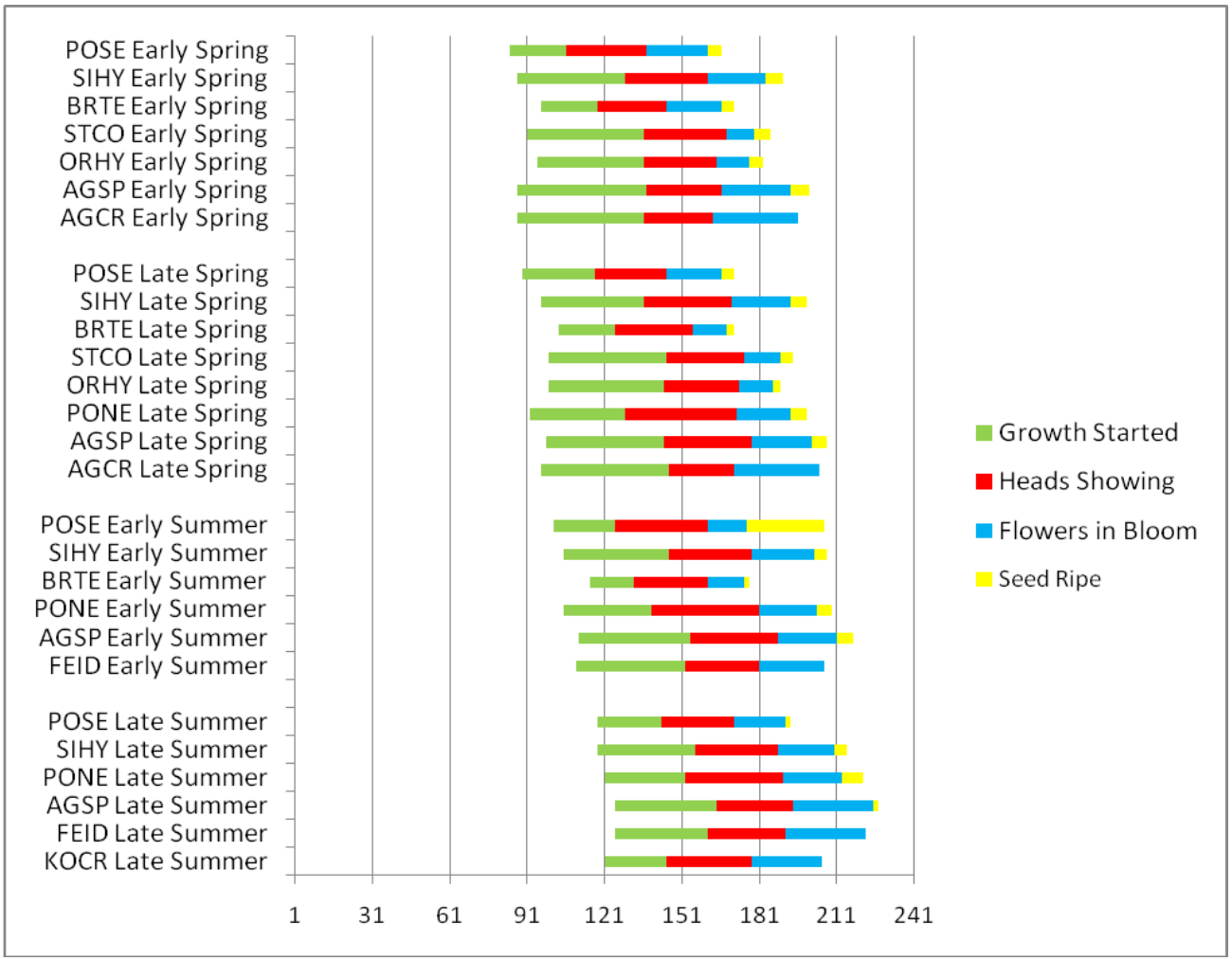
C. Phenology

Boise District completed a Phenology Study in 1968 after compiling several years of observations on the timing of growth events and maturity for commonly occurring grasses. These phenological events are listed under 'Season of Use' in the Glossary (page 553) and are described in more detail there under typically used names of the growth stages. The Boise District was divided into elevational zones, and a map was prepared as part of the study defining the boundaries of the zones. Figure 1 was compiled from the Phenology Study, and shows the typical timing of the phenological events by species in each elevational zone or proposed seasonal "Use Area". References to phenological zones and timing of growth events in this document follow those established by the Boise District Phenology Study. Although some difference among years occurs in the dates when growth events occur, they generally fall near the beginning of the interval on the chart, in part because it was intended to aid in establishing reasonable turnout dates in the elevational zones of the Boise District.

With reference to Figure 1, the critical growth period coincides with the boot stage in the annual growth cycle of perennial grasses (Bawtree 1989, Mueggler 1975, McLean and Wikeem 1985). This growth stage is characterized by the end of the "growth started" interval, and beginning of the "heads showing" interval in Figure 1, and is generally considered to be the most sensitive to defoliation. For example, defoliation that ends prior to the boot stage, even weekly 80% defoliation, has substantially less plant mortality on bluebunch wheatgrass and greater leaf height, yield and flowering culm production than defoliation that extends through the boot stage, particularly when soil moisture is available for extended regrowth (McLean and Wikeem 1985). Conversely, defoliation that begins progressively later after the boot stage has progressively less

influence upon perennial grass growth (Ganskopp 1988), as embodied in the Grazing Response Index (USBLM 2008). Fewer defoliations are also more favorable than more defoliations for plant growth for a given defoliation intensity, and are generally fewer under shorter than under longer grazing periods.

Figure 1. Timing of phenological events by proposed seasonal use area, Boise District Phenology Study, 1968.



Event occurs at beginning of interval: 'Growth Started'=Vegetative (green); 'Heads Showing'=Late Boot (red); 'Flowers in Bloom'=Flowering (blue). Day 91 is April 1, Day 121 is May 1, Day 152 is June 1.

D. Precipitation

Climatic data from the BLM and NRCS Remote Automatic Weather Stations (RAWS) at Mud Flat and at the Brace Ranch were used. These stations both represent the Owyhee High Plateau, with the Mud Flat station representing the upper elevations of the three Use Areas and the Brace Flat station representing the lower elevations, nearer to the Owyhee River Canyon. Growth year precipitation (September through June) is presented in this Assessment (Figures 2 and 3).

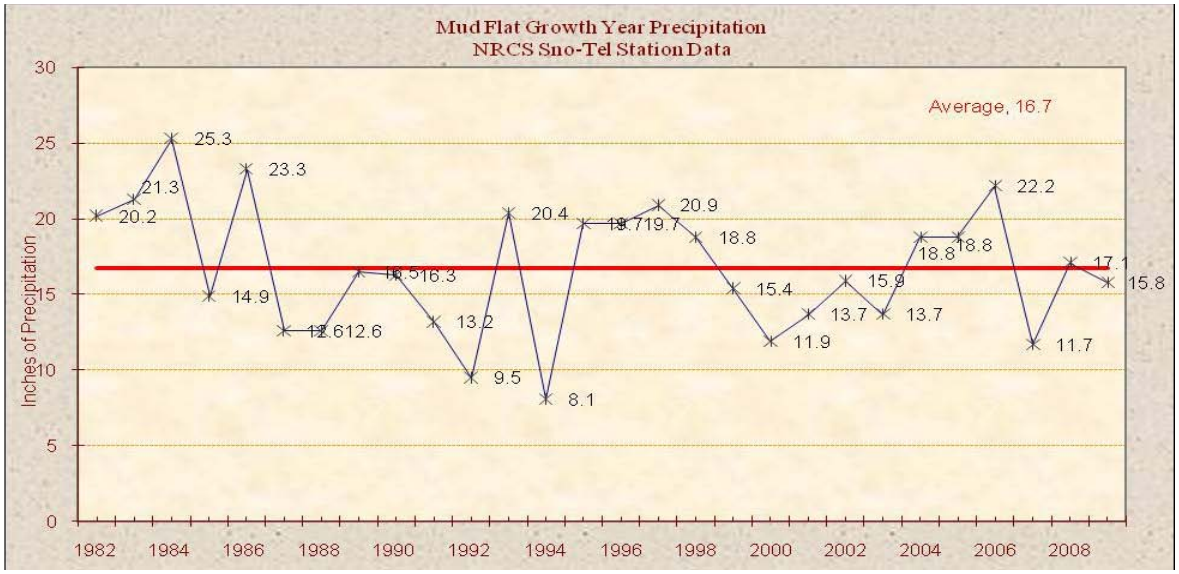


Figure 2. Mud Flat Remote Automatic Weather Station Growth (Crop) Year Precipitation, 1982- 2009.

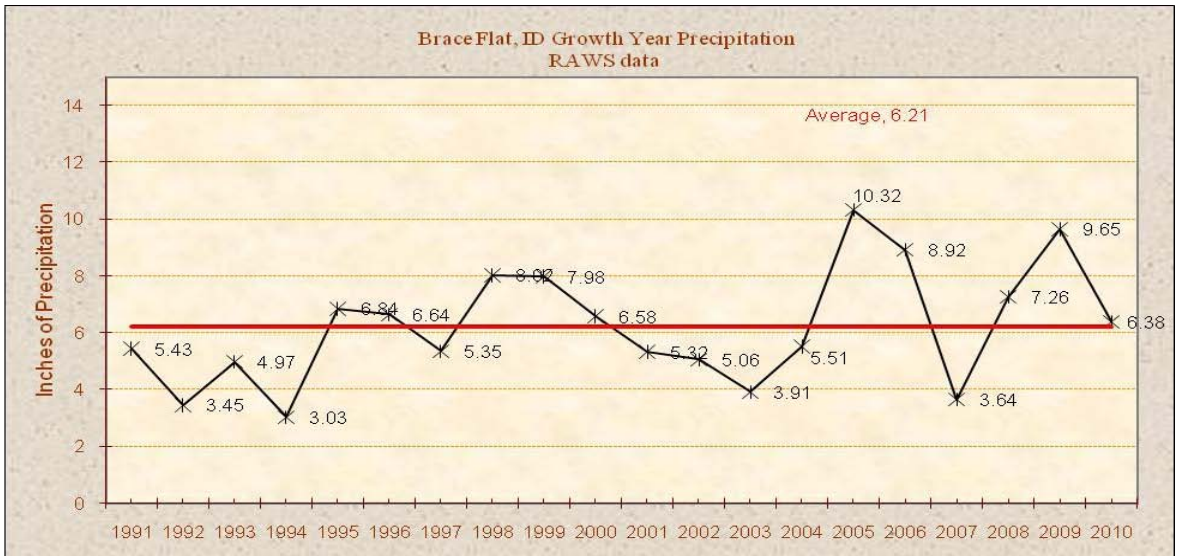


Figure 3. Brace Flat Remote Automatic Weather Station (RAWS) Growth (Crop) Year Precipitation, 1991- 2010.

E. Upland Condition and Trend

Rangeland Health Evaluations

Rangeland Health Evaluations, outlined in BLM technical reference 1734-6 (Version 3) Interpreting Indicators of Rangeland Health, are used in combination with other available qualitative and quantitative data to determine if rangelands are meeting the Standards for Rangeland Health. The Rangeland Health Evaluation Summary Worksheet consists of 17 observable indicators, to assess 3 interlocking attribute categories of rangeland health: soil and site stability, hydrologic function, and biotic integrity. Each indicator is rated on the degree of departure from the appropriate ecological site description (See Section **IV**.C., Table 4) or ecological reference area. Areas without a nearby reference area are evaluated using the ecological site description, familiarity with the area, and by incorporating the best professional judgment of the evaluators. The preponderance of evidence from the Attribute Summary determines the Rangeland Health status of the site.

Rangeland Health Evaluation worksheet locations during 2004 are shown on General Appendix Map 2 (page 29). RHE worksheets were prepared for the major ecological sites in each

geographic area. At each RHE location, view photographs were taken in each cardinal direction, and detail photos were taken to document the presence of crusting, mechanical damage, pedestalling, flow patterns, plucking, or plant mortality. View photos were also taken along access routes to show areas between RHEs; often of salt grounds, drainages, fencelines, meadows, reservoirs, or other notable features.

Upland Trend

Quantitative Studies

Trend data provides information on changes in the plant community, changes in plant occurrence, vigor and health. Vegetation trend data are collected at permanently located Nested Plot Frequency Transect (NPFT) sites. Frequency and cover data are collected as well as shrub density where applicable. The methodology used to establish and collect data is described in full detail in BLM technical reference 4400-4 and in the Interagency technical reference "Sampling Vegetation Attributes". Frequency data documents changes in abundance of sampled plant species. Cover data describes the percent of ground covered by plant material, biological soil crusts, gravel, rock, and litter. Shrub density is recorded in either 1/100th or 1/200th acre plots, depending on the density of shrubs. This information is reported as numbers of individual shrubs per acre. Analysis methods are described in BLM technical reference 4400-8. BLM NPFT and photo plot locations are shown on Map 3 (page 30).

Joseph Black & Sons has established their own set of random point cover transects within the JB&S Use Area; with locations shown on Map 9 in Appendix JB&S-13 (page 172 of the JB&S Use Area Assessment). They are located adjacent to each of their photo plots, with at least one transect per paddock. These photo plots and transects were chosen to monitor responses on fine soils within high livestock impact areas. Point cover data are recorded along each transect beginning at the photo plot using a randomly thrown dart as a sampling device. Basal and canopy cover and distance to the nearest plant by species are recorded at each sampling. The methodology used to establish and collect data is described in full detail in "Early Warning Biological Monitoring – Rangelands and Grasslands" (Center for Holistic Management, Albuquerque, New Mexico. 1999). Joseph Black & Sons has made their transect data set for the years 1993 to 1995 available to BLM.

Photo Trend

Photographs are taken at NPFT sites and at other sites permanently marked for photo plots. At NPFT and photo plot sites, a minimum of three photographs are taken, two general views and one of the photo plot itself. The photo plot is sketched to illustrate sizes and species more clearly and can be correlated with the photograph to document plant vigor and health. Loss and recruitment of individual plants, species, or structural groups over time can be observed by comparing photo sequences. Changes in soil surface cover categories over time can also be observed in sequential photos.

Permanent photo plots and view photos are primarily used to assist with NPFT data interpretation. Analysis of photo points is constrained by limitations which can make trend determinations using this method alone fairly subjective. Variable image quality, particularly in older photos, can result in lack of clarity. Other problems arise from inconsistencies with view angles from year to year and differences in the time of year when photos were taken. It is also difficult in some cases to identify individual plants to species within photo plots and to a greater extent in view photos; although diagrams have been prepared of the BLM photo plots to overcome that difficulty. Repeat landscape photography is most helpful in combination with long-term quantitative trend data. Therefore, photos from NPFT sites are discussed in the

context of quantitative trend data available for the site. The plot and view photos are described in detail for permanent photo plot sites where a NPFT is not established.

Permittee photo plot/view photo sites have also been established in the JB&S Use Area. Most are located on fine soils or at least within preferred grazing areas near water, near salting sites or along livestock trailing routes, with at least one photo site per paddock. The intent is to document changes in high livestock impact areas where potential for change is greatest. Three photographs are taken at each site, one to show the location in relation to a landmark, one close up of the photo plot, and one oblique view of the photo plot. Joseph Black & Sons has also made their photo set available to BLM. These photos were considered in combination with BLM data; and a summary of the results is provided under Standard 4 for the JB&S Use Area (pages 34-35, 36, 38, 39).

F. Streams and Springs

Stream-associated riparian/wetland areas were assessed for proper functioning condition as described in BLM Technical Reference TR1737-15, "A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas" (USDI 1998). The standard checklist consisting of 17 indicators was used to assess the functioning condition of riparian areas and stream channels. The indicators are grouped into three categories representing hydrologic function, vegetation, and erosion/deposition. Standard 2 (Riparian Area health) was evaluated using the vegetation indicators that are part of the functioning condition standard checklist. These indicators assess the composition of the vegetation community and its ability to stabilize streambanks, filter sediment, dissipate energy, revegetate point bars, and provide habitat for fish and wildlife. Additionally, the status of noxious weeds was considered when evaluating Standard 2. Standard 3 (Stream Channel/Floodplain health) was assessed using indicators from the hydrologic and soils erosion/deposition sections of the functioning condition standard checklist for stream riparian areas. These indicators assess the structural components and characteristics of the stream channel and floodplain, the stability of the system, and its ability to dissipate energy and transport sediment. Streams are properly functioning when adequate vegetation, landform, or large woody debris is present to: dissipate stream energy associated with high waterflow; filter sediment, capture bedload and aid in floodplain development; improve flood-water retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse channel characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production; and support greater biodiversity (USDI 1998).

Evaluations of Standards 2 and 3 were based on field inventories and examinations of streams and riparian areas conducted in 1998–1999 (Deep Creek) by Riparian Resources (Scott Miles and Burt Nilson) and in 1995, 1999–2001, and 2004–2007 by BLM staff, and on aerial digital-image data collected on Battle, Big Springs, Camas, Camel, Cottonwood Draw, Deep, Pole creeks and the Owyhee River in 1998 and 1999. Description of riparian/aquatic community types generally follows Manning and Padgett (1995). Field inventories included functioning condition assessments, delineation of the distribution and composition of riparian plant communities, and examination of streambank, channel, and hydrologic conditions. BLM monitoring data collected from 1995 to present were also used to evaluate trend in condition of riparian/aquatic habitats. Locations of sites where trend in riparian habitat condition, riparian plant utilization by livestock, and water quality were monitored are shown on Map 4 (page 31).

The condition of wetland-riparian areas at springs was initially examined in 1995, including estimates of percent bare ground, and impacts to soils and vegetation. In 2004–2005, the functioning condition of most spring wetlands in the allotment was assessed as outlined in

Technical Reference TR1737-16, "A User Guide to Assessing Proper Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas" (USDI 1999). The standard checklist consisting of 20 indicators was used to assess functioning condition. The indicators are grouped into three categories representing hydrologic function, vegetation, and erosion/deposition. Lentic areas are defined as wetland areas adjacent to non-flowing aquatic habitats such as lakes, ponds, springs, seeps, and wet or moist meadows. Wetlands are properly functioning when adequate vegetation, landform, or debris is present to: dissipate energies associated with wind action, wave action and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood water retention and groundwater recharge; develop root masses that stabilize islands and shoreline features against erosion; restrict water percolation; develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, water-bird breeding, and other uses; and support greater biodiversity (USDI 1999). Percent utilization of wetland vegetation at springs was ocularly estimated using utilization class criteria from Idaho Department of Environmental Quality Water Quality Monitoring Protocols, Report No. 8 (1992). Locations of springs where lentic habitat condition, riparian plant utilization by livestock, and bare ground were monitored are shown on Map 5 (page 32).

G. Wildlife and Fish

Wildlife

Sage grouse habitats were evaluated using “A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho – Sage Grouse” (draft revised in May, 2001, see Table 7). Nesting, brood-rearing, and winter habitat are each evaluated using different criteria. Big Springs is rich in low sagebrush and wet meadows and appears to have regional importance as early and late brood-rearing habitat. However, it contains very little big sagebrush habitat, which is what grouse typically prefer for nesting. Wintering habitat is not limiting and the main requirement is sagebrush that sticks out above the snow; thus we do not discuss winter habitat further. The approach used to evaluate this allotment was to focus on the late brood-rearing habitat, but also looked at the limited big sagebrush habitat for nesting. Additionally, studies by IDFG in the last five years across southern Idaho have revealed that sage grouse do nest in low sagebrush in some areas, and thus the condition of low sagebrush habitat from RHE worksheets was also used to evaluate nesting habitat. Additionally, habitat condition was assessed using information from riparian and upland studies discussed in Standard 2 and Standard 4.

Table 7. Indicators Used for Sage Grouse Habitat Evaluations

Breeding Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover	≥ 15% but ≤ 25%	10-<15% or >25%	<10%
Average Sagebrush Height Mesic Site	15-30"	10-14" or > 30"	<10"
Arid Site	12-30"	10-11" or >30"	<10"
Sagebrush Growth Form	Spreading form, few, if any, dead branches for most plants	Mix of spreading and columnar growth forms present	Tall, columnar growth form with dead branches for most plants

Average Grass and Forb Height	≥ 7"	5 - < 7"	< 5"
Average Perennial Grass Canopy Cover Mesic Site Arid Site	 ≥ 15% ≥ 10%	 5 - <15% 5 - <10%	 <5% < 5%
Average Forb Canopy Cover Mesic Site Arid Site	 ≥ 10% ≥ 5%	 5 - <10% 3 - <5%	 < 5% < 3%
Preferred Forb Abundance and Diversity[1]	Forbs common with at least a few preferred species present	Forbs common but only 1 or 2 preferred species present	Forbs rare to sparsely present

Late Brood-Rearing Habitat

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Riparian and wet meadow plant community	Mesic or wetland plant species dominate wet meadow or riparian area	Xeric plant species invading wet meadow or riparian area	Xeric plant species along water's edge or near center of wet meadow
Riparian and wet meadow stability	No erosion evident; some bare ground may be evident but vegetative cover dominates the site	Minor erosion occurring and bare ground may be evident but vegetative cover dominates the site	Major erosion evident; large patches of bare ground
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure	Succulent, green forbs are available, though distribution is spotty or plant structure limits effective use	Succulent, green forbs are scarce or not available
Proximity of sagebrush cover	Sagebrush cover is adjacent to brood-rearing area (<100 yards)	Sagebrush cover is in close proximity (> 100 yards but < 300 yards) of brood-rearing areas	Sagebrush cover is unavailable (> 300 yards)
Overall Riparian/Wet Meadow Site Evaluation			
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure	Succulent, green forbs are available, though distribution is spotty or plant structure limits effective use	Succulent, green forbs are scarce or not available despite favorable growing conditions
Overall Upland Site Evaluation			

The indicators for sage grouse in Table 7 are also useful for assessing the general health of sagebrush ecosystems and their suitability for other sagebrush obligate species, including Brewer's sparrows and sage thrashers (both sensitive species). Because the method evaluates sagebrush as well as forbs and grasses, in general, if the landscape-scale needs of sage grouse are met, then other sagebrush-obligates probably have adequate cover, food, and sagebrush distribution. Sage Grouse Habitat Evaluation locations are also shown on Map 2 (page 29).

For pygmy rabbits, survey routes in appropriate tall, thick big sagebrush habitat were walked in 2004 and 2005, looking for burrows and pellets. Little is known about how to evaluate habitat condition other than that they need relatively tall, thick sagebrush.

For Columbia spotted frogs, we used the evaluations for proper functioning condition to infer habitat condition. A stream that is at risk of eroding will lose its pools, which are the habitat needed by spotted frogs.

For other sensitive animal species, there are no specific methods established to evaluate habitat quality. We make the assumption that the general health of upland and riparian communities is important for the broad diversity of wildlife, including sensitive species. Therefore, habitat was evaluated using either riparian information (Standard 2) or native upland plant community information (Standard 4), combined with knowledge of wildlife for the area. These evaluations used information on abundance, diversity, vigor, cover of plants, structure and trend of plant communities, grazing utilization, and weed presence.

Sources for wildlife information used in this Assessment include:

- Sage grouse lek (mating ground) surveys by helicopter in April-May 2004-2010
- IDFG sage grouse historical lek database, 2003
- IDFG telemetry studies of sage grouse 2003-2005 (Michelle Commons-Kemner pers. comm.)
- sage grouse habitat assessments in 2004 and 2005
- Stream and spring functioning condition assessments for Standard 2
- pygmy rabbit surveys in 2004 and 2005
- Conservation Data Center Rare Species database
- General wildlife field observations in 2004 and 2005.

Fish

The condition of redband trout habitats were evaluated using the functioning condition assessments for streams. If streams were properly functioning (both Standards 2 and 3) then the stream was evaluated as minimally providing habitat suitable for the maintenance of redband trout populations. Additionally, water quality data was used to further evaluate redband trout habitat. Streams in proper functioning condition and meeting State of Idaho water temperature criteria for cold water biota and sediment loads were evaluated as providing suitable habitat for redband trout.

H. Special Status Plants

Inventories for BLM SSP species in the Big Springs allotment have primarily resulted from incidental observations in the area or surveys associated with specific BLM actions, such as range improvement projects. Locations of known populations of SSP were identified using the Idaho Fish & Game Conservation Data Center (CDC) database and BLM field office maps. Data for species listed on the 2004 BLM sensitive species list were collected. Only known populations of SSP occurring in the Big Springs allotment were analyzed. Most known populations in this allotment were revisited during the spring and summer of 2004 and 2005, with limited inspections in 2009. Additional populations or population extensions were discovered during the 2005 and 2009 monitoring. These new occurrences will also be discussed.

Population and habitat information was collected for each known population and included an assessment of population extent and condition, plant abundance, vigor, and recruitment. Any current or potential threats, evidence of herbivory, or presence of invasive or noxious weeds were also noted. Each population was photo documented. Information gathered in 2005 and 2009 was then compared to historic photos and site information for each plant population.

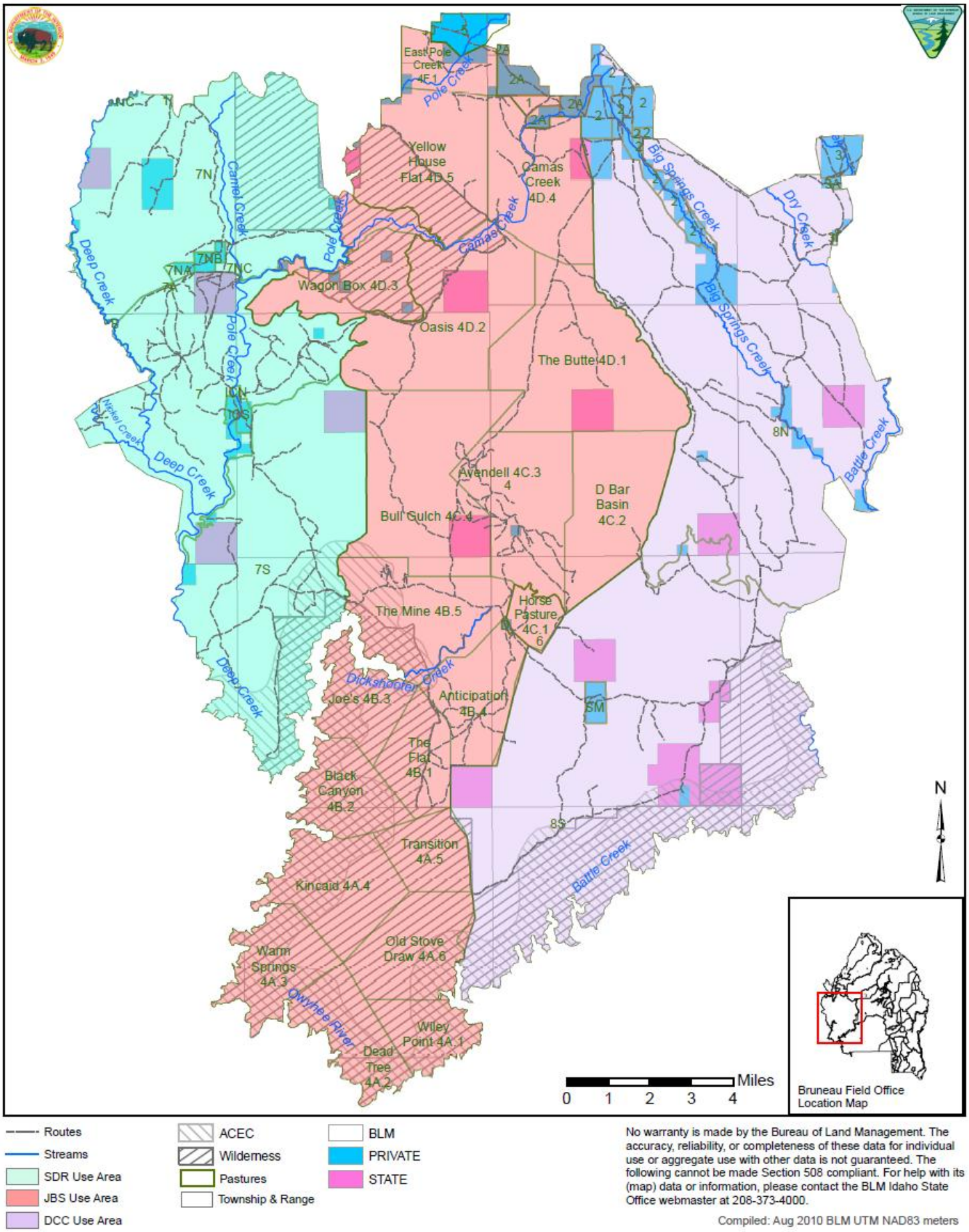
I. Water Quality

Much of the evaluation of water quality of streams (Standard 7) in the Big Springs allotment is based on assessments conducted by the Idaho Department of Environmental Quality (IDEQ 2003, 2004a) of the water quality of the upper Owyhee River subbasin. Recently IDEQ revised how it summarizes the results of its assessments. Prior to 2002, IDEQ prepared and submitted to EPA a list (called a "§303(d) list") of all impaired waters in the state, as required under Section 303(d) of the Clean Water Act (IDEQ 1998), and a second report that summarized the status of all of Idaho's waters, as required under Section 305(b) of the Clean Water Act ("§305(b) report"). IDEQ now prepares one report called the Integrated 303(d)/305(b) Report, which is a combination of the two 303(d) and 305(b) documents. Previously, IDEQ used "water quality limited segments" to identify streams and portions of streams that were impaired; however, the Integrated Report uses "assessment units". Assessment units are groups of similar streams within a subbasin that have similar land use practices, ownership, or land management. Evaluations of Standard 7 for the three different use areas of the Big Springs Allotment were primarily based on IDEQ's findings by assessment unit of whether the streams supported beneficial uses (i.e., cold water aquatic life, salmonid spawning).

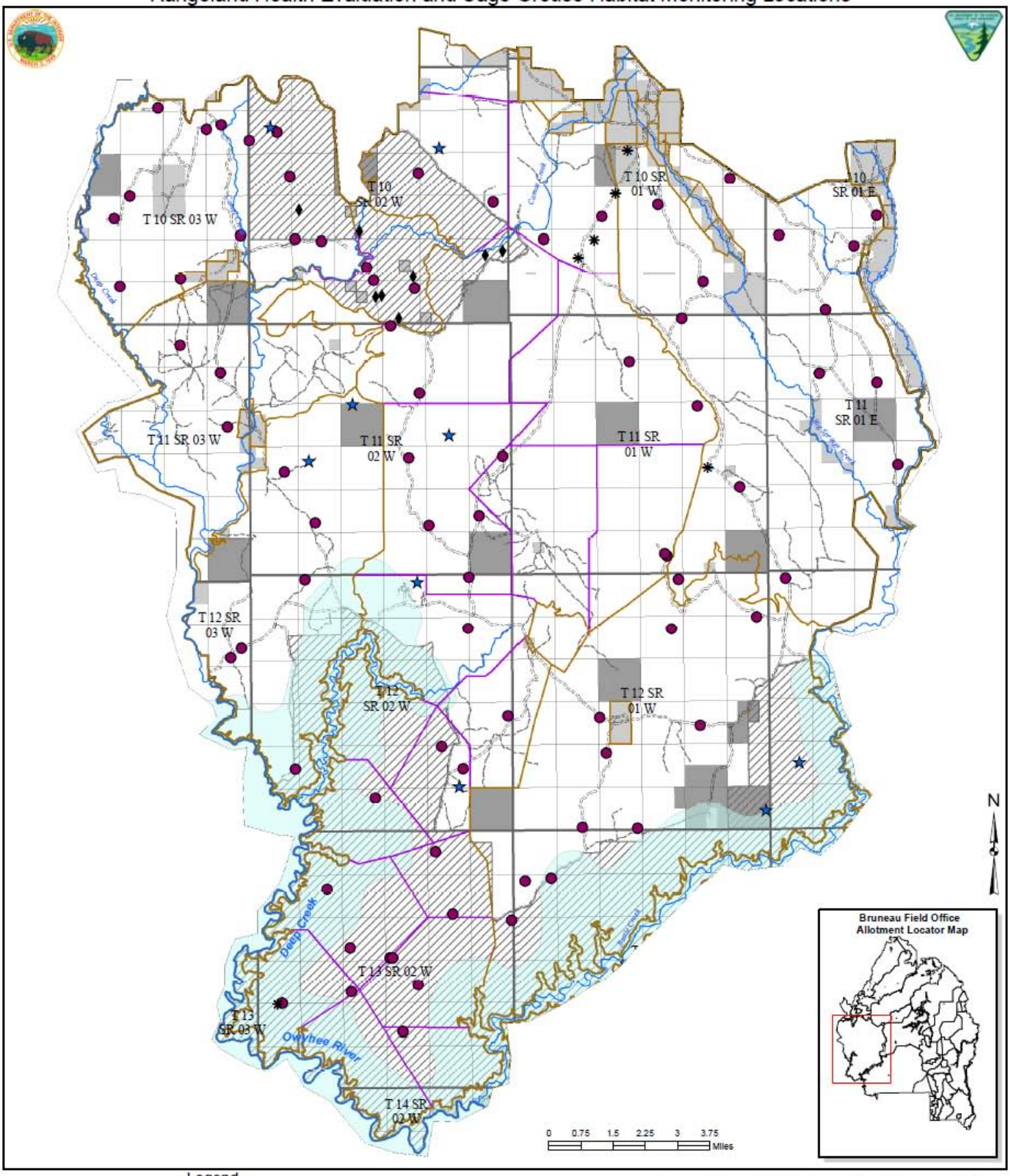
Additionally, BLM evaluated water quality of streams on the Big Springs allotment using water temperature data collected by BLM during 1995 to 2000 at locations shown on Map 4 (page 31). BLM also examined fecal coliform bacteria and water chemistry samples collected to characterize water quality during the late 1970s and 1990s. Also, stream shade and stream substrate composition data collected as part of riparian habitat and stream sampling for evaluating Standards 2 and 3 was used to evaluate water quality. Stream shade and percent fines were used to evaluate compliance with shade and sediment targets established by IDEQ (2003) as part of the subbasin assessment and total maximum daily load (TMDL) prepared for the upper Owyhee River basin. BLM assessed both compliance with current State of Idaho water quality standards and TMDL allocations.

VI. General Appendix

Map 1: Big Springs Allotment (00803)



Map 2: Big Springs Allotment (0803)
Rangeland Health Evaluation and Sage Grouse Habitat Monitoring Locations



Legend

- Rangeland Health Evaluation
- Sage Grouse Brood Rearing Habitat Evaluation
- Sage Grouse Breeding Habitat Evaluation
- 2004 breeding habitat evaluation
- Streams
- Pastures
- Black Paddocks
- ACEC
- Wilderness

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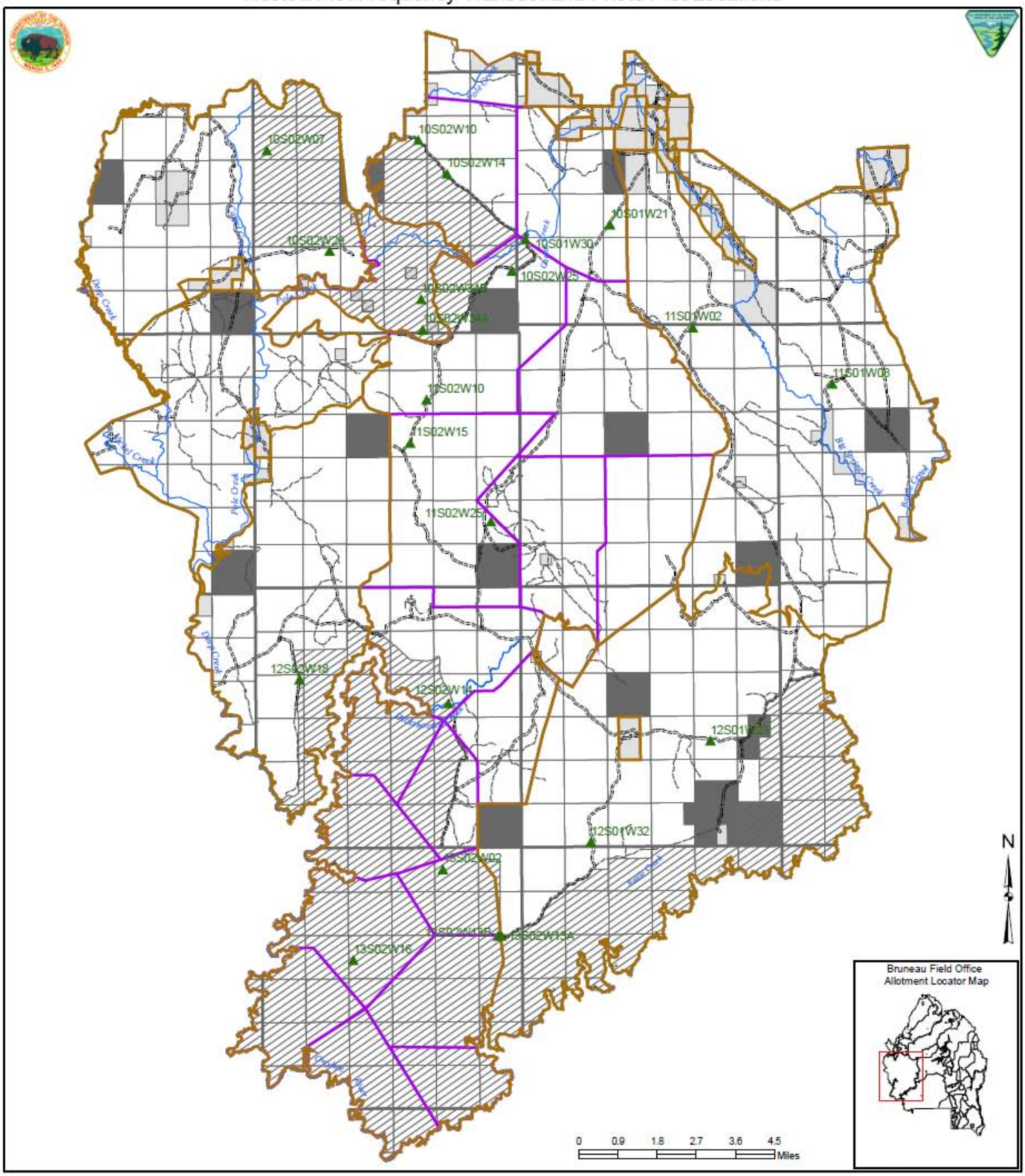
Map Compiled: Aug 2010 BLM

Map 3: Big Springs Allotment (0803)
Nested Plot Frequency Transect and Photo Plot Locations



Legend

- Nested Plot Frequency Transect
- streams
- Unimproved
- Way
- Black_Paddocks
- Pastures
- Sections
- Wilderness
- BLM
- PRIVATE
- STATE

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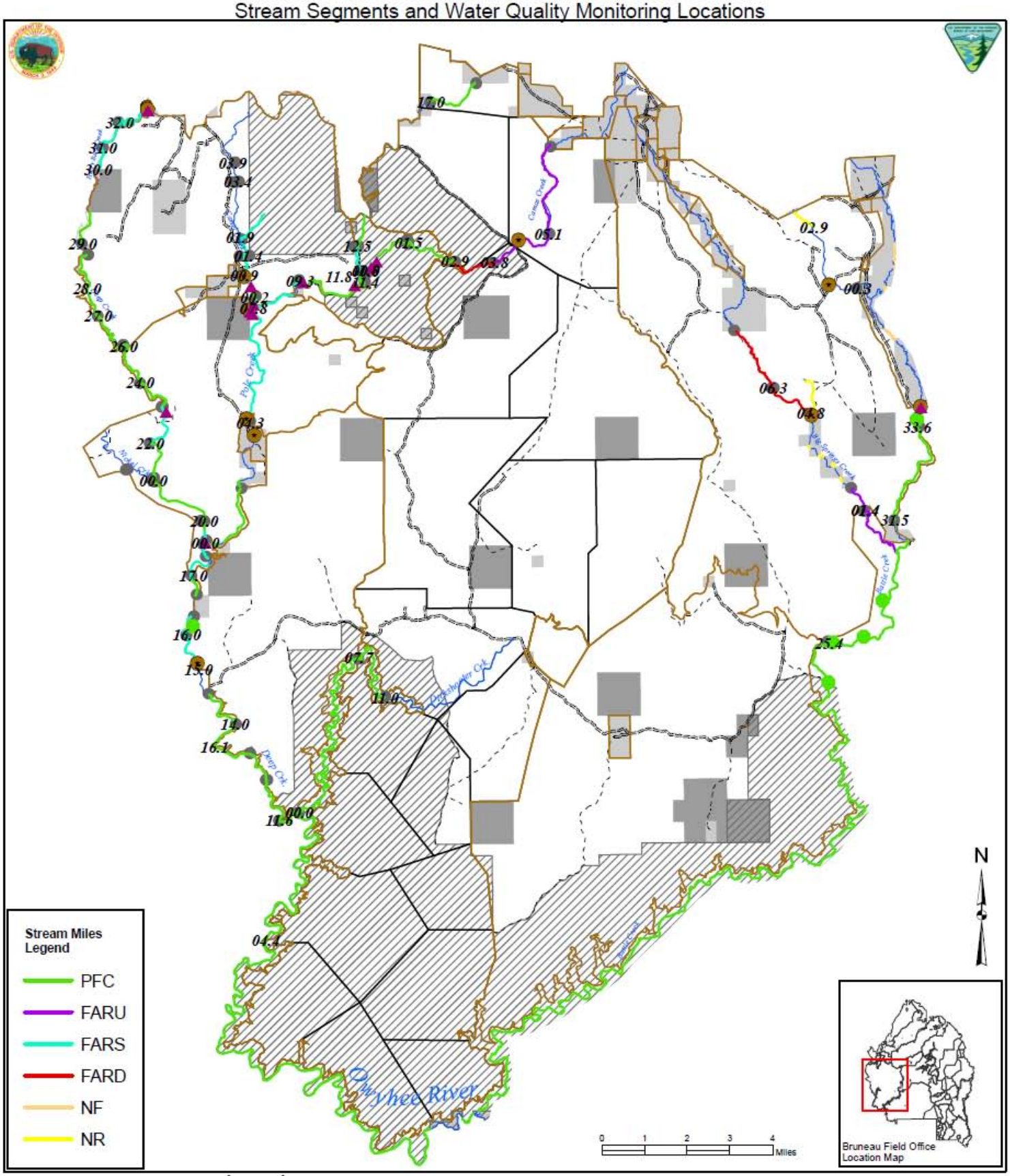
Map 4: Big Springs Allotment (0803)
Stream Segments and Water Quality Monitoring Locations



Legend

- Greenline Monitoring Location
- PFC_start_end_clip
- Water Temperature Monitoring Locations
- BURP Monitoring Location
- streams
- Pastures
- Black Paddocks
- Unimproved
- Way
- Wilderness
- BLM
- PRIVATE
- STATE

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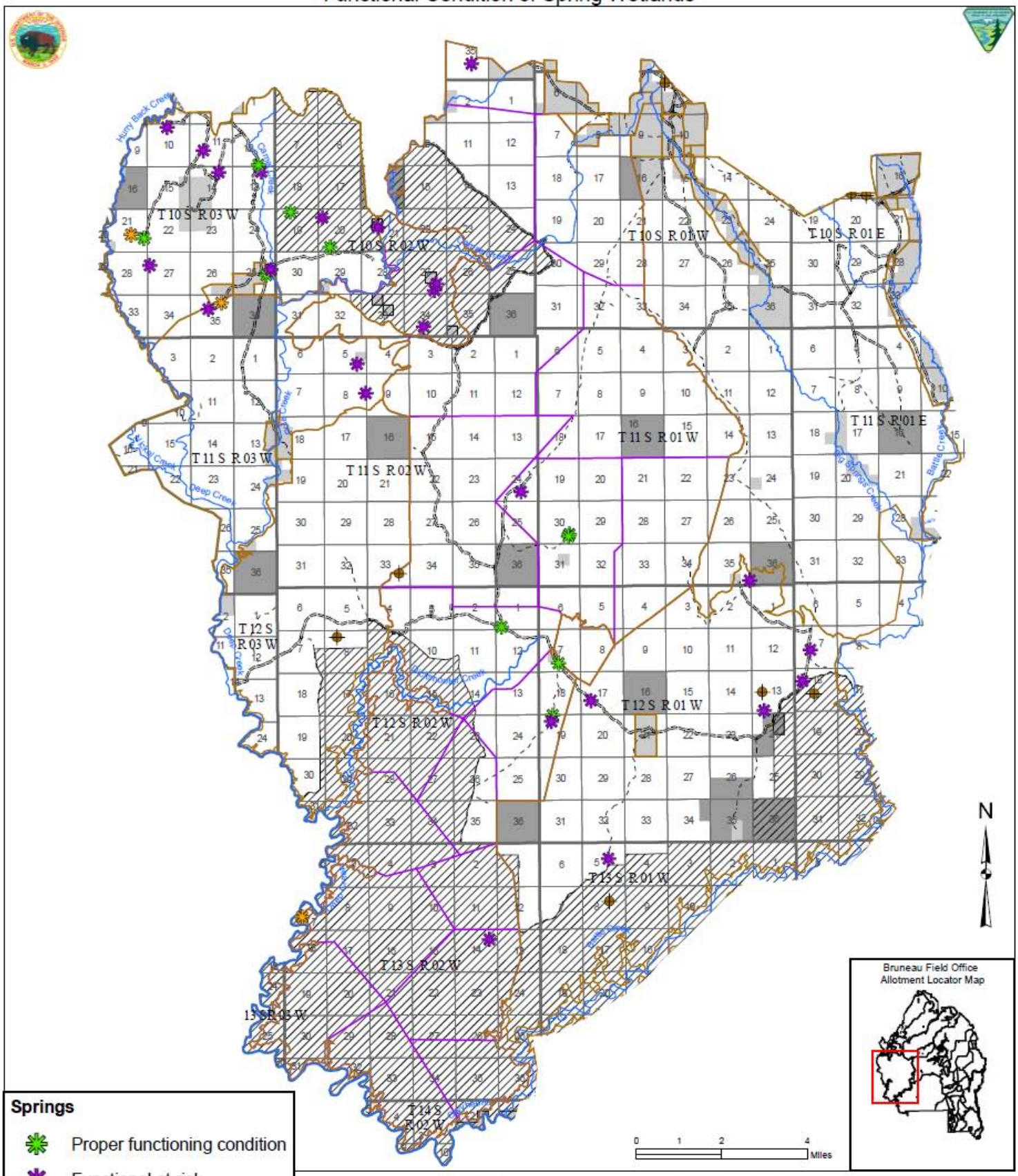
Map 5: Big Springs Allotment (0803)
Functional Condition of Spring Wetlands



Springs

- Proper functioning condition
- Functional at risk
- Non functional
- unrated

Legend

- Streams
- Pastures
- Black_Paddocks
- Sections
- Wilderness
- BLM
- PRIVATE
- STATE

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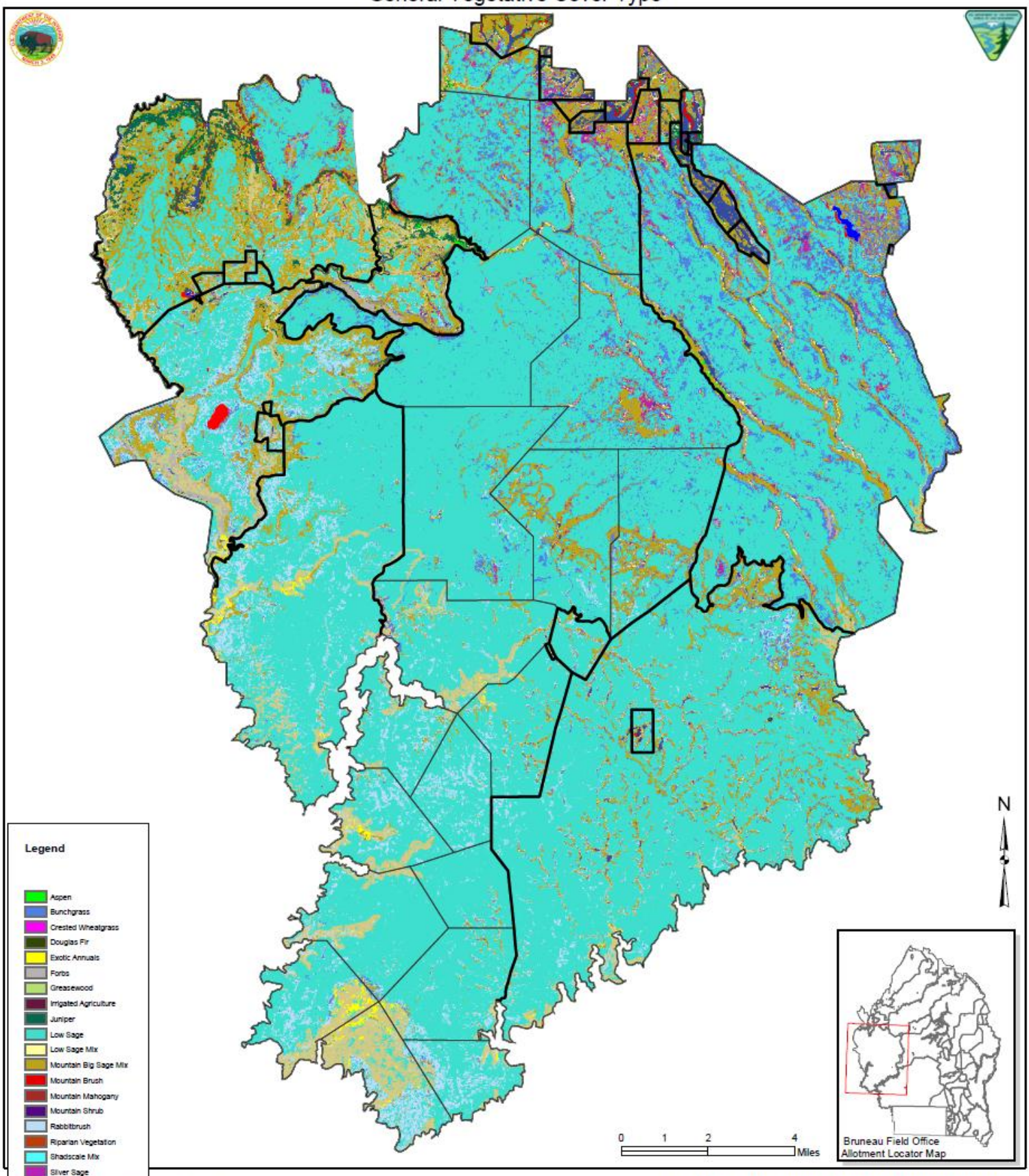
Map Compiled: Aug 2010 BLM

Map 6: Big Springs Allotment (0803)
General Vegetative Cover Type



Legend

Pastures

paddocks

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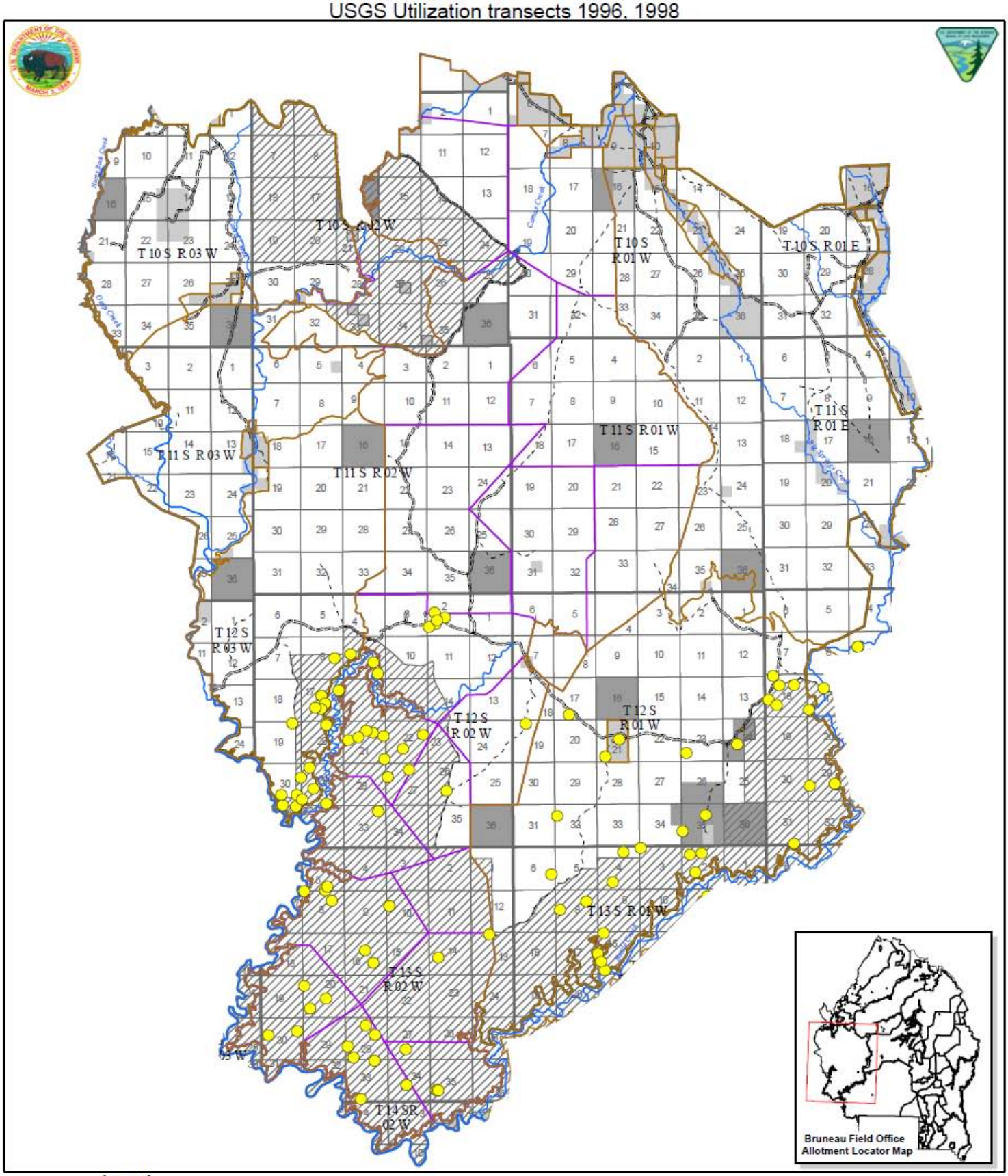
Compiled: Aug 2010 BLM UTM NAD83 meters

Map 7: Big Springs Allotment (0803)
USGS Utilization transects 1996, 1998



Legend

- USGS transects
- Pastures
- Paddocks
- Sections
- Township & Range
- Streams

Roads

- Unimproved
- Way
- Wilderness
- BLM
- PRIVATE
- STATE

0 0.5 1 2 3 4 Miles

1:185,000

N

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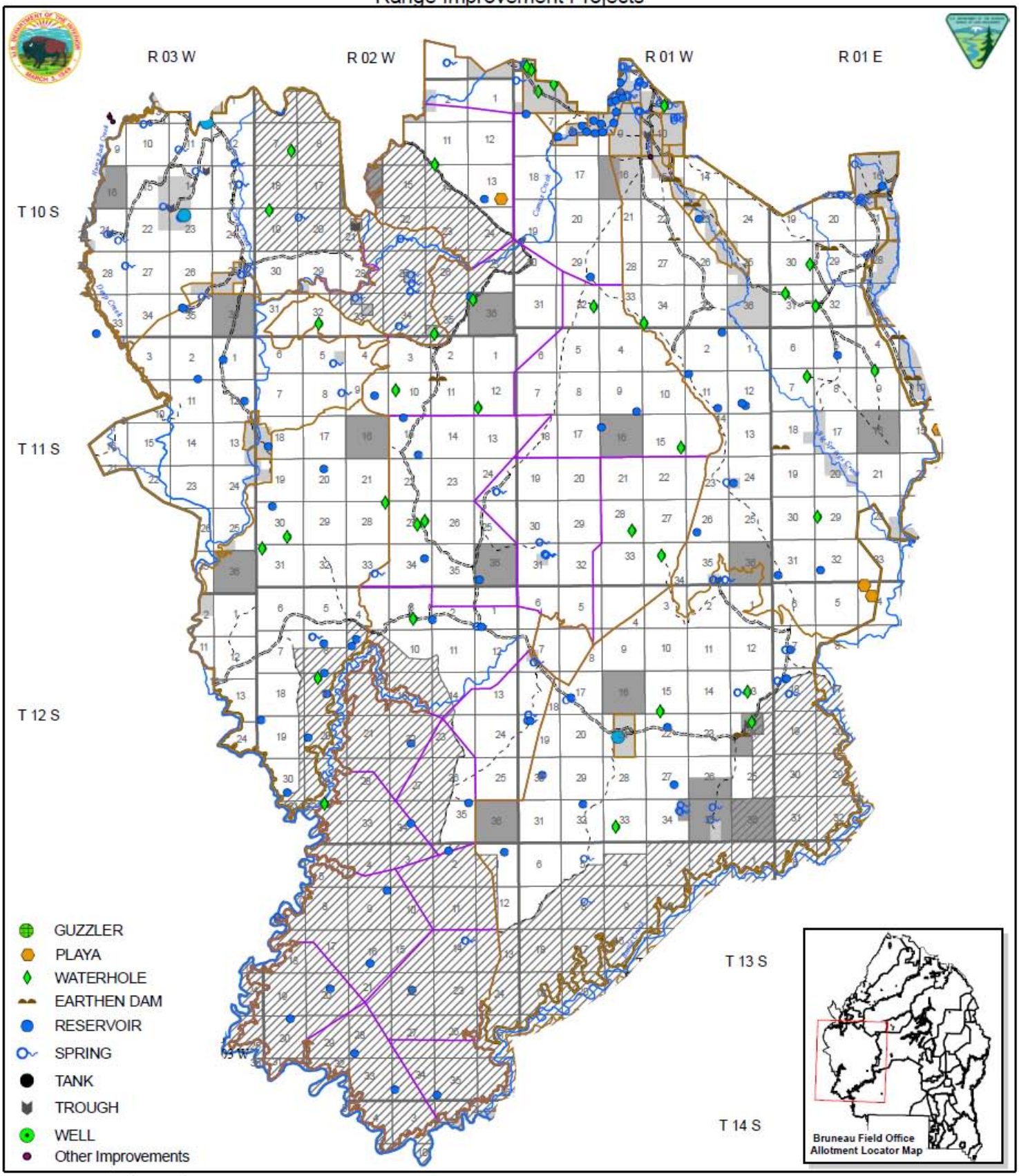
Map 8: Big Springs Allotment (0803)
Range Improvement Projects



Legend

- Pastures
- Paddocks
- Streams

Roads

- == Unimproved Route
- – – Other Route

- Wilderness
- Township & Range
- Sections
- BLM
- PRIVATE
- STATE

0 0.5 1 2 3 4 Miles

1:185,000

N

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Compiled: Aug 2010 BLM

VII. Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

A. Idaho Standards for Rangeland Health

Standard 1: Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. The amount and distribution of ground cover, including litter, for identified ecological site or soil-plant associations are appropriate for site stability.
2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/ surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2: Riparian-wetland areas are in proper functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Indicators may include, but are not limited to, the following:

1. The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater, and increasing recharge of groundwater appropriate to site potential.
2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.
4. Noxious weeds are not increasing.

Standard 3: Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.
2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
3. Streams have access to their floodplains and sediment deposition is evident.
4. There is little evidence of excessive soil compaction on the floodplain due to human activities.
5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

Standard 4: Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
2. The diversity of native species is maintained.
3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
4. Noxious weeds are not increasing.
5. Adequate plant litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5: Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow and the hydrologic cycle.

Indicators may include, but are not limited to, the following:

1. In established seedings, the diversity of perennial species is not diminishing over time.
2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
3. Noxious weeds are not increasing.
4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6: Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Indicators may include, but are not limited to, the following:

1. Noxious weeds are not increasing.
2. Perennial species numbers are being maintained.
3. Native and introduced perennial species are vigorous enough to reproduce when climatic and other environmental conditions are favorable.
4. Litter and standing dead plant material is adequate to replenish soil nutrients relative to site potential.

Standard 7: Surface and groundwater on public lands comply with the Idaho Water Quality Standards.

Indicators may include, but are not limited to, the following:

1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8: Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators may include, but are not limited to, the following:

1. Parameters described in the Idaho Water Quality Standards.
2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class structure diversity or riparian/wetland vegetation is appropriate for the site.

4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
5. The diversity of native species is maintained.
6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
7. Noxious weeds are not increasing.

B. Guidelines for Livestock Grazing Management

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.
2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.
7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.
9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.
13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.

14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or
    c. non-native plant species provide for management and protection of native rangelands
    Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.
16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetate the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.
17. Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.
18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusahead wildrye, and noxious weeds while enhancing vigor and abundance of desirable native or seeded species.
19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.
20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.

VIII. Bruneau Management Framework Plan (MFP) Objectives

The following Land Use Plan objectives and associated management actions are from the Bruneau MFP (1983)

Range Management Activity Objective (RM)-1: On poor condition ranges lacking desirable vegetative species, increase the vigor, density, and production of desirable vegetation. Increase poor condition ranges with desirable vegetative species to fair, fair ranges to good, and maintain good and excellent ranges, and maintain or improve burned sites. Increase total forage production. Increase livestock use.

RM-1.1 Implement AMPs on 14 allotments – including Big Springs. Rest or deferred grazing systems to be established on critical sage grouse brood rearing areas. Improve antelope winter/spring ranges with systems and season of use adjustments.

RM-1.4 Develop livestock management facilities needed for implementation of AMPs and/or grazing systems subject to the following constraints: Maintain a separation of use between cattle and bighorn sheep by not developing water within 1 mile of sheep habitat. Construct no new roads or range improvements within sheep habitat or in WSA's unless mitigation can be made. Do not develop springs that will not reasonably water both livestock and wildlife. Developed springs in riparian zones will be fenced.

RM-1.5 Adjust livestock season of use and/or implement grazing systems on spring and summer ranges to meet minimum growth needs of preferred plant species.

Range Management Activity Objective (RM)-2 – Treat suitable public lands to increase forage production and to reduce acreage in poor condition.

RM -2.2 Treat, specifically in the Big Springs allotment, approximately 10,100 acres of suitable native range to improve condition and increase forage production for livestock and wildlife through brush control or seeding.

Range Management Activity Objective (RM)-3 Allocate livestock forage within the limits necessary to maintain and/or enhance the range and soil resources.

RM-3.1 Allocate forage in the Big Springs allotment according to the implementation schedule of Table RM-3.1 MFP II as follows:

Year 1 (AUMs)	Year 3 (AUMs)	Year 5 (AUMs)
16,248*	15,436	14,254

* Based on 5-year licensed use – 1976-80 (See also page 5 for subsequent implementation actions that conformed to a 1983 BLM policy change)

Range Management Activity Objective (RM)-5 Provide for protection and conservation of rare and endangered plants within the Planning Unit.

RM-5.1: Manage all lands in a manner which will provide or enhance rare and endangered plants where they exist throughout the planning unit. Special Status Plants are known to occur in this allotment.

Other management actions listed under other resources in the Bruneau MFP provide additional guidance to rangeland management activities for the benefit of those resources:

CRM 1.2: Nominate the Camas Creek/Pole Creek Archaeological District to the National Register of Historic Places. Incorporate protective measures necessary for protection from livestock grazing when AMPs are developed. [Explanation: The MFP identified the Camas Creek/Pole Creek Archaeological District as eligible for listing in the National Register of Historic Places as defined by the National Historic Preservation Act of 1966, Section 110 A.2.]

CRM 2.3: Stabilize cut banks and protect the sites on a case by case basis in coordination with other resource uses to resolve conflicts as they occur.

CRM 2.4: Exclude livestock from the sites on a priority case by case basis in coordination with activity plans, wild and scenic river and wilderness management. If reasonable economical alternative water sources are not available the determination will be made at the time on a case by case basis.

WS 1.1: Minimize erosion by maintaining good perennial vegetation cover where it exists and establish perennial vegetation cover where feasible/economical...

WL-AQ 2.1, 2.2, 2.4: Improve fisheries physical habitat …on identified segments of Battle, Pole, Nickel and Camas creeks within or bordering the Big Springs Allotment. Special priority should be given to improve habitat of redband trout (a sensitive species). Maintain aquatic/riparian habitat condition on stream segments in good condition.

WL 2.1: Manage canyonland for the priority of bighorns and other wildlife and allow other reasonably compatible uses. Where necessary to prevent livestock access to these

areas, provide salting or fencing.... Potential and existing bighorn sheep habitat of the Owyhee River herd is designated an ACEC...

WL 3.1, 3.2: Implement livestock grazing systems and practices that recognize the physiological requirements of forbs and shrubs...

WL 4.3, 4.4: Manage springs, seeps, and meadows and adjacent upland areas as key wildlife habitats for upland game...Control livestock grazing by implementation of grazing systems, season of use, and other management practices such as salting away from water...If livestock use cannot be avoided, physically protect springheads and wet areas.

VRM-1.1: Existing WSAs will be managed under VRM Class I. The allotment contains a mix of VRM Class I and III areas; Class I areas will be managed primarily for natural ecological change. Management activities in Class III areas may begin to attract attention, but remain subordinate to the existing landscape.

WN-4: Protect the wilderness characteristics of all areas recommended as suitable for wilderness until Congress acts on the recommendations. The Owyhee River-Deep Creek, Battle Creek, Upper Deep Creek, and Pole Creek Wilderness Study Areas are all within the allotment.

IX. Sierra Del Rio Use Area – See separate file for Section IX.

X. Joseph Black and Sons Use Area – See separate file for Section X.

XI. Dickshooter Cattle Co. Use Area – See separate file for Section XI.

XII. Literature Cited

Allen, D.B., B.J. Flatter, J. Nelson, and C. Medrow. 1998. Redband trout *(Oncorhynchus mykiss gairdneri*) population and stream habitat surveys in northern Owyhee County and the Owyhee River and its tributaries, 1997. U.S. Bureau of Land Management, Technical Bulletin Number 1998-14, Boise, Idaho. 21 pp.

Allen, D.B., B.J. Flatter, K. Fite, and S.P. Yundt. 1993. Redband trout (*Oncorhynchus mykiss gairdneri*) population and habitat inventory in Owyhee County, Idaho. U.S. Bureau of Land Management, Challenge Cost Share Report, Project ID-013-435001-25-9Z, Boise, Idaho.

Bawtree A. H. 1989. Recognizing range readiness. Rangelands. 11:67-69.

Bingham, S., and A. Savory. 1990. Holistic Resource Management Workbook. Island Press, Washington, D.C. 182 pp.

Center for Holistic Management. 1999. Early warning biological monitoring – Rangelands and Grasslands. Center for Holistic Management. 1010 Tijeras NW, Albuquerque, NM.

CDC (Idaho Conservation Data Center), Idaho Department of Fish and Game. 2004. Biological and Conservation Data System. Boise, ID.

Ganskopp, D. 1988. Defoliation of Thurber needlegrass: herbage and root response. Journal of Range Management. 41(6) 472-476.

Hansen, P., R. D. Pfister, K. Boggs, B. J. Cook, J. Joy, and D. K. Hinckley. 1995. Classification and Management of Montana's Riparian and Wetland Sites. Montana Forest and Conservation Experiment Station, School of Forestry, University of Montana.

ID APA. Idaho Administrative Procedures Act 58.01.02. Water Quality Standards and Wastewater Treatment Requirements. http://www2.id.state.us/adm/adminrules/rules/idapa58/0102.pdf

IDEQ 1992. Idaho Department of Environmental Quality. Protocols for Classifying, Monitoring, and Evaluating Stream/Riparian Vegetation on Idaho Rangeland Streams. Water Quality Monitoring Protocols – Report No. 8, page 15.

IDEQ 1998. Idaho Department of Environmental Quality. 1998 303(d) List of Impaired Waters. Temperature & Sediment Additions for Streams for Idaho (303(d) Impaired - 1998). http://www.insideidaho.org/

IDEQ 2002. Idaho Department of Environmental Quality. Water Body Assessment Guidance Second Edition-Final January 2002.

IDEQ 2003. Idaho Department of Environmental Quality. Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Load. EPA Approved March 2003.

IDEQ 2004a. Idaho Department of Environmental Quality. 2002 Integrated Report Results. Submitted to EPA June 2004. http://www.deq.state.id.us/water/data_reports/surface_water/monitoring/integrated_report.cfm ; http://mapserver.deq.state.id.us/Website/deqwaters/viewer.htm

IDEQ 2004b. Idaho Department of Environmental Quality. Beneficial Use Reconnaissance Protocol (BURP) Database Viewer. Updated July 21 2004. http://mapserver.deq.state.id.us/Website/deqwaters/viewer.htm

IDFG (Idaho Department of Fish and Game). 2007. Upland game surveys and inventories progress report, study II, job 1. Project W-170-R-31. Boise, Idaho.

Interagency Technical Team. 1996. Utilization Studies and Residual Measurements. BLM/RS/ST-96/004+1730. 176 pp.

Manning, M, and W. G. Padgett 1995. Riparian Community Classification for Humboldt and Toiyabe National Forest, Nevada and Eastern California. General Technical Report R4-Ecol-95-01. U.S. Department of Agriculture.

Mancuso, M., R., Moseley. 1993. Report on the Conservation Status of *Astragalus Yoder-Willamsii* in Idaho. Conservation Data Center, prepared for Idaho Department of Parks and Recreation. 32 pp. plus appendices.

McLean, Alistair and Sandra Wikeem. 1985. Influence of season and intensity of defoliation on bluebunch wheatgrass survival and vigor in southern British Columbia. J. Range Manage. 38(1): 21-26.

Mueggler W. F. 1975. Rate and Pattern of Vigor Recovery in Idaho Fescue and Bluebunch Wheatgrass. Journal of Range Management. 28(3):198-204.

NatureServe. 2002. Version 1.7. http://www.natureserve.org/explorer/aboutd.htm

Rosgen D. 1996. Applied River Morphology. Wildland Hydrology Press.

USBLM (U.S. Bureau of Land Management). 1999. Photographic guide to median stubble heights. Idaho Bureau of Land Management, Technical Bulletin Number 99-01. 23 pp.

USBLM (U.S. Bureau of Land Management). 2005. Monitoring Streambanks and Riparian Vegetation – Multiple Indicators. Idaho Bureau of Land Management, Technical Bulletin Number 2005-2.

USBLM (U.S. Bureau of Land Management). 2008. Monitoring Strategy for Rangelands, Instruction Memorandum ID-2008-022, Appendix C, Grazing Response Index. 43-46.

USDI (U.S. Department of Interior). 1999. A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas. U.S. Bureau of Land Management Technical Reference TR1737-16. 109 pp.

USDI. 1998. A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. U.S. Bureau of Land Management Technical Reference TR1737-15. 126 pp.

USDI (U.S. Department of Interior). 2000. Interpreting Indicators of Rangeland Health, Version 3. U.S. Bureau of Land Management Technical Reference 1734-6. 118 pp.

U.S. Fish and Wildlife Service, Snake River Basin Office. 1998. Memo to State Director, BLM: Conservation and Protection of *Spiranthes diluvialis*, File #1002.1000.

Zoellick, B.W., D.B. Allen, and B.J. Flatter. 2005. A long-term comparison of redband trout distribution, density, and size structure in southwestern Idaho. North American Journal of Fisheries Management 25:1179-1190.

XIII. Glossary (Terms, Acronyms, and Abbreviations)

ACEC – Area of Critical Environmental Concern

AMP – Allotment Management Plan

AUM – Animal Unit Month

BLM – Bureau of Land Management

BURP – Beneficial Use Reconnaissance Protocol

CDC – Idaho Department of Fish & Game Conservation Data Center

CFR – Code of Federal Regulations

CWAL – Cold Water Aquatic Life

DCC – Dickshooter Cattle Co.

EOU – Exchange-of-Use

ESA – Endangered Species Act

FAR – Functioning At Risk

FARD – Functioning At Risk, Downward Trend

FARS – Functioning At Risk, Static Trend

FARU – Functioning At Risk, Upward Trend

FFR – Fenced Federal Range

GIS – Geographic Information Systems

GRN – Grazing Record Number

HRM – Holistic Resource Management

ID – Interdisciplinary

IDEQ – Idaho Department of Environmental Quality

IDFG – Idaho Department of Fish and Game

ISRH&GLGM – Idaho Standards for Rangeland Health & Guidelines for Livestock Grazing Management

JB&S – Joseph Black & Sons

NPFT – Nested Plot Frequency Transect

MFP – Management Framework Plan

NF – Non-Functioning

NR – Not Rated

NRHP – National Register of Historic Places

PCR – Primary Contact Recreation

PFC – Proper Functioning Condition

RAC – Resource Advisory Council

RAWS – Remote Automatic Weather Station

RHE – Rangeland Health Evaluation

SCR – Secondary Contact Recreation

SDR – Sierra Del Rio

SS – Salmonid Spawning

SSP – BLM Special Status Plant Species

TMDL-Total Maximum Daily Load

UPM – Use Pattern Mapping (Maps)

USDI – U.S. Department of Interior

USFWS – U.S. Fish and Wildlife Service (Department of Interior)

USGS – U.S. Geological Survey (Department of Interior)

WSA – Wilderness Study Area

Definitions:

Abundance – number of individuals per unit area.

Actual Use Data – Numbers and class of livestock, and period of time those livestock actually grazed a specific allotment or pasture.

Allotment – an area of land designated and managed for gazing of livestock; may contain a mixture of BLM, other federal, private, and/or State lands.

Animal Unit Month (AUM) - The amount of forage needed to sustain one cow unit or its equivalent (one horse or five sheep, all over six months old) for one month (approximately 800 pounds of forage).

Annual Plant – A plant that grows from seed, reproduces and then dies in one growing season, usually in less than one calendar year.

Apparent Trend – An assessment, using professional judgment, based on observations of factors such as plant vigor, abundance, diversity, and soil surface characteristics.

Aquatic – Living or growing in or on the water.

Area of Critical Environmental Concern (ACEC) – Acreage within BLM public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historical, cultural, or visual values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The identification of a potential ACEC shall not, of itself, change or prevent change of the management or use of public lands.

Beneficial Use – Any of the various uses which may be made of the water, including, but not limited to, domestic water supply, industrial water supply, agricultural water supply, navigation, recreation in and on the water, wildlife habitat, and aesthetics. A beneficial use is identified based upon actual use, the ability of a water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner.

Biological Soil Crusts – Bryophytes, lichens, cyanobacteria, algae, and fungi which exist on or just below the soil surface in arid and semi-arid plant communities throughout the world.

Boot Stage – A plant growth stage in grasses at which time the flowering portion is beginning to form in the leaf sheath. Clipping has the greatest effect upon plant vigor and reproduction at this stage, usually just before the flowering heads emerge.

Bunchgrass – A grass having the characteristic growth habit of forming a bunch; lacking stolons or rhizomes.

Candidate Species – A plant or animal species designated by the USF&WS or NMFS as a candidate for listing as threatened or endangered (see threatened species, endangered species). A candidate species is a plant or animal species for which the USF&WS or NMFS currently has on file substantial information to support a proposal to list the species as endangered or threatened (see proposed species). A candidate species' numbers are declining so rapidly that official listing as threatened or endangered pursuant to Section 4 of the Endangered Species Act may become necessary as a conservation measure. Declines may be due to one or more factors, including the following: destruction, modification, or curtailment of the species' habitat or range; over utilization for commercial, sporting,

scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other factors.

Community – An ecological boundary defined by the species and species interactions which occur.

Decadent plant – Plants that are old or deteriorating. In a plant community, decadence refers to an abundance of dead or dying plants relative to what is expected for a site given the natural range of variability in disease, climate, and management influences.

Decreaser – Those species that decrease in amount for a given community, as a result of a specific abiotic/biotic influence or management practice. Typically refers to deep-rooted perennial grasses.

Disturbance – Any management activity that has the potential to accelerate erosion or mass movement or alter composition of plant communities. Also, any other activity that may tend to disrupt the normal movement or habits of a particular wildlife or plant species.

Diversity – The distribution and abundance of different plant and animal communities and species within an area.

Dormant State – A plant growth stage occurring after annual growth and reproduction when the plant prepares for winter. Clipping has the least effect upon plant vigor and reproduction at this stage.

E. Coli **-** A common fecal and intestinal organism of the coliform group of bacteria found in warm-blooded animals.

Ecological Condition – The present state of vegetation on a site compared to the natural potential of vegetation on the site. Based primarily on comparison of relative composition by weight of plant species.

Ecological Site – Land with a specific potential natural community and specific physical characteristics, differing from other kinds of land in its ability to produce vegetation and in its response to management.

Endangered Species – Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range, and has been officially listed as endangered by the Secretary of Interior or Commerce under the provisions of the Endangered Species Act. A final rule for the listing has been published in the *Federal Register*.

Ephemeral Stream – A stream which has no predictable flow pattern and only flows in direct response to precipitation (rainfall), and whose channel is at all times above the water table.

Erosion – The wearing away of the land's surface by water, wind, ice or other physical processes. It includes detachment, transport, and deposition of soil or rock fragments.

Exchange-of-Use – An authorization to graze public lands to the extent of the livestock carrying capacity of the unfenced private or state lands that are offered in exchange-of-use.

Exclosure – An area fenced to exclude grazing animals, for study purposes or to allow independent management from the surrounding area.

Fecal Coliform - The portion of the coliform group of bacteria present in the gut and feces of warm-blooded animals.

Fenced Federal Range – A small amount of public land fenced with a larger amount of private land.

Floodplain – the area or lowlands adjoining a body of standing or flowing water which has been or might be covered by overbank flows of water (floodwaters).

Flowering Stage – Generally, a plant growth stage occurring when the reproductive portion of the plant begins to emerge (anthesis for grasses).

Forage - All browse and non-woody plants that are available to wildlife for grazing or harvested for feeding livestock. Normally includes only the current year's growth.

Forb – Any herbaceous plant species other than those in *Gramineae* (grasses), *Cyperaceae* (sedges), and *Juncaceae* (rushes) families; fleshy leaved plants.

Frequency – A quantitative expression of the presence or absence of individuals of a species in a population.

Functioning – Upland areas are considered to be functioning when the majority of the associated indicators are rated as having little or no deviation from that described in the Reference Sheet.

Grazing Permit – Under Section 3 of the Taylor Grazing Act, a document authorizing the use of the public lands within grazing districts for the purpose of grazing livestock.

Grazing System – A system of manipulating livestock grazing to accomplish desired results.

Season (season long) – grazing use throughout the growing season. Clipping occurs during all phenological stages of plant growth.

Cool Season – livestock use is limited to spring, fall, or winter months, generally to reduce preference for and impacts upon riparian areas. Riparian pastures typically receive cool season use.

Deferred Rotation – discontinuance of livestock grazing on various parts of a range in succeeding years, allowing plants on each part to recover vigor and produce seed successively during the growing season. Two, but more commonly three or more, separate pastures are required. Deferment may also be practiced on individual pastures or areas within pastures without a rotation system.

Rest rotation – one pasture is totally rested from livestock grazing in a given year, and all other pastures absorb the grazing load.

Trailing – livestock use is limited to incidental grazing which occurs as livestock move through the area.

Habitat – Specific set of physical conditions that surround a species, group of species, or large community. For example, major habitat components for wildlife are food, water, living space, and cover.

Herbaceous – Plants that are green and leaf like in appearance or texture and have characteristics typical of an herb, as distinguished from a woody plant.

Historic Property/Resources – A term used in the National Historic Preservation Act that refers to a cultural resource which is considered eligible to be listed or is listed on the National Register of Historic Places.

Increaser – Those species that increase in amount for a given community, as a result of a specific abiotic/biotic influence or management practice. Typically refers to shallow-rooted perennial grasses.

Intermittent Stream – A stream or segment of stream that flows only at certain times of the year when it receives water from springs or from some surface source, such as melting snow in mountainous areas.

Invasive Plant – Plants that are not native to a community which, when introduced, can out-compete native species for available resources, reproduce prolifically, and dominate regions and ecosystems.

Inventory – A point-in-time measurement of a resource to determine location or condition of the resource.

Key Area – A relatively small area that reflects or has the ability to reflect the effectiveness of management actions over a much larger area.

Lek – A site where birds, specifically grouse, regularly congregate for display and courtship purposes.

Management Framework Plan (MFP) – A BLM land use plan for a specific area of land called a planning unit. MFP's were

the first generation of BLM land use plans, prior to completion of Resource Management Plans. An MFP was written after completion of a Unit Resource Analysis as an inventory.

Mesic – Relatively moist habitat sites typically occupied by vegetative species requiring relatively higher amounts of soil moisture for survival.

Monitoring – The collection and analysis of repeated observations or measurements to evaluate changes in condition and progress towards meeting a management objective.

National Register of Historic Places – A register of districts, sites, buildings, structures, and objects significant in American history, architecture, or archaeology, and culture, established by the National Historic Preservation Act of 1966 (NHPA) and maintained by the Secretary of Interior.

Nested Plot Frequency Transect – A method of monitoring rangeland trend that consists of observing plots of various sizes along a transect. The frame is constructed such that successively smaller plots are included within the next larger plot.

Nonuse AUMs – Available grazing forage which is not permitted during a given time period.

Noxious Weed – A legal designation made by the Idaho Department of Agriculture to invasive nonnative plants (1) which are potentially more harmful than beneficial, (2) whose adverse impacts exceed to cost of control, and (3) that have the potential of being eradicated .

Paddock – A smaller division of land within a grazing cell in which stock are grazed for short periods of time. Paddocks can be fenced permanently, temporarily, or marked in various ways for herding without fencing.

Pasture – An area of land planned for grazing management purposes, normally as one unit. BLM commonly uses the term pasture to refer to areas of land that can be grazed independently because of physical barriers that prevent livestock movement among them. Within the JB&S Use Area, Pasture 4 is equivalent to a grazing cell.

(Total) Permitted Use – Forage allocated under the guidance of an applicable land use plan for livestock grazing in an allotment under a permit or lease, expressed in AUMs. The *active* use and *suspended* use are combined to make up the total permitted use.

Active use is that portion of the total permitted use for which grazing use may be authorized

Suspended use is that portion of the recognized permitted use which is withheld from active use though a grazing decision or by agreement with the permittee.

Prior to Boot (Vegetative) Stage – The vegetative phenological stage occurs in grasses after the plant initiates growth in the spring, but before any flowering buds are detectable on the flower stalk.

Proper Functioning Condition – Riparian or wetland areas are considered to be in PFC when adequate vegetation, landform, or large woody debris are present to fully support riparian functions defined by the Rangeland Health Standards.

Public Land – Any land and interest in land (i.e., mineral estate) owned by the United States and administered by the Secretary of the Interior through the BLM, except lands located on the Outer Continental Shelf and lands held for the benefit of Indians, Aleuts, and Eskimos (43 CFR 1601.0-5(i)). May include public domain or acquired lands in any combination.

Range Improvement – A structure, excavation, treatment or development to rehabilitate, protect, or improve range conditions on public lands.

Rangeland Health Evaluation (RHE) – A qualitative procedure to assess current

functional status of ecological processes on upland ecological sites.

RHE Site – A portion of the landscape within a particular ecological site where a Rangeland Health Assessment worksheet was completed.

Rare Species – Plant or animal species which are uncommon to a specific area.

Riparian – Of, pertaining to, situated, or dwelling on the bank of a river or other body of water.

Riparian Area – The area between permanently saturated wetland and upland areas, which exhibits vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Typical riparian areas include lands along, adjacent to, or contiguous with perennial and intermittent streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Riparian Area Condition Classes – Riparian areas may be classified in one of three conditions: proper functioning, non-functional, or functional-at-risk.

Rubbleland – Barren residual masses of loose, angular basalt fragments underlain by bedrock.

Salmonid – A member of the family of fish species *salmonidae*; includes trout and salmon species.

Season of Use – A period of grazing use defined either by calendar dates or phenological stages (i.e., early = prior to boot, critical = boot to flower, late= after flowering, dormant = dormant/winter). (Also see Boot Stage, Dormant State, Flowering Stage, Prior to Boot Stage, and Seed Ripe) On Boise District grazing permits, spring use is defined as March 1 through June 30, summer use is defined as July 1 through September 30, and fall and winter use is defined as October 1 through February 28. The critical season for most native species occurs during May and June, depending upon elevation.

Sediment – Solid material that originates mostly from disintegrating rocks and is transformed by, suspended in, or deposited by water. Sediment includes chemical and biochemical precipitates and decomposed organic material.

Seed Ripe – Seeds are ripe for the year, and the rate of vegetative growth is minimal.

Seed Shatter – Seeds are dried enough to be disseminated, and vegetative growth is ending for the year.

Seep (or Spring) – A saturated zone at or near the ground surface where voids in the rock or soil are filled with water at greater than atmospheric pressure. Seep or spring sites are typically characterized by riparian vegetation and soil formed in the presence of water. Water may or may not be discharging from these sites, depending on the underlying geology, water source, season, or long term climatic trends. A seep is a small spring.

Sensitive Species – Plant or animal species designated by the BLM State Director as sensitive, usually in cooperation with the State agency responsible for managing the species. Sensitive species are those (1) which are under status review by the USF&WS or NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) inhabiting ecological refugia or other specialized or unique habitats.

Special Status Species – Species which have official recognition of rarity or decline, including specified identified in the *Federal Register* as "threatened", "endangered", "proposed", or "candidate" and species listed as "sensitive" by a State or the Bureau of Land Management (Also see Threatened Species, Endangered Species, Proposed Species, Candidate Species, State Listed Species, and Sensitive Species).

Springs – See Seep.

Standards and Guidelines – Provide the resource measures and guidance needed to ensure healthy, functional rangeland. The Standards for Rangeland Health are to be used as the BLM's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range.
Standards are a description of a minimally functioning condition for soil, water quality, and biological components of rangelands.

Guidelines direct the selection of grazing management practices, and, where appropriate, livestock management facilities to promote... progress toward ... or ... maintenance of the Standards. Grazing management practices are livestock management techniques that can be incorporated into grazing permits.

Stocking Rate – The current level of livestock grazing use on a unit of land, usually expressed as acres of land per AUM grazed.

Stubble Height – The height of ungrazed herbaceous matter left standing at the close of the grazing period or growing season.

Suitable Wilderness Study Area (WSA) – A WSA that has been studied by the BLM and recommended to the President as suitable for inclusion into the National Wilderness Preservation System.

Supervised (Active) Trailing – Livestock are actively pushed to their destination, not merely allowed to move along at their own pace without human encouragement. Active trailing most typically occurs at spring turnout.

Temperature Exemption -During very hot weather, stream temperatures are expected to also rise. When the ambient air temperature is extremely high, water temperatures that exceed criteria may not be a water quality standards violation when the air temperature exceeds the 90th percentile of the 7 day average daily maximum temperature.

Temperature Frequency of Exceedance (10% Exceedance Criteria) - If the frequency of exceedence of the temperature criteria is less than 10% and there is no evidence of thermal impairment, then IDEQ may de-list a water body, rather than write a TMDL.

Threatened Species – A plant or animal species which is likely to become endangered (See Endangered Species) within the foreseeable future throughout all or a significant portion of its range, and is officially listed as threatened by the Secretary of Interior or Commerce under the provisions of the Endangered Species Act. A final rule for listing has been published in the *Federal Register*.

Total Maximum Daily Load - The amount of pollution a water body can assimilate, without violating water quality standards. A TMDL also refers to the written document that contains the statement of loads and supporting analyses.

Trend – The direction of change in ecological status observed over time. Trend is described as toward or away from the potential natural community, or as not apparent (static). Trend is also defined more generally as the direction of change toward or away from desired management objectives.

Upland – The portion of land located away from riparian and floodplain areas.

Upland Condition – In this document, upland or range condition interpretations are based primarily upon indicators of Rangeland Health.

Utilization – The proportion of current year's vegetative growth consumed or destroyed by grazing animals, usually expressed as a percentage.

Vigor – The relative robustness of a plant.

Watershed (or Drainage Basin) – A topographically defined area drained by a river, stream, or system of connecting rivers or streams such that all outflow is discharged through a single outlet.

Water Quality Limited Stream Segment – A stream segment in which full attainment of an identified beneficial use has not been achieved as a result of one or more limiting water quality parameters.

Wetland Area/Habitat – An area where at least periodic inundation or saturation with water (either from the surface or subsurface) is the predominant factor determining the nature of soil development and the types of plant and animal communities living there. These include the entire zones associated with streams, lakes, ponds, canals, seeps, wet meadows, and some aspen stands.

Wilderness – All lands included in the National Wilderness Preservation System by public law. Also, generally defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation.

Wilderness Study Area (WSA) – A roadless area that has been inventoried and found to have wilderness characteristics, having few human developments and providing opportunities for solitude and primitive recreation, as described in Section 603 of FLPMA and Section 2C of the Wilderness Act of 1964.