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The Wyoming Department of Agriculture is dedicated to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life.

August 18, 2016

Mr. Trent Staheli, Rangeland Management Specialist
Bureau of Land Management
Lander Field Office
1335 Main Street
Lander, WY 82520

Dear Mr. Staheli:

Following are the Wyoming Department of Agriculture (WDA) comments pertaining to the Lander Bureau of Land Management Field Office's (BLM) draft Land Health Assessment (LHA) for Breeding Pasture Allotment #01704.

Our comments are specific to our mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life. As this document could affect our industry, citizens and natural resources it is important that you continue to inform us of proposed actions and decisions and continue to provide the opportunity to communicate pertinent issues and concerns.

After reviewing the draft LHA we have multiple concerns regarding the findings. First and foremost, we do not believe the Ecological Site Descriptions (ESDs) BLM used are appropriate for the area. It appears the BLM attempted to adjust but did not fully commit to exploring other ESDs that may be more applicable, which led to contradictions within the findings. While we recognize the unique management challenges that exist along the Sweetwater River Corridor and this area of the Lander Field Office regarding ESDs, the BLM is also aware of these challenges and should adjust accordingly.

Please find more specific comments below:

- 1. The LHA uses inaccurate/inappropriate ESDs and the 10-14" precipitation zone for the allotment.** After reviewing the ESDs for the area, we do not believe they are representative of on-the-ground realities. Both ESDs for Sandy and Sands are based on the High Plains Southeast area (pg. 11 states: "*Sandy 10-14" HPSE [High Plains Southeast] ecological site...*" and "*Sand 10-14" HPSE ecological site...*"). While these may seem applicable based on Natural Resource Conservation Service (NRCS) precipitation Zone 9, the allotment is also near NRCS Zone 8 – Wind River Basin (5-9") and Zone 4 – Green River and Great Divide Basins (7-9") (Attachment 1). Since all could apply, we recommend, at a minimum, the BLM explain their rationale for their choice of ESDs.

NRCS Precipitation Zone 9, which the allotment falls within, indicates 10-14" is expected for the area. Assuming this is an expected range, and in dealing with the world of averages or "normals", it could be expected the allotment would receive roughly 12" of precipitation annually. Unfortunately, that is not the case and the allotment seems stuck between two zones.

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The BLM states *"Both the ID Team and Permittees living next to the allotment believe that the allotment does not regularly receive that much precipitation. The rain gauges closest to the allotment also indicate that the area likely does not regularly receive 10-14" of precipitation in a year"* (pg. 10). However, the BLM still used ESDs for the 10-14" precipitation zone to complete the LHA. If the BLM and ID Team agree the area does not receive 10-14" of precipitation we cannot understand how the assessment was then completed using this estimate. If the incorrect ESD and precipitation zone is used to assess the area, it is unlikely the allotment can ever meet objectives.

Data from the Western Regional Climate Center (WRCC) shows that from 1964 to 2012 the mean annual precipitation for Jeffrey City was 9.80", with a high of 13.23" and low of 5.12" (Attachment 2). We also requested information regarding annual precipitation from the National Oceanic and Atmospheric Administration (NOAA) and found the 30-year precipitation average for the Jeffrey City area (which includes the allotment) is reported as 10.06" (Attachment 3). This roughly 10" average is, as mentioned, somewhat frustrating. Not only does it represent an average of all precipitation, rather than mode, it is either the extreme low end of the 10-14" precipitation zone, or above and beyond the extreme high value of the 5-9" precipitation zone. In addition, the underlying data from NOAA has numerous gaps and estimated totals for some months based on historic moisture regimes, leading us to wonder how accurate the averages provided by NOAA truly are. We recommend BLM use data from WRCC in conjunction with other climatic data and consider mode, rather than average or mean, when evaluating the applicability of ESDs to the area.

The BLM discusses inaccurately mapped ESDs and states on page 11 *"This site is mapped as a Sandy ecological site; however, the area has several dunes and the soil pit revealed that the soil fits the description of Sands ecological site better. Therefore, the Sands 10-14" HPSE ecological site description was used..."* We appreciate the BLM digging a soil pit and recognizing the area was inaccurately mapped, but we remain concerned precipitation was ignored and the site was not adjusted accordingly.

With these variables in mind, we recommend the BLM use a different ESD in the future, or develop ESDs more specific to the area with the NRCS. Our main concern is that management objectives will be developed without acknowledging local realities and thus, objectives will not be met. The BLM cites Cagney et al. 2010 in the document (pg. 22) yet does not seem to acknowledge the underlying principle. BLM should recognize that *"Establishing achievable long-term goals based on state and transition models is a critical first step in synchronizing sagebrush plant community objectives with grazing management strategies."* (Cagney et al. 2010, pg. 4). In other words: if realistic, local objectives for both grazing management and habitat are not developed, managers will undoubtedly fail on both fronts. Before any objectives can be established, the BLM must select appropriate ESDs in order for state and transition models to properly inform management prescriptions.

We suggest the BLM look at the following ESDs and consider their application and appropriateness for the Breeding Pasture Allotment:

- Sandy (Sy) 5-9" Wind River Basin Precipitation Zone; Site ID: R032XY250WY
<https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?approved=yes&repType=regular&id=R032XY250WY>
- Sandy (Sy) 7-9" Green River and Great Divide Basins; Site ID: R034AY150WY
<https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?approved=yes&repType=regular&id=R034AY150WY>

Lastly, the BLM treats ESDs as if they are a set of requirements. For example, on page 11, the BLM states: *"The lack of an A-horizon greatly affects the lands ability to perform in accordance with the ESD's reference state description"*. ESDs are guides, not a set of standards to conform to. We suggest the BLM review the document and acknowledge the intent of ESDs as references and general guides, not requirements.

- 2. The LHA uses only 3 sites across roughly 18,000 acres to determine Standards for the entire allotment.** While this may be what is available, it is entirely unscientific. Additionally, only two of the sites were upland sites and account for 99.9% of the allotment (Soda Lake is roughly 10 acres and was found to be in Proper Functioning Condition). While this small number of sites may represent what is currently available to monitor, the BLM should not draw conclusions for the entire allotment based on two monitoring sites. Numerous programs exist through partner agencies to aid in data collection and we encourage the BLM to explore options to increase the amount of credible data available for the allotment.
- 3. Findings for Soils Standard.** We do not understand how both sites failed the Soils Standard when data does not suggest the primary indicators were failed. BLM states on page 5 *"The standard is considered met where upland ground cover is appropriate for the ecological site, obvious signs of soil erosion are not apparent..."* yet the primary cause of failure seems to be a lack of A-horizon. The BLM discusses *"evidence of wind erosion and litter movement"* on the site (pg. 11), and while we agree the ESD Reference Sheet indicates the *"Extent of wind scoured, blowouts and/or depositional areas"* should be *"None"*, we cannot understand how the site has failed when there is greater than 70% plant cover and litter, as recommended by the ESD. If erosion is a concern on this site, the BLM should rely on their own information to demonstrate that sufficient litter and plant cover exists. The BLM states on page 11 *"Bare ground was expected to be between 20-30% and was found to be about 18%; Plant and litter cover is approximately 75%; Soil pits did not reveal a compaction layer or soil crusting that would limit plant growth."* The results seem to be contradictory and, in conjunction with the low level of bare ground (18-20%), we do not believe the evidence indicates total failure of the Standard.

Site 2 fit the Sands ESD better than Sandy, yet the BLM does not appear to have followed the description. The document states *"...the Sands 10-14" HPSE ecological site description was used to evaluate the site"* but does not discuss any differences from Site 1 (Sandy) to Site 2 (Sands). In fact, the BLM uses – verbatim – the discussion from the Sandy ESD on page 11. The only discernable difference is in actual numbers (Bare ground changed from 18% to 20%; Plant litter and cover changed from 75% to 79%). Again, the site was not adjusted in relation to precipitation and the numbers do not indicate the site should have failed entirely.

The BLM states the Sandy ecological site does not meet the Standards for Soils *"because the Fremont County soil survey indicates that the soils A-horizon (surface layer) should be in the 3-inch range but it has less than 0.5-inches."* (pg. 11). We believe the BLM would be hard-pressed to find any upland site with an A-horizon of 3 inches in this area.

BLM should consult their own Standards for Healthy Rangelands and note all Indicators come with a footnote that says: *"The above indicators are applied as appropriate to the potential of the ecological site"* (pg. 5-10) and *"It is important that Standards be realistic and within the control of the land manager and users to achieve"* (pg. 4) (Standards for Healthy Rangelands, BLM, 1997).

- 4. Findings for Uplands Standard.** The ID Team rated the Sandy site as *"Slight to Moderate departure"* from reference community (pg. 15). While we do not entirely disagree with the rating, we did not find enough evidence in the document to constitute a complete failure of the Standard. According to the numbers for the

site, nearly one quarter of the plant community consists of needleandthread. The BLM does not seem to consider this desirable and would instead prefer an increased level of shrubs and decreases in short-stature grasses. We agree an increased level of diversity could be beneficial to livestock and wildlife but considering the site had *"64% vegetative cover"*, *"some sagebrush recruitment"*, *"23% litter cover"*, and *"very low"* plant mortality, we do not see how the site is failing (pg. 15). The BLM also continues to site an ESD discussed as being inaccurate and possibly inappropriate for the site. The same discussion can be applied to the Sands site and page 16.

The BLM should recognize that failure of a portion of a Standard does not necessarily constitute failure of the entire Standard and fully commit to adjusting locally. Additionally, without clearly defined goals for upland plant communities (e.g., increased sagebrush cover) management cannot be successful.

- 5. Findings for Wildlife Standard.** BLM cites low forb availability and changes in grass communities as reasons for failure yet attributes these conditions to a lack of A-horizon, as discussed above. However, the BLM states on page 11 *"Soil pits did not reveal a compaction layer or soil crusting that would limit plant growth"* leading us to wonder how such a contrary inference was made. Additionally, the most limiting factor in terms of wildlife habitat for the area – water and riparian areas – is not an issue since Soda Lake is meeting PFC.

For sage-grouse, the document discusses *"optimum early brood-rearing habitat"* and lists numeric values for habitat attributes. The values appear to be from Stiver et al., 2015 or Connelly et al., 2000 and while we do not disagree with them, they are limited to brood-rearing habitat. The BLM states *"The Breeding Pasture does not meet these optimum habitat suitability conditions"* (pg. 20) which would seem to include all habitat types. As far as we know, the allotment does not contain terms or conditions that require *"optimum"* sage-grouse habitat and the values reported in the document do not show there is a massive departure from suggested values for sage-grouse. Moreover, the ESDs being used do not indicate the area will have a large amount of sagebrush when in the Reference Plant Community. BLM must also recognize that *"optimum"* habitat is highly variable depending on location and actual bird use or needs during different seasons.

Similarly, the discussion of big game habitat and the Sands ESD seem contradictory. The BLM states *"sagebrush mortality in the sands ecological site and low production contributes to the allotment failing Standard #3"* (pg. 19). State and transition models for the Sands ESD indicate a climax plant community of needleandthread and Indian ricegrass with an alternate state of big sagebrush and thickspike wheatgrass if continuous season-long grazing is employed – which is not currently the case on the allotment.

If the BLM has specific management goals for wildlife habitat on the allotment they should: 1) discuss these goals with permittees, 2) understand what that may mean in terms of grazing management, and 3) explain their rationale for seeking to move the area to a plant community other than historic climax or reference as suggested in the ESDs.

The BLM should review Cagney et al., 2010 in conjunction with Stiver et al., 2015 and Connelly et al., 2000 to develop goals for vegetation/habitat as well as livestock grazing.

Overall, we feel the BLM's underlying premise and basing failure or achievement of Standards on inappropriate ESDs has led to an unfitting assessment. While the BLM may be working with what is available, we cannot support the findings. We also believe that without adjusting for local realities it will be difficult to develop sound short- or long-term goals for the allotment and livestock grazing.

Breeding Pasture Land Health Assessment

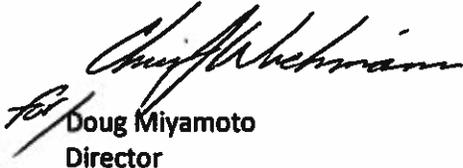
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In conclusion, we are happy to work with the BLM and others to develop more appropriate ESDs for the area, if possible, and are willing to share data and analyses. We would also suggest the BLM consider using our Rangeland Health Assessment Program (RHAP), if permittees are interested, to gather more information regarding soils, vegetation, and rangeland health for the allotment. At this time, we do not believe the BLM has adequate data for the allotment and urge them to collect more data before any formal determinations are made.

We thank you for the opportunity to comment and look forward working with you in the future.

Sincerely,


Doug Miyamoto
Director

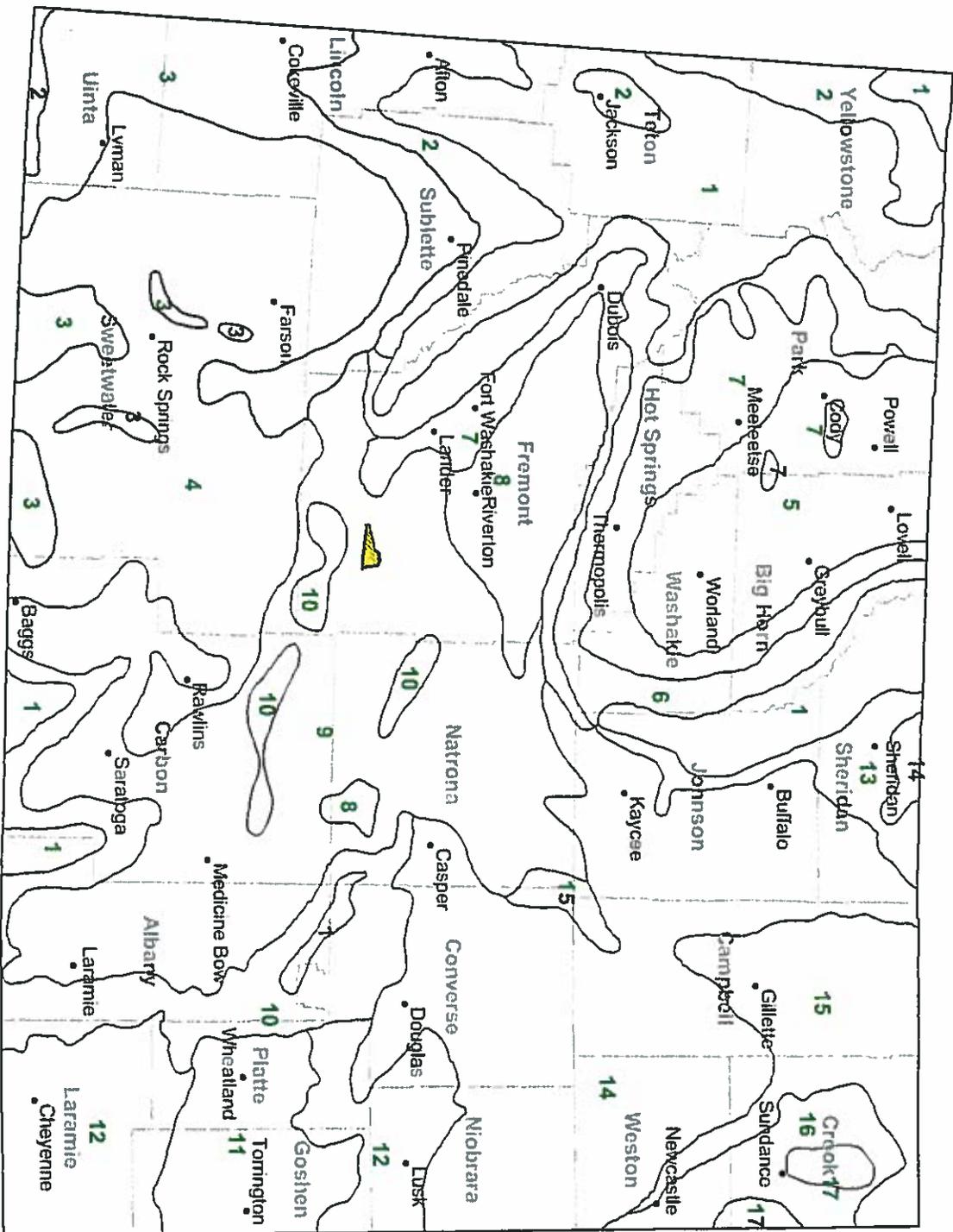
DM/jb

CC: Governor's Policy Office
Wyoming Board of Agriculture
Wyoming Association of Conservation Districts
Wyoming Farm Bureau Federation

Wyoming Game and Fish Department
Wyoming State Grazing Board
Wyoming Stock Growers Association

ATTACHMENT 1

Precipitation Zones for Ecological Site Descriptions



- | Zone Number | Zone Name |
|-------------|--|
| 1 | Mountains (20+ M) |
| 2 | Foothills and Mountains West (15-19 W) |
| 3 | Foothills and Basins West (10-14 W) |
| 4 | Green River and Great Divide Basin (7-9 GR) |
| 5 | Big Horn Basin |
| 6 | Foothills and Mountains East (15-19 E) |
| 7 | Foothills and Basins East (10-14 E) |
| 8 | Wind River Basin (5-9 WR) |
| 9 | High Plains Southeast (10-14 SE) |
| 10 | Foothills and Mountains Southeast (15-19 SE) |
| 11 | Southern Plains (12-14 SP) |
| 12 | Southern Plains (15-17 SP) |
| 13 | Northern Plains (15-19 NP) |
| 14 | Northern Plains (10-14 NP) |
| 15 | Northern Plains (15-17 NP) |
| 16 | Black Hills (15-19 BL) |
| 17 | Black Hills (Forelands) |
- BREEDING PASTURE (Approx)**



April 1995



Wyoming

US Department of Agriculture
Natural Resources Conservation Service

ATTACHMENT 2

JEFFREY CITY, WYOMING

Period of Record General Climate Summary - Precipitation

Station:(484925) JEFFREY CITY														
From Year=1964 To Year=2012														
	Precipitation										Total Snowfall			
	Mean	High	Year	Low	Year	1 Day Max	>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year	
	in.	in.	-	in.	-	in.	dd/yyyy or yyymmddd	# Days	# Days	# Days	# Days	in.	in.	-
January	0.36	0.91	1987	0.00	1989	0.67	06/1987	3	1	0	0	4.9	16.5	1979
February	0.44	1.37	2004	0.00	1990	0.93	02/1989	3	1	0	0	6.7	18.5	2004
March	0.79	2.35	1998	0.00	2004	1.20	11/1988	4	2	0	0	8.4	31.0	1998
April	1.20	4.02	1999	0.02	2007	1.16	11/1979	6	3	1	0	9.4	45.5	1999
May	1.95	4.93	1995	0.22	1994	2.53	08/1965	8	5	1	0	4.6	18.5	1965
June	1.03	3.01	1998	0.00	1981	1.65	26/1985	5	3	1	0	0.3	6.0	1998
July	0.83	3.33	1984	0.00	2008	1.20	30/1990	4	2	0	0	0.0	0.0	1964
August	0.60	2.05	1984	0.03	2012	1.68	01/1984	4	2	0	0	0.0	0.0	1964
September	0.74	2.49	1982	0.04	1979	1.69	14/1982	4	2	0	0	1.1	14.0	1982
October	0.86	2.95	1994	0.00	1988	1.57	04/1994	5	2	0	0	6.3	32.0	2009
November	0.54	1.42	1990	0.00	1988	0.96	28/1983	4	2	0	0	8.5	29.5	1983
December	0.46	1.38	2007	0.05	1964	0.80	20/1983	3	2	0	0	6.7	26.5	1978
Annual	9.80	13.23	1993	5.12	2005	2.53	19650508	55	28	4	0	56.9	100.0	2009
Winter	1.25	2.39	2012	0.39	2002	0.93	19890202	10	4	0	0	18.4	46.0	1979
Spring	3.94	7.13	1995	1.05	2006	2.53	19650508	19	11	2	0	22.4	56.5	1999
Summer	2.47	5.10	1998	0.20	2012	1.68	19840801	14	6	1	0	0.3	6.0	1998
Fall	2.14	4.37	1982	0.77	1964	1.69	19820914	12	6	1	0	15.8	32.0	2009

Table updated on Oct 31, 2012

For monthly and annual means, thresholds, and sums:

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

ATTACHMENT 3



Data Tools: 1981-2010 Normals

The 1981-2010 Climate Normals are NCDC's latest three-decade averages of climatological variables, including temperature and precipitation. This new product replaces the 1971-2000 Climate Normals product, which remains available as historical data.

The tool below provides temperature and precipitation Climate Normals for over 9,800 stations across the United States. Begin by selecting the desired dataset tab to view monthly, daily, annual/seasonal, or hourly Normals. Then select the desired location and a corresponding station.

- [Monthly Normals](#) |
 [Daily Normals](#) |
 [Annual/Seasonal Normals](#) |
 [Hourly Normals](#)

Use the form below to select the geographic region in the first pane, then select the station name in the next pane as the name list is populated.

VIRGINIA	GREYBULL, WY US
WASHINGTON	HECLA 1 E, WY US
WEST VIRGINIA	HULETT, WY US
WISCONSIN	JACKSON, WY US
WYOMING	JEFFREY CITY, WY US
OTHER	KAYCEE, WY US
CANADA	KEMMERER 2 N, WY US
JARVIS I.	LA BARGE, WY US

JEFFREY CITY, WY US

[View Station Details](#) | [View Station Report](#)

SEASON	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
Annual	10.06	27.9	42.2	56.4
Winter	1.14	9.4	20.8	32.3
Summer	2.64	47.1	64.2	81.3
Spring	3.98	26.7	40.6	54.5
Autumn	2.30	28.2	42.7	57.3



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