

Environmental Assessment

James Ryegrass Grazing Association, LLC

Pinedale Field Office, Wyoming

April 2015



The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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DOI-BLM-WY-100-2014-06-EA

Environmental Assessment

For

James Ryegrass Grazing Association, LLC

Prepared by

**Bureau of Land Management
Pinedale Field Office
Pinedale, Wyoming**

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1.0 INTRODUCTION

1.1 Background

This Environmental Assessment (EA) has been prepared to analyze the impacts of renewing livestock grazing permits for a term of 10 years on three allotments in Sublette County, Wyoming: James Ryegrass, Webb Draw Pasture, and the Ball Horse Creek Allotments.

The James Ryegrass Allotment is located approximately 18 miles west of Pinedale, Wyoming in Township 34 North, Range 112 West, Sections 19, 26, 27, 28, 29, and 30. The allotment includes 3,585 acres of public lands administered by the BLM in three pastures (Appendix B. Map 1). The allotment contains no state or private lands. The allotment ranges in elevation between 7,400 and 7,800 feet with annual precipitation from 12 to 17 inches per year.

The Webb Draw Pasture Allotment is located approximately 21 miles northwest of Pinedale, Wyoming in Township 35 North, Range 112 West, Sections 20, 21, 22, 27, 28, 29 and 34. The allotment includes 794 acres of private lands, and 1,550 acres of public lands administered by the BLM, for a total of 2,344 acres (Appendix B. Map 2). The allotment ranges in elevation between 7,400 and 7,852 feet with annual precipitation from 15 to 19 inches per year.

The Ball Horse Creek Allotment is located approximately 21 miles west of Pinedale, Wyoming in Township 34 North, Range 113 West, Sections 25 and 26. The allotment includes 222 acres of public lands administered by the BLM (Appendix B. Map 3). The allotment ranges in elevation between 7,600 and 7,700 feet with annual precipitation from 15 to 19 inches per year.

Rangeland Health Assessments were completed in 2013 for the James Ryegrass and Webb Draw Pasture Allotments. James Ryegrass met all of the standards for Rangeland Health, except for Standard 6 - Air Quality. Webb Draw Pasture met all standards except for Standard 2 - Riparian/Wetland Health and Standard 6 - Air Quality. For Standard 2, there are several factors that contribute to not meeting the standard. These include drought, historic irrigation alterations, road crossings, natural gas pipeline crossing, wildlife use, and livestock grazing. However, it was determined that livestock grazing is a significant factor in not achieving this standard. The non-attainment of Standard 6 in both allotments was not due to livestock grazing.

The Ball Horse Creek Allotment Rangeland Health Assessment was completed in 2014. The Ball Horse Creek Allotment met all standards for Rangeland Health, except for Standard 6 - Air Quality. The non-attainment of Standard 6 in the allotment was not due to livestock grazing.

The Rangeland Health Assessments for the allotments can be seen in Appendix B and the determination for Webb Draw Pasture can be seen in Appendix C.

James Ryegrass Grazing Association, LLC is the sole grazing permittee in James Ryegrass and Webb Draw Pasture Allotments. A review of the James Ryegrass Grazing Association, LLC case file indicates that they meet the mandatory qualifications to graze on public lands in accordance with 43 CFR 4110.1.

The Ball Horse Creek Allotment is allocated for livestock grazing but does not currently have an active grazing permit.

Purpose and Need

The purpose of this action is to provide the opportunity for continued livestock grazing in James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments on public lands where consistent with meeting management objectives, including the Wyoming Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix A); and also to modify current grazing management practices to make progress towards meeting the Wyoming Standards for Rangeland Health.

Since the Webb Draw Allotment is not meeting all of the standards for Rangeland Health, the BLM reviewed the Wyoming Guidelines for Livestock Grazing Management. Livestock grazing management is in conformance with guidelines 1, 3, 4, 5, 6, 7, 8, 9. The lack of conformance with guideline 2 will be addressed in the EA.

The need for this action is established by the Taylor Grazing Act (TGA), the Federal Land Policy and Management ACT (FLPMA), the Pinedale Resource Management Plan (PRMP) of 2008, and the grazing regulations(43 CFR 4130.1), which require that the BLM respond to applications to fully process and renew permits to graze livestock on public land. The need for the action is to renew this grazing permit with terms and conditions for grazing use that would meet, or make significant progress towards meeting, the Standards and Guidelines for Rangeland Health, Resource Management Plan, and other pertinent multiple use objectives for the allotments.

In detail, the analysis of the actions identified in the grazing permit renewal and the alternative actions is needed because:

- BLM Wyoming adopted the Wyoming Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Wyoming S&Gs) in 1997 (Appendix A). The standards address the health, productivity, sustainability, and the minimum acceptable conditions for the BLM administered public rangelands. The BLM will consult, cooperate, and coordinate with operators and interested members of the public to determine the most appropriate guidelines to implement the standards that apply to all resource uses on public lands. Guidelines provide for the development and implementation of, reasonable, responsible, and cost-effective management practices at the grazing allotment and watershed level.
- The PRMP identifies management objectives and actions that establish guidance for managing multiple uses on public lands in the Pinedale Field Office (PFO). The PRMP allocated public lands within the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments available for domestic livestock grazing. Where consistent with the goals and objectives of the PRMP and Wyoming S&Gs, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the TGA and FLPMA.

Livestock Grazing Management Actions and Objectives from the PRMP:

- The Wyoming Standards for Rangeland Health apply to all resource management decisions and activities, and Guidelines for Livestock Grazing Management apply to all livestock grazing activities on public lands. BLM will consult, cooperate, and coordinate with operators and interested members of the public to determine the most appropriate guidelines to implement (a. p-2-17).
- Forage will be made available for livestock grazing (b. p 2-17).
- Monitoring of the range and the vegetation resource will be conducted at a level sufficient to detect changes in grazing use, trend, and range conditions. Monitoring will be tied to land health standards and indicators that help determine change in status and progress toward meeting objectives. Data will be used to direct and support grazing management decisions consistent with national policy (f. p 2-17).
- Conversions from one type of livestock to another will be evaluated on a case-by-case basis, including an environmental analysis, and will be authorized in conformance with the goals and objectives of the PRMP (g. p 2-17).
- The current grazing preference of 107,907 animal unit months (AUM) will be maintained, unless changes are warranted through site-specific monitoring (h. 2-18).
- Grazing systems will be designed to maintain or improve watershed and range condition; for example, through changing seasons of use, implementing rotational or other grazing management systems, or developing infrastructure for livestock management. This will also benefit wildlife and their habitat (k. p 2-18).
- In allotments with riparian habitat, grazing management actions will be designed to maintain or achieve proper functioning condition (s. 2-19).

Watershed and Water Quality Management Actions and Objectives from the PRMP:

- Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve Proper Functioning Condition (p 2-42).
- Achieve and/or maintain Proper Functioning Condition as a minimum standard on all riparian and wetland areas to control nonpoint source pollution to the extent possible. Wetland and riparian areas that show a negative trend and/or do not achieve Proper Functioning Condition will be addressed in activity or implementation plans that will move these areas to Proper Functioning Condition (a. p 2-42).
- Riparian areas will be maintained or improved to enhance forage conditions, provide wildlife habitat, and improve stream water quality (d. p 2-42).
- Riparian areas providing sensitive wildlife species habitat will be managed for a vegetative or successional state appropriate for the benefit of those species, including vertical and horizontal vegetation structure and composition.

Wildlife and Fish Habitat Management Actions and Objectives from the PRMP:

- Maintain sufficient undisturbed or minimally disturbed greater sage-grouse source habitats to maintain persistent, well-distributed, self-sustaining, productive populations of sage-grouse within the planning area.
- Maintain and enhance big game habitats to support big game populations at WGFD planning objective levels.

- Maintain sufficient, undisturbed, or minimally disturbed sensitive species habitats to ensure persistent, well-distributed, self-sustaining, and productive populations of sensitive species within the planning area.
- Water developments will be constructed to avoid inadvertent injury to wildlife.

Allotment Objectives

James Ryegrass

- 1) The dominant plant communities in the James Ryegrass Allotment include Sagebrush/Rhizomatous/bluegrass and Sagebrush/bunchgrass. It is the BLM's objective to maintain or enhance native perennial grasses.
- 2) The objective for the sub-irrigated meadow exclosure, is to observe the sites potential following extended period of rest from livestock. Photo points and composition by cover will be used to document any changes in the plant community.
- 3) Maintain or enhance sage grouse habitat suitability based on criteria outlined in the habitat assessment framework (see appendix G).
- 4) Maintain integrity of big game migration corridors.

The Ball Horse Creek Allotment is being combined into the James Ryegrass Allotment. The Ball Horse Creek Allotment objectives are included with James Ryegrass.

Webb Draw Pasture

- 1) The dominant plant community in the Webb Draw Pasture is the Sagebrush/Bunchgrass vegetation state. BLM's objective is to maintain or enhance native perennial grasses.
- 2) Meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve Proper Functioning Condition (p 2-42).
- 3) Maintain or enhance sage grouse habitat suitability based on criteria outlined in the habitat assessment framework (see appendix G).
- 4) Maintain integrity of big game migration corridors.

It is the mission of the BLM to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Decisions to be made

The Pinedale Field Manager is the authorized officer responsible for the decisions regarding management of public lands within the Pinedale Field Office. Those decisions include the authorization of livestock grazing through permits within the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments. Based on the results of the NEPA analysis and other applicable information, the authorized officer will issue a determination of the significance of the environmental effects and whether an environmental impact statement (EIS) would be required. If the authorized officer determined that it is not necessary to prepare an EIS, the EA will provide sufficient information for the authorized officer to make an informed decision whether to renew the applicants' grazing permits and if renewed, which management actions, mitigation measures, and monitoring requirements will be prescribed for the allotments to ensure management objectives and Wyoming S&Gs will be met.

1.2 Relationship to Statutes, Regulations, Plans or Other Environmental Analyses

Management guidance for the PFO is provided by the Pinedale Resource Management Plan (PRMP), finalized in November 2008. The PRMP specifies that livestock grazing management will be conducted such that allotments meet the Wyoming Standards for Rangeland Health; and that adjustments in grazing allotments or permits be based on monitoring information and considered on a case by case basis. All management actions will comply with and incorporate the appropriate disturbance restrictions relating to Core habitat set forth in BLM IM WY-2012-019 and Executive Order 2011-05 and will also be in accordance with the Wyoming Guidelines for Livestock Grazing. The principle Bureau permitting regulations for grazing is found in 43 CFR 4100.

The proposed action has been analyzed for consistency with WY-IM-2012-019 “Greater Sage-Grouse Habitat Management Policy on Wyoming BLM Administered Public Lands” and WO-IM-2012-043 “Greater Sage-Grouse Interim Management Policies and Procedures.”

The Resource Management Plan (RMP) for the Pinedale Field Office is currently undergoing amendment as part of the Wyoming Greater Sage-Grouse Land Use Plan Amendment (Amendment). The Draft Amendment and Environmental Impact Statement was released in December 2013.

1.3 Scoping, Public Involvement and Issues

The term grazing permit renewal scoping process for James Ryegrass Grazing Association, LLC began November 13, 2013. To initiate the process and gather input from on the ground users, a meeting was held with the grazing permittee on November 19, 2013. A meeting was held with potential cooperating agencies on December 4, 2013. A public scoping notice was released on December 3, 2013. A 30-day comment period was open until January 3, 2013. Two comment letters were received. In addition, interested publics were consulted and provided the opportunity to develop alternatives and to provide comments.

The major scoping issues raised through this process are:

Wildlife:

- How can sage-grouse and their habitats be protected?
- How can big game crucial ranges and migration routes be protected?

Livestock Grazing:

- How can the changing of annual use by livestock help to maintain bunchgrasses and herbaceous understory? The allotments have excessive sagebrush canopy and limited understory.

Vegetation:

- Prioritize the full suite of potential species based on Ecological Site Descriptions with emphasis on forbs and bunchgrasses.

The issues identified through scoping and during development of this EA are addressed in later sections of the document.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives Considered but not Analyzed in Detail

Other than the alternatives discussed in this document, there were no other alternatives considered.

2.2 Proposed Action Livestock Grazing

The James Ryegrass Grazing Association, LLC grazing permit would be renewed for a total of 798 permitted Active AUMs (Table 4). The renewal of this term grazing permit would be for a 10-year period and would include terms and conditions required for all BLM grazing permits. In accordance with regulations, mandatory terms and conditions include the kind and number of livestock, the period of use, the allotment to be used, and the amount of use (in animal unit months (AUMS)). In addition, other terms and conditions can include those that will assist in achieving management objectives, provide for proper range management, or assist with the orderly administration of the public rangelands. If base property is transferred during this ten year period, the new term permit would be issued for the remaining term of the permit with the same terms and conditions under the original authorization.

The proposed action would incorporate 171 acres and 70 AUMs of the Ball Horse Creek Allotment and its associated AUMs into the James Ryegrass Allotment (Table 1 & Table 2) (Appendix B New Allotment Map 4). The proposed action would also implement a three pasture deferred grazing rotation in the modified James Ryegrass allotment that follows Table 5 . The reason for incorporating 171 acres is because these acres are the most useful piece for livestock grazing. The remaining 51 acres of the Ball Horse Creek Allotment will remain as BLM and will have 15 suspended AUMs associated with it. In the rest of the document, the Ball Horse Creek Allotment will not be discussed separately in the Proposed Action, as it is included in the James Ryegrass Allotment.

The proposed action would also include three rangeland improvement projects to be installed in accordance with 43 CFR 4120.3. The existing water gap that is on private land adjacent to the James Ryegrass Allotment on Horse Creek has been fenced off by the private land owner. This water gap was a reliable source of water for livestock in the west pasture of the allotment. In order to provide adequate livestock water in the west pasture, a new water well would be drilled and is located in T 34N R 112W Sec 19 (Appendix B map 5). The well would operate using power from solar pumps and would be equipped with two troughs. Location of the well was chosen based on consultant advice and permittee input.

There would also be a mile of new fence constructed on the boundary of the former Ball Horse Creek Allotment boundary between BLM and the private land located in T 34N R 113W Sec 25 to fence it into the James Ryegrass Allotment. The new boundary fence would be built to wildlife friendly specs and the enclosure would consist of a pole top and 2 smooth wires spaced to wildlife friendly fence specs. (Appendix B map 5).

A 3 acre enclosure would be built around a sub irrigated meadow and would provide the BLM the opportunity to understand the plant community's potential with the removal of livestock grazing located in T 34N R 113W Sec 25 (Appendix B. Map 5). The enclosure would remain in

place for the term of the permit (10 years). At the end of this term the monitoring data would be used to evaluate the sites potential. Based on the results from the monitoring data, the need for the enclosure would be reevaluated.

The proposed action in the Webb Draw Pasture would change the season of use start date from 5/20 to 6/1 and would limit the late summer trailing use to reduce impacts to the riparian areas (See Table 3 for Permitted Currently and Table 4 for new permit under proposed action (Mandatory Terms and Conditions)).

Permits would include changes to the terms and conditions as well as implementing other terms and conditions. Grazing would be permitted as shown in Table 4. These new terms and conditions would improve and maintain the health and vigor of native upland perennial species and maintain hydrologic function and meet the PRMP management objectives to achieve PFC.

Table 1: James Ryegrass and Ball Horse Creek Allotments

Allotment	Acres	Cattle	Active AUMs	Suspended AUMS	Permitted Use
James Ryegrass Ind.	3,585	363	728	136	864
Ball Horse Creek	222	87	87	0	87

Table 2: Incorporation of the Ball Horse Creek Allotment into James Ryegrass

Allotment	Acres	Cattle	Active AUMs	Suspended AUMs	Permitted Use
James Ryegrass Ind.	3,756	450	798	136	951
Ball Horse Creek	51	0	0	15	0

Table 3: Permitted Currently (Mandatory Terms and Conditions)

Allotment	Category	Livestock # and type		Dates of Use	BLM Acres	% Public Land	BLM Active AUMs
James Ryegrass Ind.	I	363	C	6/1 – 7/31	3585	100	728
Webb Draw Pasture	M	591	C	5/20 – 6/25	1550	66	417
Ball Horse Creek	M	87	C	7/1 – 7/31	222	100	87

Permits would include changes to the terms and conditions. Grazing would be permitted as shown in Table 4.

Table 4: Livestock grazing allotments and use, Proposed Action (Mandatory Terms and Conditions)

Allotment	Category	Livestock # and type		Dates of Use	BLM Acres	% Public Land	BLM Active AUMs
James Ryegrass Ind.	I	398	C	6/1 – 7/31	3756	100	798
Webb Draw Pasture	M	591	C	6/1 – 7/1	1550	66	417

The maximum grazing use in the allotments above in table 4 would be 1,215 AUMs.

James Ryegrass would have a rotational grazing system that follows Table 5. The rotational dates would be set yearly during an annual operating meeting and would fall within the permitted dates of 6/1 – 7/31 (Appendix B new allotment map 4).

Table 5: Deferred Rotation Schedule in James Ryegrass

Year	West Pasture	Middle Pasture	East Pasture
1	2	3	1
2	3	1	2
3	1	2	3
4	Repeat year 1		

James Ryegrass and Webb Draw Other Terms and Conditions:

1. The following changes to the grazing schedule may be allowed with approval by the authorized officer at the BLM. The request must be made at least 3 business days in advance.
 - a) The operator may change the permitted number of livestock and/or the date of livestock turn-out and/or removal as long as it does not exceed the AUMs of active preference, and as long as no significant changes in the season of use occurs and or stipulated utilization levels are adhered to. If livestock numbers increase the period of use will be adjusted appropriately.
 - b) Livestock may be required to exit the allotment earlier than scheduled if grazing use reaches or exceeds stipulated levels. Extensions based on utilization need to be approved in advance by the authorized officer at the BLM.
 - c) Drought years with unfavorable climatic conditions that results in below average forage production or a reduction loss of reliable livestock water may require changes to the active preference or actual use that would occur in the allotment in any one year. Changes may include but are not limited to reduced livestock numbers, delayed turn-in dates, early turn-in and removal dates and potential pasture/allotment closures.
 - d) The operator may alter the order of rotation. Such an alteration must be approved by the authorized officer at the BLM.
 - e) Non-use for resource protection may be authorized and encouraged beyond that scheduled in the rotation. This is to allow for maintenance and improvement in rangeland health and watershed condition.

2. Maximum allowable use levels will be as follows: Utilization of key upland forage and riparian species will not exceed 50% of the current year’s growth.

3. The permittee must properly complete, sign and date an Actual Grazing Use Report (BLM Form 4130-5) annually. The completed form(s) must be submitted to the BLM Pinedale Field Office within 15 days from the last day of annual authorized grazing use.

4. The permittee will be annually billed for grazing use after-the-fact based upon the Actual Grazing Use Report.

5. Livestock supplements must be placed at least ¼ mile away from any riparian area, spring, stream, meadow, sensitive plant species, playa, sage-grouse lek, or water developments.
6. If grazing use consistently exceeds appropriate use levels, or if any one of the Wyoming Standards for Healthy Rangelands are not met, or if monitoring data indicates that the condition of range or riparian resources are declining and it is determined to be primarily due to livestock grazing, adjustments to livestock grazing management will be made as appropriate.
7. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs. Maintenance must be completed prior to livestock turnout annually.
8. Flexibility in grazing seasons of up to 14 days outside of authorization will be allowed, not to exceed active AUMs, if requested by the permittee and approved by the BLM authorized officer.
9. In addition to the grazing use allowed in the Webb Draw Pasture Allotment (6/1 – 7/1), a trailing permit will be authorized for a 3 day period between July 25 and August 5. The additional days are to allow for unforeseeable delays in making use of the trailing permit.
10. Horse AUMs may be substituted for cow AUMs in Webb Draw and must be approved by the authorized officer annually.

Upon failure to meet the terms and conditions in 2 years of any consecutive 5 year period, the grazing permit would be modified and reissued with appropriate terms and conditions to make progress toward meeting PRMP objectives and the Wyoming Standards for Rangeland Health and Guidelines for Livestock Grazing Management. These changes may include but not limited to; new water sources, changing the season of use, utilization levels, and vegetation treatments and potentially a reduction in livestock numbers.

Monitoring

Monitoring studies would be conducted during the term of the grazing permits in accordance with guidance provided by the Wyoming State Office Instruction Memorandum IM WY-2001-054: Rangeland Monitoring Protocol.

Short Term Monitoring:

Utilization data will be collected annually for uplands and riparian areas using the Height Weight Method described in 1996 Interagency Technical reference entitled Utilization Studies and Residual Measurements. To the extent possible, utilization studies will be conducted within 15 days of the end of the livestock grazing season each year. Additional utilization studies may be conducted at other times during the grazing season. Utilization data will be collected at each established BLM Vegetation Study Site within the James Ryegrass and Webb Draw Pasture Allotments that are grazed in a given year.

Long Term Monitoring:

Species composition will be collected at each established BLM Vegetation Study Site within the James Ryegrass and Webb Draw Pasture Allotment using methods described in the 1996 Interagency Technical reference entitled Sampling Vegetation Attributes every 5 years. Monitoring will be conducted at a time when plant phenology allows for the greatest success in plant identification.

Riparian Monitoring:

Riparian areas will have photo points done yearly.

To foster cooperation and joint responsibility for the monitoring of the James Ryegrass and Webb Draw Pasture Allotments, the BLM and James Ryegrass Grazing Association will coordinate these studies and will conduct joint, cooperative monitoring whenever possible.

Monitoring would be used to determine current status of objectives outlined in section 1.1.

Mitigation Measures

Cultural and Paleontological Resources

- For this project, the BLM formulated a plan for cultural compliance with regard to the renewal of this permit and achieved concurrence on it with the Wyoming State Historic Preservation Office. The plan required that locations where animals tend to concentrate (e.g., fence lines, artificial water sources, corrals, and salt/mineral blocks) be inventoried at a Class III level by PFO cultural staff. In addition, areas with a high probability to contain cultural resources would also be inventoried at a Class III level by PFO cultural staff. These areas include natural water sources and along ridge tops and other landforms likely to contain cairns or other cultural features significant to regional tribes. In addition, Class III inventory would be conducted by PFO cultural staff for range improvements that are currently planned for the James Ryegrass Allotment. These improvements include a proposed water well, a new fence line, and an enclosure fence. This plan was executed in the early summer of 2014 and the early spring of 2015, resulting in Class III inventory of 411.7 acres of high probability areas and 41.2 acres for range improvements, for a total inventory of 452.9 acres. The inventories that were conducted resulted in the discovery and recordation of nine new cultural sites; three of these nine sites were determined to be eligible for the National Register of Historic Places. No direct grazing impacts to any of these eligible sites were identified.
- Concentrating animal use in outcrop areas can dislodge, rub out, and break cultural/fossil remains. Such areas should be inventoried prior to any development including fence placement, or trail and road construction/reclamation. Water wells/tanks/troughs and salt block locations should not be placed within known cultural sites or fossil localities due to the same effects mentioned above in other areas of animal concentration.

Weeds

- Treatment of weeds in the allotments is done by utilizing Integrated Pest Management techniques and is handled through a Cooperative Agreement between BLM and the Sublette County Weed & Pest District.

Visual Resource Management

- The application of best management practices would be required to mitigate visual impacts. These mitigations would include; proper facility placement and blending the facility into the landscape by painting with an approved earth color. With mitigation the project would comply with visual resource management class III objectives.

Wildlife and Fisheries Resources

Sage-grouse

- Proposed fence line within 0.6 miles of the nearest lek perimeter would be monitored and retrofitted with flight diverters. All construction and other disturbance activities would adhere to seasonal timing restrictions and the amount of disturbed sagebrush habitat would be minimized as practicable. In addition, existing fence lines throughout the allotment would be monitored and high risk fence lines would be identified and marked with strike diverters.
- Well facilities provide vertical structure on the landscape that serve as potential nesting and perching structures for predatory bird species. Vertical structures could also serve as a perceived threat to prey species thereby altering behavior by deterring use away from what could otherwise be suitable habitat. Utilization of solar panels instead of windmills may reduce these perching opportunities. All new water troughs would be fitted with escape ramps to minimize the potential for avian drowning. Ramps have already been installed in existing troughs. In accordance with Executive Order 2011-05 a Density Disturbance Calculation Tool consistency review is not necessary for construction of agricultural reservoirs less than 10 surface acres and drilling of agricultural water wells (including installation of tanks, water windmills and solar water pumps) within 0.6 miles of the perimeter of a lek provided that construction does not occur March 15 to June 30 and construction does not occur on the lek (Executive Order 2011-05, Attachment C). All management actions would comply with and incorporate the appropriate disturbance and timing restrictions relating to Core habitat set forth in BLM IM WY-2012-019 and Executive Order 2011-05.

Big Game

- New fence construction would adhere to BLM wildlife friendly specifications (BLM 1989).
- All construction and other disturbance activities would adhere to seasonal timing restrictions and the amount of disturbed sagebrush habitat would be minimized as practicable.

Pygmy Rabbit

- Proposed fence lines would be surveyed for the presence of occupied burrows. If occupied burrows are identified efforts to avoid structural damage would be employed.

- In order to reduce the potential impacts to habitat quality project locations would be identified that minimize sagebrush disturbance. In addition, occupancy surveys would be conducted within ¼ mile of potential locations. Utilization of solar panels instead of windmills would reduce perching opportunities for predators.

Sagebrush Obligate Songbirds

- Nesting surveys would be conducted prior to initiation of proposed construction activities in order to identify active nest locations.

2.3 Alternative 1 – No Action

Alternative 1 (No Action) would continue the current management of the James Ryegrass and Webb Draw Pasture Allotments. The grazing permit in the two allotments (1,145 AUMs) would be renewed as shown in Table 6 with no changes to the season of use, livestock numbers, or terms and conditions of the grazing permit for 10 years. The Ball Horse Creek Allotment and associated AUMs in Table 6 would not be added to the James Ryegrass Allotment and would remain its own allotment and remain unpermitted. Under this alternative existing range improvements would be retained and the proposed water well, fence and sub-irrigated enclosure would not be constructed. There would also be no grazing flexibility incorporated into the renewed grazing permit such as those listed under the Proposed Action. Under this alternative the grazing season would run from May 20 through July 31 annually. There would be no trailing in Webb Draw after the season of use.

Table 6: Livestock grazing allotments and current use, No Action alternative (Mandatory terms and conditions)

Allotment	Category	Livestock # & type		Dates of Use	BLM Acres	% Public Land	BLM AUMs
James Ryegrass Ind.	I	363	C	6/1 – 7/31	3585	100	728
Webb Draw Pasture	M	591	C	5/20 – 6/25	1550	66	417
Ball Horse Creek	M	87	C	7/1 – 7/31	222	100	87

2.4 Alternative 2 – No Livestock Grazing

Under Alternative 2 (No Livestock Grazing) no livestock grazing would be authorized on public lands within the James Ryegrass (728 AUMs active use; 136 AUMs suspension), Webb Draw Pasture Allotment (417 AUMs active use), and the Ball Horse Creek Allotment (87 active AUMs). The existing grazing permits would be cancelled and the allotments would be unavailable for livestock grazing on public lands for a term of 10 years. Upon expiration of the 10 year period, livestock grazing on the allotment(s) would be reevaluated, with retention of preference (priority for grazing authorization) for approval of application(s) for grazing permit(s) attached to current base property(s).

The no livestock grazing alternative is not in conformance with the Pinedale Resource Management Plan (PRMP). In the PRMP the allotments were identified as being suitable for grazing. An amendment to the PRMP would be required in order to close it to livestock grazing. However, BLM policy requires its analysis with all permit renewals.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

Table 7 lists resources typically considered in environmental analyses. For each resource, a determination is made whether that resource is present and would be affected by the alternatives in this EA. Those resources determined to be Not Present (NP) or No Impact (NI) are not considered further in this EA.

Table 7: Resources Considered

Determination¹	Resource	Rationale for Determination
PI	Air Quality/Green House Gas Emissions	See Section 3.1.13
NP	Areas of Critical Environmental Concern	No ACECs are present in the project area.
PI	Cultural Resources	See Section 3.1.2
NI	Environmental Justice	The action alternatives were reviewed in accordance with Executive Order 12898 and no impacts to minority and low-income populations are expected.
NP	Farmlands: Prime or Unique	No Prime or Unique Farmlands (as defined by 7 CFR 657.5) are present in the project area.
NP	Floodplains	Floodplains do not exist in the allotment.
NP	Fuels/Fire Management	No fuels projects are planned or proposed within the project area. All wild land fires and fire management will be managed according to BLM protocol.
PI	Invasive Species/Noxious Weeds	See Section 3.1.7
NI	Lands/Access	No rights of way or other land use authorizations are required to implement the proposed action or alternatives. No rights of way or other land use authorizations would be impacted through selection of an alternative.
NP	Lands with Wilderness Characteristics	The project area was inventoried for lands with wilderness characteristics using the procedures identified in BLM Manual 6310 Wilderness Characteristics Inventory. No lands were identified as having Wilderness Characteristics.
PI	Livestock Grazing	See Section 3.1.4
NP	Native American Religious Concerns	None present.
PI	Paleontology	See Section 3.1.2

Determination¹	Resource	Rationale for Determination
NI	Public Health & Safety	Public Health and Safety will not be impacted by any of the alternatives.
PI	Recreation	See Section 3.1.8
PI	Socio-Economics	See Section 3.1.3
PI	Soils	See Section 3.1.6
PI	Special Status Plant Species	See Section 3.1.10
PI	Special Status Wildlife Species	See Section 3.1.12
NP	Threatened, Endangered or Candidate Plant Species	None present.
NP	Threatened, Endangered or Candidate Animal Species	See Section 3.1.12
NP	Wastes (hazardous or solid)	There are no known hazardous or solid wastes present in the project area.
PI	Water Resources/Quality (drinking/surface/ground)	See section 3.1.9
PI	Wetlands/Riparian Zones	See section 3.1.9
NP	Wild and Scenic Rivers	Resource not present
NP	Wilderness	No wilderness or WSA's are present.
NP	Woodland/Forestry	Resource not present
PI	Vegetation	See Section 3.1.5
PI	Visual Resources	See Section 3.1.11
PI	Wildlife/Fisheries	See Section 3.1.12

¹Determination:

NI: No Impact expected from action alternatives.

NP: Not Present in the area impacted by the action alternatives.

PI: Potential Impact due to one or more action alternatives; therefore, analyzed in the NEPA document.

3.1.2 Cultural and Paleontological Resources

Cultural Resources

A file search of the Wyoming State Historic Preservation Office (SHPO) and BLM records indicates that portions of six separate Class III cultural resource inventories have been performed in the James Ryegrass Allotment since 1981, including two inventories in support of oil and gas operations, one inventory for a private access road, one inventory for a range improvement/fuel reduction project, and inventories for two seismic projects. The total area covered by these inventories within the allotment equals 209.7 acres, or 5.8% of the total allotment area of 3,585 acres. Five prehistoric sites were identified within the boundary of the allotment as a result of

these inventories; all of these sites are currently unevaluated by the BLM for inclusion in the National Register of Historic Places (NRHP).

For this EA, PFO cultural staff conducted an additional file search and analysis of the lands within one mile of the allotment boundary. Class III cultural inventories conducted within this area identified 14 prehistoric sites, of which three have been determined ineligible for inclusion on the NRHP and 11 are currently unevaluated for NRHP status. An additional site was recorded by cultural staff members from the PFO in 1999, who found it to be a multicomponent site eligible for inclusion on the NRHP under criteria A, C, and D and potentially significant to modern-day Indian tribes. No portion of any of these 15 sites is within the boundary of the James Ryegrass Allotment.

A search of SHPO and BLM records indicates that two Class III cultural resource inventory have been performed within the Webb Draw Pasture. One of the inventories was for a pipeline in support of oil and gas operations and the other was for a seismic project. The total area covered by these inventories within the allotment equals 168 acres, or 7.1% of the total allotment area of 2,344 acres. This inventory identified three prehistoric sites inside the boundary of the allotment. All of these sites have been determined ineligible for inclusion in the NRHP with SHPO concurrence.

In preparing this EA, PFO cultural staff performed an additional file search and analysis of lands within one mile of the allotment boundary. Class III inventories performed within this area identified six prehistoric sites, of which four have been determined ineligible for the NRHP and two are currently unevaluated. No portion of any of these sites is within the boundary of the Webb Draw Pasture.

In addition to file searches of existing inventories and site recordings that were performed, the cultural staff of the BLM-PFO conducted 452.9 acres of additional Class III inventory in 2014 and 2015. This inventory was conducted for two purposes: (1) to provide cultural compliance for range improvements planned for the James Ryegrass Allotment, and (2) to examine impacts to cultural sites from grazing. The range improvements included one new water well, a new fenceline, and a small enclosure. To accomplish the second goal, Class III inventories were conducted in areas where cattle tend to concentrate (fence lines, water sources, and identified livestock supplement locations as reported by the permittee) and the tops of landforms likely to contain significant cultural features such as rock cairns, rings, or alignments. As a result of this additional inventory, nine new prehistoric sites and two isolated resources (one prehistoric; one historic) were identified and recorded by PFO cultural staff. Of these nine sites, three were determined eligible for the NRHP by PFO cultural staff; all three of these sites were comprised of stone rings (two with associated cairns) and all were found atop landforms that were considered likely to contain such sites. The remaining six sites were found along allotment fence lines and were determined to be ineligible.

Paleontological Resources

Rock units representing more than 500 million years of geologic time are present in the planning area. Many of these units contain paleontological resources. The potential for a given geologic formation to contain paleontological resources varies by formation and age. As the potential for

paleontological resources increases, the need for mitigating surface disturbing activities also increases.

BLM has classified geologic formations in the planning area according to the probable fossil yield classification (PFYC). This is a planning tool that classifies formations according to the probability of yielding paleontological resources that are of concern to land managers. Existing regulations and policies address the collection and preservation of fossils found on public lands. Common varieties of invertebrate and plant fossils are available for hobby collecting. No commercial collection of any fossils is permitted. Paleontological resource use permits are required for the collection of significant fossils. All vertebrate fossils and, in rare cases, invertebrate or plant fossils are deemed significant under current policy. Significant invertebrate and plant localities are treated on a case-by-case basis, but vertebrate fossils are more widespread and predictable. The following classification is based largely on how likely it is that a geologic unit will produce vertebrate fossils. The classes are described in Appendix F, with some examples of corresponding management considerations or actions.

Compression and trampling caused by OHV use, cattle, and wildlife can adversely affect fossils. This can lead to dislodging, breakage and loss of provenience (Ross 1976) of individual fossils and destruction of known and undiscovered localities. “Badlands” (areas containing high amounts of shale and clay) are the most susceptible to damage and erosion problems effecting fossils. Areas of sandstone and limestone outcrops are sometimes used by animals as “rubbing areas” which can also dislodge and break fossils embedded in the matrix. Such areas should be inventoried prior to any development, including fence placement, trail/road construction or reclamation.

3.1.3 Economic and Social Conditions

Livestock ranching has been a featured element of the economies of Sublette County and town of Pinedale for over a century. Ranching enterprises contribute year around revenue in the form of services and supply purchases, and modest contributions of employment. Sublette County is the sixth-largest county in the state and covers approximately 3.2 million acres, 80% of which is public land. The population in Pinedale in 2010 was 2,030, an increase of 616 from the year 2000. The population density is 1.2 people per square mile.

Agriculture, forestry, fishing and hunting, and mining are the primary sectors for employment in Sublette County Wyoming (Table 8).

Table 8: Sublette County, State of Wyoming, and United States employment by industry

Industry	Sublette County, Wyoming	Wyoming	United States
Civilian employed population 16 years and over	5,380	289,823	141,864,697
Agriculture, forestry, fishing and hunting, and mining	34.7%	12.5%	1.9%
Construction	5.9%	7.8%	6.2%
Manufacturing	2.5%	4.3%	10.5%

Wholesale Trade	2.0%	2.1%	2.8%
Retail Trade	7.3%	10.9%	11.6%
Transportation and warehousing, and utilities	8.5%	6.6%	4.9%
Information	0.4%	1.6%	2.2%
Finance and insurance, and real estate and rental and leasing	3.1%	4.0%	6.7%
Professional, scientific, and management, and administrative and waste management services	4.5%	6.6%	10.8%
Educational services, and health care and social assistance	15.2%	22.8%	23.2%
Arts, entertainment, and recreation, and accommodation and food services	5.3%	9.7%	9.3%
Other services, except public administration	6.1%	4.6%	5.0%
Public administration	4.5%	6.5%	5.0%

Source: U.S. Census Bureau, 2009-2013 5-Year American Community Survey

Table 9 shows the industry classification (based on the North American Industry Classification System (NAICS)) for farms located in Sublette County Wyoming, Wyoming, and the rest of the U.S in 2012. As shown in the table, the beef cattle ranching and farming operations is substantially exceeds the national average in Sublette County as well as in Wyoming.

Table 9: Number of Farms by Type 2012

	Sublette County, Wyoming	Wyoming	United States
All Farms	368	11,736	2,109,303
Oilseed and Grain Farming	0	408	369,332
Vegetable & Melon Farming	0	26	43,021
Fruit & Nut Tree Farming	0	25	93,020
Greenhouse Nursery	3	68	52,777
Other Crop Farming	77	3,098	496,837
Beef Cattle Ranch & Farm	162	4,365	619,172
Cattle Feedlots	0	69	13,734
Dairy Cattle & Milk Prod.	0	36	46,005

Hog & Pig Farming	7	96	21,687
Poultry & Egg Production	2	112	52,849
Sheep & Goat Farming	5	293	73,272
Animal Aquaculture & Other Animal Prod	142	3,140	227,597
Percent of Total			
Oilseed and Grain Farming	0.0%	3.5%	17.5%
Vegetable & Melon Farming	0.0%	0.2%	2.0%
Fruit & Nut Tree Farming	0.0%	0.2%	4.4%
Greenhouse Nursery	0.8%	0.6%	2.5%
Other Crop Farming	19.3%	26.4%	23.6%
Beef Cattle Ranch & Farm	40.7%	37.2%	29.4%
Cattle Feedlots	0.0%	0.6%	0.7%
Dairy Cattle & Milk Prod.	0.0%	0.3%	2.2%
Hog & Pig Farming	1.8%	0.8%	1.0%
Poultry & Egg Production	0.5%	1.0%	2.5%
Sheep & Goat Farming	1.3%	2.5%	3.5%
Animal Aquaculture & Other Animal Prod	35.7%	26.8%	10.8%

Source: (EPS-HDT, 2012)

Table 10 shows economic information from 2013 in Sublette County, Wyoming, Wyoming, and the rest of the U.S. Total farm earnings in Sublette County are substantially less than non-farm earnings. In terms of employment farm employment in Sublette County accounts for 5.8% of the jobs. The cash receipts generated by farms that come from livestock and products surpass 80%.

Table 10: Farm earnings, Employment, and Cash Receipts (2013)

	Sublette Co., Wyoming		Wyoming		U.S.	
Earnings by place of work(\$1000)	\$473,897		\$20,722,239		\$10,165,263,000	
Farm Earnings	\$12,094	2.6%	\$359,224	1.7%	\$118,568,000	1.2%
Non-Farm Earnings	\$461,803	98.3%	\$20,363,015	98.3%	\$10,046,695,000	98.8%
Farm and Business Income (\$1000)						
Total Cash Receipts	\$54,301		\$1,865,055		\$473,934,164	
Livestock and Products	\$43,520	80%	\$1,285,469	68%	\$209,776,266	44%
Crops	\$5,992	11%	\$402,464	21%	\$217,179,285	45%
Other Income	\$4,789	8%	\$177,122	9%	\$46,978,613	9.9%

Source: (EPS_HDT, 2013)

The value of the agriculture sector in Wyoming totaled \$1.35 billion in 2013 and has been above the \$1 billion threshold since 2010. In 2013, 11,500 farms and ranches operated in Wyoming with a total land area of 30,200 million acres. Wyoming ranked 11th nationally in total land in farms and ranches and 1st in average size over half of all cash receipts. Cattle also led the way in 2013 in terms of value of production at \$706 million. All livestock production was valued at \$833 million, up 10 percent from 2012. Hay is the leading crop in Wyoming in terms of value of production totaling \$390 million in 2013 (Wyoming 2014 Agriculture Statistics).

In 2013 Sublette County was 13th in the state for number of cattle and 22nd for Alfalfa Hay and 3rd for other hay. Table 11 shows cash receipts for all commodities, livestock and products, cattle and calves, crops, and hay.

Table 11: Cash Receipts by Commodity

Cash Receipts by Commodity: Wyoming, 2010-2012 Million Dollars			
	2010	2011	2012
All Commodities	\$1,159.4	\$1484.4	\$1,650.7
Livestock and Products	\$890	\$1,087.2	\$1,222.4
Cattle and Calves	\$732.9	\$863.8	\$871.3
Crops	\$269.5	\$397.2	\$435.8
Hay	\$99.2	\$173.5	\$203.8

Source: Wyoming 2014 Agriculture Statistics.

Table 12 shows Hay Acreage, Yield, and Production in 2012 & 2013.

Table 12: Hay Acreage, Yield, and Production in 2012 & 2013

Hay Acreage, Yield, and Production in 2012 & 2013						
	Total					
	Harvested Acres		Yield Tons		Production Tons	
Sublette County	2012	2013	2012	2013	2012	2013
Alfalfa Hay	2,000	*4,800	2.00	*1.80	4,000	*8,600
Grass Hay	64,800	80,000	1.05	0.85	68,800	66,000
Wyoming						
Alfalfa Hay	475,000	4,800	2.80	1.80	1,330,000	8,600
Grass Hay	400,000	540,000	1.40	1.20	560,000	648,000

Source: Wyoming 2014 Agriculture Statistics.

Note: * 2013 took in account other counties as well the report did not split out Sublette County individually.

These statistics in the tables above show that ranching is a key component in Sublette County, Wyoming, the State of Wyoming and the nation's agricultural industry. The sale of livestock is linked to the commodity value of public rangelands. Public lands are an essential part of ranching operations in the Pinedale Field Office, as they are intermingled with and grazed in conjunction with private and state lands. The BLM grazing permit helps maintain the successful functioning of the ranch operation and support the cultural lifestyle of the lessee.

The BLM collects annual grazing fees from the operators based on the number of active AUMs they are permitted. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month (BLM Glossary). The PRMP provides 107,907 active AUMs for all the allotments in PFO. At the current rate of \$1.69 per AUM, the James Ryegrass and Webb Draw Allotment can generate \$1935 per year from active use. The BLM distributes 50 percent of the grazing revenues to range betterment projects, 37.5 percent remains in the U.S. Treasury, and 12.5 percent is returned to the state (43USC Chapter 8A, 1934). In addition, the BLM contributes to the State of Wyoming's revenue through payments in lieu of taxes, which totaled more than \$6.7 million in Sublette County from 2005 to 2014, for an average of \$679,383 per year (Department of Interior County Payments).

3.1.4 Livestock Grazing

In the late 1800s cattle men recognized Sublette County for its grazing potential and began settling in along the major watering courses. It was the completion of the transcontinental railroad that made the cattle industry possible in Wyoming. Cattle were turned out onto the open range and grazed year round and would be gathered and trailed to the stock yards and would be shipped back east by rail. The blizzard of 1889-1890 wiped out many cattle herds in the Green River Valley. Following the blizzard, ranchers stopped relying on year round grazing on the open range. Instead they started to clear the land and develop irrigation systems so that they could grow hay to support their cattle during the winter months.

Historic grazing was unregulated before the enactment of the Taylor Grazing Act of 1934. The unregulated grazing of livestock caused damage to rangelands with a change in natural vegetation composition and increased soil erosion.

Few written records of the grazing history exist for the James Ryegrass Allotment pre-1968. There was an Allotment Management Plan (AMP) written for the allotment in 1968. The AMP prescribed a two-pasture deferred grazing system in which one pasture was grazed from May 15 to May 30 and the second pasture grazed from June 1 to June 30. The 1973 AMP created a third pasture and prescribed a rest rotation grazing system. One pasture was rested season-long, another pasture grazed from May 15 to June 30 and the third pasture was grazed after seed ripe of thickspike wheatgrass (about August 10). After 1995 the allotment has been managed using a deferred 3 pasture grazing rotation implemented voluntarily by the grazing permittee. See Table 13 for permitted use. The water in the allotment is provided through reservoirs, springs, and a solar well and pipeline. The actual use reports for the past ten years show that grazing has been variable from year to year and shows that 389 AUMs were used on average (Table 15 James Ryegrass 2005-20014 Actual Use Summary). This fluctuation in AUMs is due largely to decisions made by the permittee and how the James Ryegrass Allotment fits into their overall grazing operation. Factors affecting annual use include variations in annual precipitation, water and forage availability.

Few written records of the grazing history exist for the Webb Draw Pasture Allotment pre-1990. See Table 13 for permitted use. The actual use reports for the past ten years show that grazing has been variable from year to year and shows that 355 AUMs were used on average (Table 16 Webb Draw Pasture 2005-2014 Actual Use Summary). This fluctuation in AUMs is due largely to decisions made by the permittee and how the Webb Draw Pasture Allotment fits into their

overall grazing operation. Factors affecting annual use include variations in annual precipitation, water and forage availability.

Historically, Webb Draw Pasture Allotment has been used by cattle for the month of June and then trailed to private pasture and then returned in late July or early August for 5-7 days. There has also been late summer use by both cattle and horses which was a significant factor contributing to Standard #2 not being met and not being in conformance with guideline 2. A change in season of use and a designated timeframe for trailing will address the riparian areas in Standard #2 and be in compliance with guideline 2.

Few written records of the grazing history exist for the Ball Horse Creek Allotment pre-1989. Permitted use within the allotment was from 7/1 to 7/31 for a total of 89 AUMs. This was a low priority allotment since the allotment contains a total of 222 BLM acres and was fenced in with adjacent private lands. There is no water available on the BLM so cattle rarely wandered onto the BLM. The only time cattle are on this piece of BLM is when cattle are trailed to the forest. There are no current actual use reports on file.

Table 13: Allotment Permitted Grazing Use

Allotment	Category	Livestock # and type		Dates of Use	BLM Acres	% Public Land	BLM AUMs
James Ryegrass Ind.	I	363	C	6/1 – 7/31	3585	100	728
Webb Draw Pasture	M	591	C	5/20 – 6/25	1,550	66	417
Ball Horse Creek	M	87	C	7/1 7/31	222	100	87

*Category M=Maintain C=Custodial I=Improve **Type C=Cattle H=Horse

In accordance with regulation pertaining to permitted use (43 CFR 4110.3), stocking rates were calculated for the allotments and are shown in Table 14. The stocking rates were calculated using the suggested stocking rates for cattle under continuous season long grazing under normal climatic conditions for rangelands in good ecological condition. Stocking rates within the allotments fall within the suggested stocking rates by the NRCS.

Table 14: Stocking rates

Allotment	Category	Stocking Rates BLM AC/AUM	Stocking Rates BLM AUM/AC	Stocking Rates NRCS AC/AUM	NRCS Suggested Stocking Rates Per Ecological Sites AUM/AC
James Ryegrass	I	5	0.2	5	0.2*
New James Ryegrass	I	4.7	0.2	4.2	0.2*
Webb Draw	M	3.7**	0.27**	2.5**	0.4 *
Ball Horse	M	3	0.3	3	0.3*

* These suggested stocking rates are found in the NRCS Ecological Site Descriptions in Section II: Ecological Site Interpretations (Appendix H.)

**These only include the BLM acres in the allotment and not private acres. The calculations for suggested NRCS stocking rates were higher than the BLM stocking rates and that is why the numbers are different.

Table 15: James Ryegrass Actual Use 2005 through 2014

Year	West Pasture			Middle Pasture			East Pasture			Total AUMS
	From	To	AUMs	From	To	AUMs	From	To	AUMs	
2014	6/2	6/20	212	6/20	7/14	279	7/14	7/21	89	580
2013	6/17	7/5	187	6/1	6/16	158	7/6	7/12	69	414
2012	6/3	6/18	150	6/27	7/5	30	6/18	7/5	169	349
2011	6/27	7/6	99	6/2	6/12	108	6/12	6/26	148	-
2011	7/8	7/15	79	7/6	7/8	30	-	-	-	464
2010	6/2	6/20	187	6/20	6/23	39	6/24	7/10	168	394
2009	*	*	*	*	*	*	*	*	*	*406
2008	*	*	*	*	*	*	*	*	*	*375
2007	6/1	6/22	217	Rested			6/22	7/8	168	385
2006	7/14	7/1	161	Rested			7/1	7/14	322	483
2005	*	*	*	*	*	*	*	*	*	*431

Note: * No Actual Use Report on file but the AUMs used for the years are correct from the permittees records.

Table 16: Webb Draw Pasture Actual Use 2005 through 2014

Year	Webb Draw Pasture			Total AUMs
	From	To	AUMs	
2014	6/1	6/28	299	-
2014 Trailing	8/20	8/23	43	342
2013	5/27	6/23	310	-
2013 Trailing	7/26	7/30	55	365
2012	5/30	6/24	273	-
2012 Trailing	7/22	7/28	73	346
2011	6/4	6/30	267	-
2011 Trailing	8/10	8/15	59	326
2010	6/2	6/27	283	-
2010 Trailing	8/3	8/9	74	357
2009	*	*	*	288
2008	*	*	*	272
2007	5/29	6/22	286	286
2006	5/28	6/21	286	286
2005	5/28	6/22	273	-
2005 Trailing	7/26	8-7	136	409

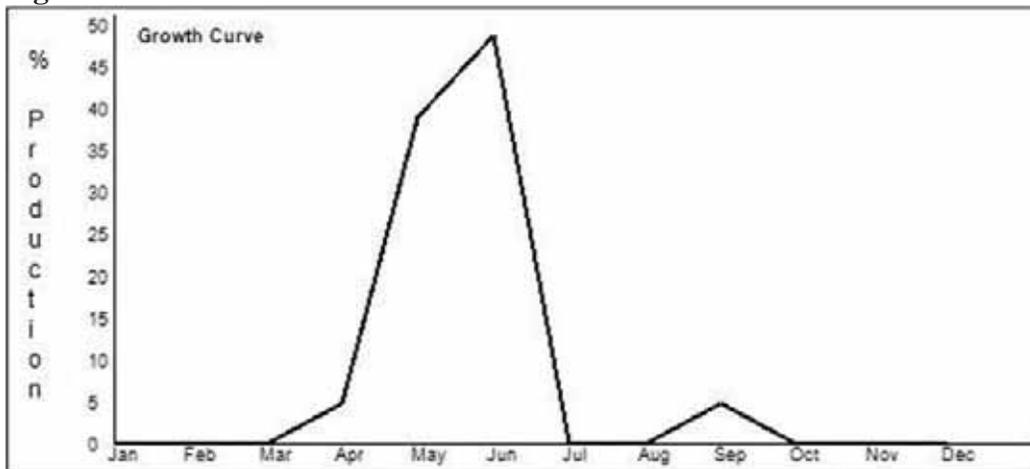
Note: * No Actual Use Report on file but the AUMs used for the years are correct from the permittees records.

Vegetation 3.1.5

The upland growing season in the Pinedale Plateau is from the end of April till mid-June (Figure 1). Plants may get a little regrowth the end of August till about the middle of September depending on precipitation and soil moisture availability. Livestock grazing results in removal of palatable plants and portions of plants.

The growing season grazing use is the season of greatest impact to native perennial grasses. Upland plants are actively growing using photosynthesis. From photosynthesis sugars, starches and fats are produced and minerals such as proteins and vitamins from the soils are utilized. These are all important to the growth cycle of a plant for root replacement, regeneration of leaves and stems after dormancy, respiration during dormancy, bud formation and regrowth after top removal (Holechek et.al, 2004).

Figure 1: Pinedale Plateau Perennial Grass Growth Curve



Plants can be grazed and have some of the top material removed and still maintain vigor. However, the amount that is removed depends on the species of plant and environmental factors for survival and reproduction. It has been shown that 50 -70 % of the annual leaf stem production by grass plants should be left as a reserve resource and the remaining 30-50 % can be consumed by livestock, wild herbivores and insects (Holechek et.al, 2004). This reserve plays a critical role in plant regeneration after defoliation and protects the plant crown. Residual material that is left over protects the plants from extreme temperatures, soil protection from erosion and facilitates in water infiltration.

The James Ryegrass Allotment has key areas established to monitor upland vegetation. Utilization data has been collected as shown in Table 17 at these key areas. Upland recorded utilization at stocking rates under existing permits have been with in the light use (21-40 percent) category and has consistently been under the moderate category of (41-60 percent). The Webb Draw Pasture has key areas established to monitor upland and riparian utilization. However, the Webb Draw Pasture has not been a priority for monitoring since there is private land mixed with the allotment. BLM started monitoring the allotment in 2014 and utilization data was recorded as light use (21-40 percent) and can be seen in Table 18. Utilization data was not collected in the Ball Horse Creek Allotment since the grazing permit has been inactive.

Table 17: James Ryegrass Utilization % Summary

Year	West Pasture		Middle Pasture		East Pasture		Average
	POSE	HECO26	ACLE9	CANBI	ACLE9	POSE	
2014	*3	*13	*15	*16	*16	*12	13
2011	**11		**11		**24		**15
2003	**27		**39		**32		**33
2001	**26		Rested		**35		**31

Note: *Height/Weight Method **Landscape Appearance Method

Table 18: Webb Draw Pasture Utilization % Summary

Year	Webb Draw Pasture		Average
	POSE	CANE2	
2014	5	10	8
	Stubble Height		5"

Note: Utilization data recorded using Height/Weight Method

Native sagebrush communities across the west have been altered by changes to the natural fire regime with European settlement. Plant communities in the allotments show a tendency for shrub dominance (Wyoming big sagebrush and mountain big sagebrush) and have suppressed the herbaceous understory.

An assortment of environmental factors influence the location(s), extent, state, and/or types of vegetation found throughout the allotments. Elevation, precipitation zone, topography, soils and underlying parent materials, slopes, and exposures all contribute to the general vegetation composition.

Ecological Sites

The Natural Resources Conservation Service (NRCS) has divided up the United States into several different Major Land Resource Areas (MLRAs). MLRAs are geographic areas with similar elevation, topography, soils, geology, climate, water, biological resources, and land use (Cagney et al. 2010). The James Ryegrass Grazing Association Allotments encompass two MLRAs (MLRA 34A Cool Central Desertic Basins and Plateaus; MLRA 43B Central Rocky Mountains). The NRCS has made revisions to the MLRAs based on soil, precipitation zones and divided them up into Ecological Site Descriptions (ESDs). The dominant Ecological Sites within the allotments are as follows:

James Ryegrass

Ecological Site	BLM acres	AUMs	Percent of Allotment
Loamy 10-14" Foothills and Basins West R034AY222WY	744	112	21
Loamy 15-19" Foothills and Mountains West R043BY222WY	503	252	14

Coarse Upland 10-14" Foothills and Basins West R034AY208WY	587	147	16
Coarse Upland 15-19" Foothills and Mountains West R043BY208WY	194	78	5
Shallow Clayey 10-14" Foothills and Basins West R034AY258WY	613	77	17
Gravelly 15-19" Foothills and Mountains West R043BY212WY	182	46	5
Sub Irrigated 10-14" Foothills and Basins West R034AY274WY	2	1	-
Shallow Loamy 10-14" Foothills and Basins West R034AY262WY	1	0.15	-
Minor Components	759	76	21
Total:	3585	789	99

Webb Draw Pasture

Ecological Site	BLM Acres	AUMs	Percent of Allotment
Loamy 15-19" Foothills and Mountains West R043BY222WY	790	395	51
Sandy 10-14" Foothills and Basins West R034AY250WY	244	81	16
Coarse Upland 15-19" Foothills and Mountains West R043BY208WY	153	61	10
Sub Irrigated 15-19" Foothills and Mountains West R043BY274WY	42	46	-
Minor Components	321	32	20

Total:	1550	615	100
Ball Horse Creek			
Ecological Site	BLM Acres	AUMs	Percent of Allotment
Loamy 15-19" Foothills and Mountains West R043BY222WY	88	44	40
Coarse Upland 15- 19" Foothills and Mountains West R043BY208WY	58	23	26
Sandy 10-14" Foothills and Basins West R034AY250WY	9	3	4
Gravelly 15-19" Foothills and Mountains West R043BY212WY	9	2	4
Shallow Loamy 15- 19" Foothills and Mountains West R043BY262WY	1	.03	0.1
Dense Clay 15-19" Foothills and Mountains West R043BY210WY	1	.22	0.5
Shallow Clayey 10- 14" Foothills and Basins West R034AY258WY	10	5	5
Minor Component	46	5	21
Total:	222	82	100

The health of vegetation communities includes stages of succession. Succession is the process of soil and plant community development on an ecological site. Primary succession is the formation process that begins on substrates which have never supported any vegetation. Ecological site development associated with soil parent materials, climatic conditions, and the natural range of disturbances with time produces a plant community in dynamic equilibrium. The resulting plant community is referred to as the historic climax plant community or potential natural plant community. The dominant plant species expected are those within the potential natural plant community for each ecological site (Clements, 1916) (Dyksterhuis, 1949) (National Research Council, 1994).

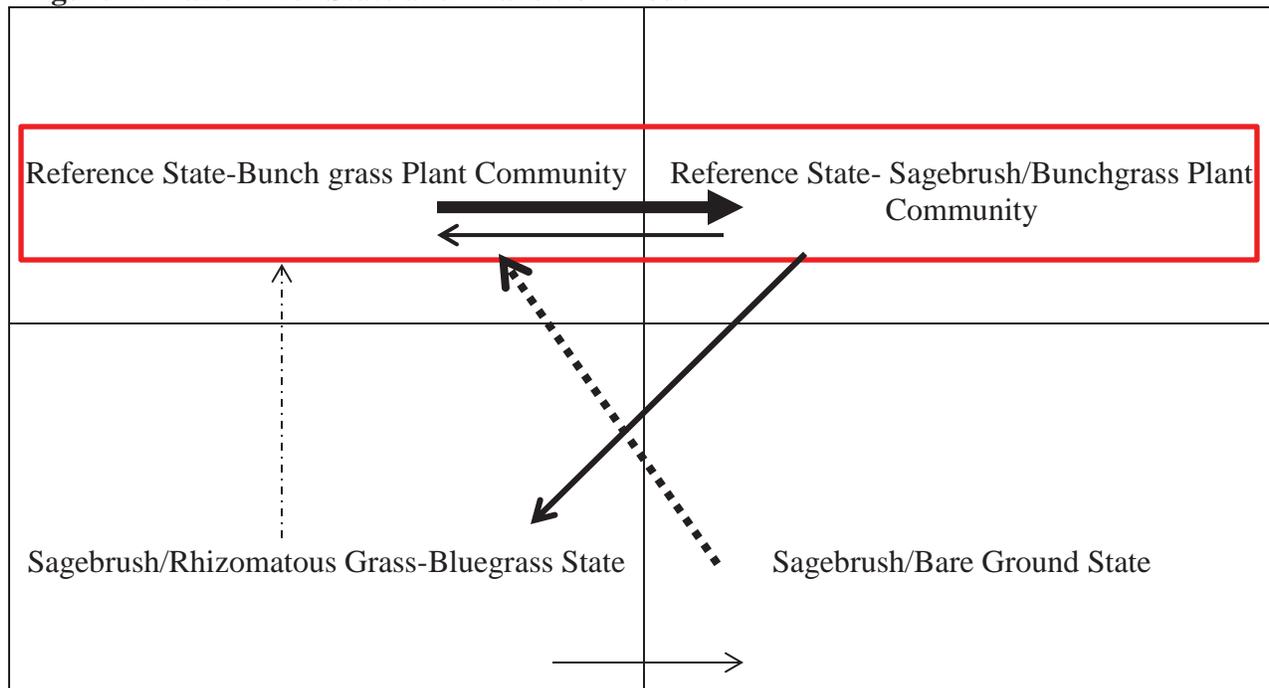
Retrogression can occur in response to management practices or severe natural climatic events, with species composition of vegetation communities altered from the historic climax or potential plant community. Secondary succession occurs on previously formed soil from which some or all vegetation has been partially or completely removed by a disturbance factor.

An ecological site is defined as a distinctive kind of land with specific soil and physical characteristics that differ from other kinds of land in its ability to produce a distinctive kind and amount of vegetation and its ability to respond similarly to management actions and natural disturbance (USDA NRCS). An ecological site supports several different vegetation communities and can exhibit change between plant communities due to various management interactions. These different vegetation communities are called states.

State-and-transition models describe vegetation dynamics and management interactions associated with disturbance within an ecological site. States are relatively stable and resistant to disturbances up to a threshold point. The reference state is defined as the vegetation communities that result through time under natural disturbance regimes. A threshold is the boundary between two states, such that secondary succession does not result in restoration through natural events, such as a simple change in management or removal of a disturbance factor. Active restoration must be accomplished once a threshold is passed in order to return to the reference state. Inputs of management actions necessary to cross the threshold from a new state and return to the state that includes the potential natural community are greater than simple removal of a disturbance factor or restoration of a natural disturbance factor. Management inputs that are necessary to cross that threshold could include vegetation treatments (mechanical or herbicide), prescribed fire, or a combination of active management inputs.

Referencing Cagney's Platte River State and Transition Model in South Central Wyoming he evaluates four plant communities in three states on a Sandy ecological site in the 10-14 inch precipitation zone, with discussion factors leading to transitions between states and resource values associated with these states. Figure 2 indicates transitional pathways of plant succession using arrows. The size of the arrows depicts the relative ease of transition between the plant communities depicted in the diagram. Bold solid arrows depict progression that occurs with time and various types of grazing. Light-solid arrows depict changes that require disturbance. Dashed arrows depict changes requiring disturbance (Cagney et al 2010).

Figure 2: Platte River State and Transition Model



Two plant communities make up the reference state (Bunch grass; Sagebrush/Bunchgrass) with varying amounts of sagebrush resulting from natural disturbance primarily fire. With time alone sagebrush will advance on the Bunchgrass Plant Community and the sagebrush canopy will commensurate with climatic conditions following fire. With improper grazing management, the rate of sagebrush progression can be increased along with deep-rooted bunchgrasses (species that dominate the understory in the reference state) being replaced by grazing resistant grasses (Rhizomatous grasses and Bluegrasses). The replacement of bunchgrasses by rhizomatous grasses and bluegrasses result in a second state (grazing resistant and stable plant community). A third possible state is a plant community entirely comprised of sagebrush and bare ground.

The dominant plant community in the James Ryegrass Allotment is described as being in the Wyoming Big Sage/Rhizomatous Grass-Bluegrass state. This state contains a sagebrush canopy with an herbaceous plant community dominated by Rhizomatous grasses and Bluegrasses. However, native plant communities are still present within the allotment. The current grazing scheme didn't cause the Wyoming big Sage/Rhizomatous Grass-Bluegrass state. This state was caused by historic grazing practices and continuous season long grazing. This state produces less forage than the sagebrush/bunchgrass state, but with quality grazing management it offers reasonable herbaceous productivity (Cagney et al 2010). The Platte River State and Transition Model represents the James Ryegrass Allotment. In parts of the James Ryegrass Allotment mechanical treatments have been done to improve plant health, wildlife habitat, and restore vegetative age class and diversity. The treatments were a restoration transition that directly changed the plant community in the treated areas from a Sagebrush/Rhizomatous Grass/Bluegrass State to the Bunchgrass/ Sagebrush state. This restoration pathway would not

have happened without a disturbance driver and the transition would not have been achieved by grazing management alone.

The dominant plant community in the Webb Draw Pasture and Ball Horse Creek Allotments fall within the Mountain big sagebrush/ Bunchgrass state. This plant community offers the most biological diversity of shrubs, grasses, and forbs (Cagney et al. 2010). It also provides the highest quality sage-grouse nesting and early brood-rearing habitat and ample forage for livestock and wildlife. This transition to this state occurs when sagebrush advances on the transitional bunchgrass community.

3.1.6 Soils

There are 9 different soil map units within the James Ryegrass Allotment, 6 different map units in Webb Draw, and 6 different map units in the Ball Horse Creek Allotment (Appendix B Maps 6, 7, 8). These map units represent a wide variety of inherent characteristics that influence landscape position, soil depth, percent slope, drainage class, vegetation growth, erosion potential, site productivity, available water supply, and more. Soils within the allotments have been mapped and are described in the Sublette County Soil Survey (USDA NRCS, Web soil survey) that delineates soil map units, landforms, vegetation components, and gives interpretive information on soil use and management. These map units are tied to ecological sites and soil and hydrologic function are critical parameters for properly functioning upland areas.

The soils in the James Ryegrass Allotment are moderately to very deep and as you go east to west it transitions from an Aridic Ustic to a Typic Ustic soil moisture regime with a frigid soil temperature regime (USDA NRCS, Web soil survey). Family soil particle size classes in the James Ryegrass Allotment are fine-loamy, fine, and loamy skeletal. Depending on slope and cover the susceptibility for water erosion ranges from slight to severe. In general, soils within the James Ryegrass Allotment are stable with little to no erosion and tolerable soil loss is 4 to 5 tons per acre per year.

The soils in the Webb Draw Pasture Allotment are moderately to very deep with a Typic Ustic soil moisture regime and frigid soil temperature regime (USDA NRCS, Web soil survey) Family soil particle size classes are fine loamy, loamy skeletal, coarse loamy, fine, and sandy. Depending on slope and cover the susceptibility for water erosion ranges from slight to severe. In general, soils within the Webb Draw Pasture Allotment are stable with little to no erosion and tolerable soil loss is 3 to 5 tons per acre per year.

Soils in the Ball Horse Creek Allotment are moderately to very deep with a Typic Ustic soil moisture regime and frigid soil temperature regime (USDA NRCS, Web soil survey) Family particle size classes are fine loamy, loamy skeletal, coarse loamy, fine, loamy, and sandy. In general, soils within Ball Horse Creek are stable with little to no erosion.

3.1.7 Noxious Weeds

Executive Order (EO) 13112, “Invasive Species,” was signed by President Clinton in 1999 to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Noxious weeds are defined in this EO as those “species whose introduction does or is likely to cause economic or

environmental harm or harm to human health.” Noxious weeds and other invasive species, when introduced to an area, are aggressive and often dominate natural communities. They are often able to establish in areas following disturbance and are present primarily along roads and fence lines and in heavily grazed areas.

The State of Wyoming has designated 26 weeds as noxious and Sublette County has placed 6 additional species on their declared list of weeds. Of these 32 species, there are 3 which are present within certain portions of the James Ryegrass Allotment; Canada thistle (*Cirsium arvense*), Musk thistle (*Carduus nutans*), and Black henbane (*Hyoscyamus niger*). Canada thistle is also found in the Ball Horse Creek and Webb Draw Pasture. Cheatgrass is known to occur in the area but none has been reported or found within the allotments. Sources of potential invasion include vehicles, recreational vehicles, livestock, and wildlife.

3.1.8 Recreation

While not as popular for recreation as some other areas in the Pinedale Field Office, James Ryegrass, Ball Horse Creek and Webb Draw Pasture supports a variety of recreation activities, including hiking, hunting, bird watching, camping, and off road vehicle (OHV) use. Recreational public use increases markedly in the fall as visitors seek opportunities to hunt small and big game.

Recreation management is guided by decisions within the PRMP. The planning area is encompassed by the Extensive Recreation Management Area (ERMA). The management objective of the ERMA is to provide an array of resource-dependent dispersed recreation opportunities, such as hunting, fishing, motorized use, and open space. Management will be extensive rather than intensive. Management actions would be custodial and focus on:

- The development of new recreation facilities only when necessary to protect human health, safety, and natural resource values.
- The maintenance and enhancement of important public access.
- The resolution of resource and social conflicts

Recreation activities in the allotments are dispersed. Specific actions are generally unnecessary to prevent impacts, avoid conflicts among users or protect public health and safety. Management focus is on enabling unstructured recreational use of public lands. Recreation related experiences; personal, economic, social and environmental benefits were not prescribed for the planning area during the land use planning process. However, substantial benefits do occur as visitors experience dispersed recreation activities within the allotments. The recreation setting is generally described as rural and back country (primitive) where contacts with other visitors are infrequent and the presence of visitor services are largely absent. Motorized OHV use is restricted to travel on existing roads and trails.

3.1.9 Riparian Resources, Watershed and Hydrology

The objective specified in the PRMP for riparian areas is to meet the Wyoming Standards for Rangeland Health and maintain or enhance wetland and riparian vegetation to achieve Proper Functioning Condition. Within the Webb Draw Pasture Allotment, riparian/wetland vegetation types include, shrub land, and herbaceous meadow/wetland areas. These areas are sub irrigated

and poorly drained and are high in carbonates. The water table is a foot to a foot and half below the surface during the growing season.

Riparian and wetland communities are the transitional zones between terrestrial and aquatic ecosystems (Gregory et al. 1991). These communities are found in moist areas along perennial or intermittent drainages, seeps, and springs. Typically, soils consist of deep, rich loams with high amounts of organic matter. Because of the high productivity of riparian areas, they are very important resources for wildlife and livestock. The lush vegetation in riparian communities provides valuable food and cover; if water is present, the importance of these areas increases even more.

The primary method used in evaluating riparian condition is through a qualitative assessment procedure called Proper Functioning Condition (PFC). This process evaluates physical functioning of riparian/wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. A properly functioning riparian/wetland area will provide the elements contained in the definition:

- dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality
- filter sediment, capture bed load and aid floodplain development
- improve flood-water retention and ground water recharge
- develop root masses that stabilize stream banks against cutting action

The minimum desired riparian condition is Proper Functioning Condition (PFC) as defined by BLM Technical References 1737-15 (BLM 1998) and 1737-16 (BLM 1999). It is important to note that PFC is a minimum standard of physical site stability, not a final vegetation community or habitat quality objective.

There are few riparian segments in the Webb Draw Pasture on public lands that were assessed for PFC following prescribed methodologies in August 2013. The results are summarized in Table 19.

Table 19: Riparian Functioning Condition

Reach or Wetland	Type	Miles or Acres	PFC rating
North Fork Webb Draw	Lotic	.5 mile	FAR
North Fork Webb Draw	Lentic	13 acres	FAR

Some of the specific issues preventing the North Fork of Webb Draw from reaching PFC were low vigor of riparian plants and lack of adequate riparian plant cover to protect stream banks and dissipate energy. This led to slumping banks, impacting the sinuosity and width/depth ratio of the channel in the lotic sites. The area has also been affected by drought, historic irrigation diversions, wildlife use, livestock use, and impacts from mineral development (a natural gas pipeline) and a road crossing the channel.

On the lentic sites, vegetation species composition and age diversity was good, however the plants did not exhibit high vigor, and the extent of the riparian area is static at less than its potential. This site consists of a shallow draw through the sagebrush, with an associated spring on one side of the valley.

Other riparian sites are present in the allotment but have not yet been assessed.

There are no riparian areas in the James Ryegrass Allotment.

The Ball Horse Creek Allotment has about 5 acres of sub-irrigated meadow. On this site there are hummocks, Shrubby Cinquefoil, Kentucky bluegrass, Tufted Hair grass, Nebraska Sedge, Baltic Rush and Canada thistle. This site receives additional water through snow melt in the spring which supports a water table for a short period of time in the spring. Redox and gleying were observed in the top 20” of soil however, the water table was not present within the top 20” of soil. This site is on the dry end of the sub irrigated ESD site dynamics including water table duration and persistence is not understood consequently the site potential is not known.

The James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments do not encompass any streams on Wyoming’s list of impaired waters:

<http://deq.state.wy.us/wqd/watershed/Downloads/305b/2008/2008%20Integrated%20Report.pdf>

3.1.10 Special Status Plants

Based on species requirements there is no habitat for federally listed Threatened or Endangered plant species within the James Ryegrass, Webb Draw Pasture, or the Ball Horse Creek Allotments. The allotments are too high in elevation for the threatened Ute ladies’-tresses (*Spiranthes diluvialis*) and there are no sandy areas with blowouts necessary for the endangered blowout penstemon (*Penstemon haydenii*) to occur.

James Ryegrass Allotment

There are no mapped element occurrences of sensitive or special status plant species within the James Ryegrass (WYNDD 2012). No additional analysis of sensitive or special status plant species is necessary for this allotment.

Webb Draw Pasture Allotment

A population of meadow pussytoes (*Antennaria arcuate*) has been identified within the allotment (Appendix B. Map 15). This species is found in riparian habitat often associated with a hummocky soil surface. The presence of these hummocks is typically attributed to livestock utilization and frost heaving. There have been no other documented occurrences of Wyoming BLM sensitive plants or other species of concern within the assessment area (WYNDD 2012).

Ball Horse Creek Allotment

There are no mapped element occurrences of sensitive or special status plant species within the Ball Horse Creek Allotment (WYNDD 2012). No additional analysis of sensitive or special status plant species is necessary for this allotment.

3.1.11 Visual Resource Management

The James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments contain lands classified as Visual Resource Management (VRM) class objective III (Appendix B. Maps 9, 10, 11). The VRM class III objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape (PRMP p. 2-40).

Projects, including surface disturbing activities would incorporate techniques and methods designed to mitigate visual impacts to the landscape.

3.1.12 Wildlife

The James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments include habitats utilized by a variety of wildlife species including multiple BLM sensitive and Wyoming game species.

Greater Sage-grouse

Greater Sage-grouse (*Centrocercus urophasianus*), hereafter referred to as sage-grouse, are an obligate species dependent upon sagebrush for nearly all components of its lifecycle. In general sage-grouse require a mosaic of sagebrush habitats with access to seasonal use areas. Quality nesting and early brood rearing habitat is characterized by 15-25% sagebrush and >15% grass and forb cover (Braun 2006). Grasses and succulent forbs taller than 18cm provide food and nesting residual cover (Braun 2006). Breeding (lekking) occurs in suitable open spaces adjacent to nesting habitat. Late summer brood-rearing requires upland sagebrush habitat (10-25% cover) for loafing/roosting and riparian areas to provide succulent grass and forb forage species (Braun 2006). Winter habitat is driven by access to suitable sagebrush canopy cover >25cm above the snow (10-30% canopy cover) (Braun 2006). During winter sagebrush provides the primary food source and cover from harsh conditions.

On March 23, 2010 the USFWS published its finding that the Greater Sage-grouse warrants protection under the Endangered Species Act (ESA) (75 FR 13910 (2010-3-23)). Proposing the species for protection was deemed to be precluded by the necessity to focus efforts on higher priority species. The sage-grouse is therefore considered a Candidate on the list of species to be considered for protection under the Endangered Species Act and all management of the species should be oriented to prevent further impacts to the species that may result in its listing.

In response to the Warranted but Precluded determination the state of Wyoming Governor's Sage-Grouse Implementation Team developed a Core Population Area Strategy for the conservation of Sage-Grouse in Wyoming (Wyoming Governor's Executive Order 2011-5). Through this effort, management priority areas and management controls were identified and implemented in an effort to conserve sage-grouse and avoid potential significant adverse impact on the state economy associated with a listing under ESA. On February 10, 2012 the BLM Wyoming implemented a Greater Sage-Grouse Habitat Management Policy consistent with the guidelines and recommendations provided for in the Core Population Area Strategy (BLM IM No.WY-2012-019). This guidance effectively adopted the State's Sage-Grouse Core Protection

Area Strategy standards and practices for habitat conservation, restoration and reclamation practices in designated core habitat in Wyoming. The BLM Wyoming IM meets the intent of the National Policy set forth in WO IM-No.2012-043 and therefore represents the official management policy for BLM land in the State of Wyoming.

Table 20: Designated Greater Sage-grouse habitats total acres and percent of the allotment within the James Ryegrass, Ball Horse Creek, and Webb Draw Pasture allotments.

Allotment	Potential Nesting acres (% allotment)	Winter Concentration acres (% allotment)	Core Area acres (% allotment)	Core Area NSO acres (% allotment)	RMP NSO acres (% allotment)	Number of Leks
James Ryegrass	3558 (99%)	463 (12.9%)	3585 (100%)	487 (13.6%)	59 (1.6%)	0
Webb Draw Pasture	1550 (100%)	0	1550 (100%)	260 (16%)	43 (2.7%)	1
Ball Horse Creek	222 (100%)	48 (22%)	222 (100%)	149 (67%)	11.7 (6.8%)	0

James Ryegrass Allotment

Seasonal use habitats within the allotment include potential nesting, early brood rearing and winter concentration habitat (Table 20). Nesting grouse typically remain on the upland sagebrush areas until forbs dry up and then move to key late brood rearing habitats along Horse Creek. Portions of the allotment directly adjacent to Horse Creek may function as upland summer roost habitat. To date no occupied leks have been identified within the James Ryegrass Allotment. Several occupied leks can be found within one mile of the James Ryegrass Allotment in the immediately adjacent allotments. Given their proximity, the James Ryegrass Allotment provides seasonal habitat in support of these leks. Within the eastern half of the allotment, a single 463 acre winter concentration area has been delineated (Appendix B Map 14). Winter use areas have not been delineated in the assessment area. Typically winter use areas fall along the perimeter of winter concentration polygons. Continued monitoring may refine the location of winter concentration habitat. The entire assessment area (approximately 3585 acres) is considered part of the Daniel sage-grouse core area.

Seasonal grouse habitats within the James Ryegrass Allotment were rated as either suitable or marginal based on the habitat framework (Table 14) see appendix G (Stiver *et.al.* 2010). The two habitats rated as marginal were due to the high values of sagebrush canopy cover >25% and the reduced number of preferred forb species present. Data was collected in the Ly “10-14” ecological site which makes up the majority of the assessment area (54%). The other primary ESD is SwCy “10-14” which comprises 26% of the area. These soils are dominated by early sage, which has limited nesting habitat value given its low stature. Based on the reference plant community SwCy10-14” does not have the potential to provide adequate cover for nesting and above snow forage in winter.

Table 21: James Ryegrass Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
James Ryegrass #1 Ly 10-14"*	2010	Big Sage/ Rhizomatous/ Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Winter	Suitable
James Ryegrass #2 Ly 10-14"*	2010	Big Sage/ Rhizomatous/ Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Winter	Suitable
James Ryegrass #3 Ly 10-14"*	2012	Big Sage/ Rhizomatous/ Bunchgrass	Nesting/Early Brood Rearing	Marginal
			Upland Summer/Late Brood Rearing	Marginal
			Winter	Suitable

* The LY 10-14" ESD represents 1938 acres (54%) of the allotment. The other major ESD SwCy 10-14" makes up 927 acres (26%) of the allotment.

Webb Draw Pasture Allotment

Seasonal use habitats within the allotment include potential nesting and both early and late brood rearing (Table 20). Nesting grouse typically remain on the upland sagebrush areas until forbs dry up and then move to key late brood rearing habitats along Horse Creek. The presence of springs and ephemeral wet areas has the potential to provide areas of late brood rearing within the allotment as well. Portions of the allotment directly adjacent to riparian areas may function as upland summer roost habitat. There is one occupied lek within the allotment located on the boundary between private and BLM administered land (Appendix B. Map 15). Currently, no winter concentration or winter use habitat has been delineated within the assessment area. Continued monitoring may refine the location of winter habitats. The entire assessment area (approximately 2448 acres) is considered part of the Daniel sage-grouse core area.

Seasonal grouse habitats within the Webb Draw Pasture Allotment were rated as suitable or marginal based on the habitat framework (Table 22) see appendix G. Sagebrush canopy cover values of 23.5% place it within the suitable range of 15-25% canopy cover. Both grass (30%) and forb (22%) exceeded the suitable percent cover values. The average sagebrush height was 64cm which is within the 30-80cm suitable range for nesting and early brood rearing habitat. Preferred forbs were determined to be common with only a few species present. The 13 acres of sub-irrigated meadow were classified as Functioning at Risk this combined with lower forb diversity suggests these areas currently provide marginal riparian summer habitat. The majority of grouse likely utilize the larger riparian area associated with Horse Creek during the summer season. While sage cover values are within acceptable ranges the snow load limits the areas value as winter habitat. Data was collected in the Ly 15-19'' ecological site which represents the dominant upland ecological site within the allotment.

Table 22: Webb Draw Pasture Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
Webb Draw #1 Ly 15-19"*	2013	Mtn. Big Sage/Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Riparian Summer/Late Brood Rearing	Marginal
			Winter	Marginal

* Webb Draw Pasture #1.

Ball Horse Creek Allotment

To date no occupied leks have been identified within the Ball Horse Creek Allotment. Multiple occupied leks can be found within two miles of the allotment boundary. Given their proximity, the Ball Horse Creek Allotment likely provides seasonal habitat in support of these leks. Seasonal use habitats within the allotment could include potential nesting, early brood rearing and winter concentration habitat (Table 20). Nesting grouse typically remain on the upland sagebrush areas until forbs dry up and then move to key late brood rearing habitats along Horse Creek. The eastern portion of the allotment has been delineated as a winter concentration area (Appendix B Map 14). Winter use areas typically fall along the perimeter of winter concentration polygons. Continued monitoring may refine the location of winter concentration habitat. The entire assessment area is considered part of the Daniel sage-grouse core area.

Seasonal grouse habitats within the Ball Horse Creek Allotment were rated as suitable or marginal based on the habitat framework (Table 23) see appendix H. Sagebrush canopy cover values of 38% place it above the suitable range of 15-25% canopy cover. Both grass (21%) and forb (40%) exceeded the suitable percent cover values. The average sagebrush height was 52cm which is within the 30-80cm suitable range for nesting and early brood rearing habitat. Preferred forbs were determined to be common with several species present. The classification of riparian and late brood rearing summer habitat as marginal was in part due to the limited size and unknown potential of the sub-irrigated meadow, the majority of birds are more likely to preferentially utilize the riparian habitat along Horse Creek that is immediately adjacent to the allotment. Sage cover values are within acceptable ranges for winter habitat and the western portion of the allotment has been delineated as a winter concentration area. Data was collected in the Ly 15-19'' ecological site which represents the dominant upland ecological site within the allotment.

Table 23: Ball Horse Creek Allotment Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
Ball Horse	2014	Big	Nesting/Early Brood	Suitable

Creek #1 Ly 15-19"		Sage/Bunchgrass	Rearing	
			Upland Summer/Late Brood Rearing	Suitable
			Riparian Summer/Late Brood Rearing	Marginal
			Winter	Suitable

Big Game Species

For WGFD Habitat Designation definitions see Appendix D.

Big game populations in the assessment are part of larger herd units within the Green River Basin. Data from the following table is summarized from the Pinedale Region Annual Big Game Herd Unit Reports 2013 JCR (WGFD 2013). These population status reports identify both population estimates and general trends relative to management objectives.

Table 24: Pinedale Region big game population statistics

Species	Herd Unit	08-'12 avg.	2013 estimate	Objective	% difference	# years above /below obj.
Mule Deer	Sublette	23482	22900	32000	-28.4	5
Pronghorn	Sublette	50600	34000	48000	-29.2	3
Moose	Sublette	1193	1400	1500	-6.7	0
Elk	Piney	4165	3800	2400	58	10

Table 25: Designated big game habitats total acres and percent of the allotment within the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments.

Allotment	Habitat Type	Mule Deer acres(% allotment)	Pronghorn acres(% allotment)	Moose acres(% allotment)	Elk acres(% allotment)
James Ryegrass	Crucial Winter Range	3585 (100%)	0	240 (6.7%)	0
	Winter/Yearlong	0	0	2869 (80.0%)	0
	Spring/Summer/Fall Parturition	0	3585 (100%)	469 (13.1%)	3585 (100%)
		0	0	0	0
Webb Draw Pasture	Crucial Winter Range	0	0	464 (30%)	0
	Winter/Yearlong	0	0	13 (8%)	566 (36%)
	Spring/Summer/Fall	1550 (100%)	1550 (100%)	1073 (69%)	981 (63%)

	Parturition	0	0	0	0
Ball Horse Creek	Crucial Winter Range	222 (100%)	0	0	0
	Winter/Yearlong	0	0	0	0
	Spring/Summer/Fall	0	222 (100%)	222 (100%)	222 (100%)
	Parturition	0	0	0	0

Pronghorn

Pronghorn are selective browsers that require a variety of vegetative species on the landscape. Their diet is typically dominated by sagebrush and other low growing shrubs and forbs. Grass is only consumed when green and succulent. The availability of browse, especially sagebrush, appears to be a limiting factor on winter range. Under severe winter conditions, pronghorn are confined to lower south-southwest facing slopes that typically retain some level of exposed vegetation during adverse conditions.

James Ryegrass Allotment

The sage-brush dominated uplands in the allotment serve as habitat for pronghorn through-out the spring, summer, and, fall seasons (Table 25). The snow load associated with this area limits its value as winter habitat. The area does encompass portions of seasonal migration corridors that extend from the Wyoming Range Mountains to crucial winter range south and east of the allotment within the Ryegrass, Soapholes, and Mesa landscapes.

Webb Draw Pasture Allotment

The sagebrush-dominated uplands within the allotment serve as habitat for pronghorn through-out the spring, summer, and fall seasons (Table 25).

Ball Horse Creek Allotment

The sagebrush-dominated uplands within the allotment serve as habitat for pronghorn through-out the spring, summer, and fall seasons (Table 25).

Mule Deer

Mule deer are primarily browsers with various forb and shrub species comprising the majority of their diet. Due to their smaller rumen mule deer diets tend to be more selective relative to other ungulates such as elk. It is therefore important to maintain a diversity of forage on the landscape allowing for a variety of browse options. Winter browse habitats are dominated by shrubs such as sagebrush, saltbush, and bitterbrush. Shrubs are typically more available in the winter and retain a higher percent of their nutritional value compared to dormant forbs and grass.

James Ryegrass Allotment

The allotment serves as habitat for mule deer in the Sublette Herd Unit (Appendix B Map 16). The assessment provides crucial wintering habitat for deer that summer in the Hoback Canyon and Wyoming range (Table 25). The primary value this area provides is transitional habitat for deer migrating to winter ranges on the Mesa Winter Range Complex. The Sublette mule deer herd is potentially the most migratory herd within the western states, often spending 5 to 6

months per year on transition ranges and travelling over more rugged terrain than any other Wyoming deer herd (Sawyer & Lindzey 2001).

Webb Draw Pasture Allotment

The allotment serves as habitat for mule deer in the Sublette Herd Unit and provides spring/summer/fall habitat (Table 25). This area represents a key transitional area utilized by deer migrating between summer range to the north and west and winter range on the Mesa southeast of the allotment.

Ball Horse Creek Allotment

The allotment serves as crucial winter range habitat within the Sublette Herd unit (Table 25). The primary value this area provides is transitional habitat for deer migrating to winter ranges on the Mesa Winter Range Complex

Elk

Elk diets consist mostly of grasses and forbs in the spring and summer, with shrubs representing an important winter forage component, respectively.

James Ryegrass Allotment

The entire allotment is designated as spring/summer/fall habitat for the Piney Elk Herd (PEH) (Table 25). The feedground nearest to the allotment (Jewett) is approximately 7 miles to the west with the Bench Corral feedground 13 miles to the southeast and Franz feedground approximately 14 miles to the north

Webb Draw Pasture Allotment

The allotment contains multiple designated seasonal habitats for elk in the Piney Herd (Appendix B Map 17). A total of 63% of the area is designated as spring/summer/fall habitat and 36% has been designated as winter/yearlong habitat (Table 25).

Ball Horse Creek Allotment

The sagebrush-dominated uplands within the allotment serve as habitat for elk through-out the spring, summer, and fall seasons (Table 25).

Moose

The allotment supports the Sublette moose herd unit. Moose are generalist browsers and are known to eat willow, bitterbrush, serviceberry, sedges, rushes, and a number of conifer species. Moose can be found within the area along riparian areas associated with Horse Creek.

James Ryegrass Allotment

Crucial winter, winter/yearlong and spring/summer/fall habitat is found within the allotment and adjacent riparian areas along Horse Creek (Table 25) (Appendix B Map 12).

Webb Draw Pasture Allotment

The area supports multiple WGFD designated seasonal habitats (Appendix B Map 13). Crucial winter range comprises 34% of the area, 2% is designated as winter/yearlong, and 63% as spring/summer/fall habitat (Table 25).

Ball Horse Creek Allotment

The sagebrush-dominated uplands within the allotment serve as habitat for moose through-out the spring, summer, and fall seasons (Table 25).

Sensitive and Special Status Wildlife

Further discussion of Threatened and Endangered/BLM Sensitive Species that have potential to occur in the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments but are not addressed below can be found in Table 26.

Pygmy Rabbit

Pygmy rabbits are typically associated with tall dense stands of sagebrush in loose, deep soils. They are the only lagomorph native to North America that digs its own burrows which are most often found at the base of tall sagebrush plants. Sagebrush not only provides cover from predators but comprises the majority of the pygmy rabbit diet.

James Ryegrass Allotment

Portions of the allotment provide suitable habitat for pygmy rabbits. To date there have been no documented incidents of occupancy within the allotment. Surveys have only documented a single incident of occupancy in adjacent allotments suggesting that while present, pygmy rabbits are not abundant within the ryegrass landscape.

Webb Draw Pasture Allotment

Suitable habitat conditions can be found within the allotment. To date there have been no documented incidents of occupancy within Webb Draw Pasture or adjacent allotments.

Ball Horse Creek Allotment

Portions of the allotment provide suitable habitat for pygmy rabbits. To date there have been no documented incidents of occupancy within the allotment.

Sagebrush Obligate Songbirds

Species such as the sage-thrasher, sage sparrow, Brewer's sparrow, and loggerheaded shrike are likely to occur within the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek allotments. The sagebrush component of these allotments provides nesting and foraging habitat.

Colorado River Cutthroat Trout

All of the allotments are dominated by upland sagebrush with no suitable Colorado cutthroat stream habitat present. Therefore no current or historical habitat occurs within either allotment. The nearest potential habitat occurs within the adjacent Horse Creek riparian corridor. No additional analysis of fisheries resources will be conducted.

Amphibians

The boreal toad (northern Rocky Mountain population), northern leopard frog, and Columbia spotted frog are typically associated with habitat features that include but are not limited to wet meadows, shallow permanent water sources, small streams, and functioning livestock reservoirs (McGee & Keinath 2004, Smith & Keinath 2004, Patla & Keinath 2005).

James Ryegrass Allotment

The James Ryegrass does not possess any of the habitat features discussed for the three amphibian species. Therefore, it is highly unlikely that they would occur within the allotment given the lack of suitable habitat.

Webb Draw Pasture Allotment

Permanent shallow water sources exist, however they are limited in size and associated with small year round springs and sub-irrigated meadows. Therefore, the quality and abundance of larval and forage habitat is limited. There have been no documented observations within the allotment for any of the discussed species (WYNDD 2014).

Ball Horse Creek Allotment

There are no natural springs or standing water bodies in the allotment. The only riparian area present is a small sub-irrigated upland meadow. The absence of standing water or suitable vegetation at this meadow suggests that it does not have the potential to provide larval and forage habitat. Therefore, it is highly unlikely that they would occur within the allotment given the lack of suitable habitat. No additional analysis of impacts will be conducted.

Trumpeter Swan

Trumpeter swans are present within the PFO. They have been periodically released on public land in the New Fork Potholes area. In addition several ponds have been constructed throughout the field office to improve nesting and breeding habitat opportunities.

James Ryegrass Allotment

No suitable habitat exists within the James Ryegrass Allotment. The entire allotment consists of upland sagebrush habitat. This species will not be analyzed further for this allotment.

Webb Draw Pasture Allotment

The sub-irrigated meadows and natural springs found in the Webb Draw Pasture do not currently provide and lacks the potential to meet habitat suitability requirements for trumpeter swans. Immediately adjacent to the allotment are man-made ponds constructed on private land for the purpose of improving nesting habitat and opportunities. This pond has been occupied for the last several years.

Ball Horse Creek Allotment

No suitable habitat exists within the Ball Horse Creek Allotment. The entire allotment consists of upland sagebrush habitat with the exception of a small sub-irrigated meadow. This meadow does not currently provide and lack the potential to meet habitat suitability requirements for trumpeter swans. This species will not be analyzed further for this allotment.

Long-billed Curlew

Long-billed curlews usually nest in prairie and grassy meadows near water but occasionally choose adjacent dry upland sites. Nesting and breeding has been documented within the PFO and along the Horse Creek corridor (Orabona, Rudd, Grenier, Walker, Patla, & Oakleaf, 2012) (WYNDD 2014). Key spring and summer forage consists of insects associated with agricultural fields and meadows.

James Ryegrass Allotment

Given the prevalence of upland sagebrush habitat and distance from suitable riparian habitats it is unlikely that long-billed curlews would utilize the James Ryegrass allotment. This species will not be analyzed further for this allotment.

Webb Draw Pasture Allotment

Within the allotment the sub-irrigated meadows and springs could provide forage habitat. A single nesting occurrence of long-billed curlew was documented in 2005 in the southeast corner of the allotment (WYNDD 2014). To date no additional nesting or breeding behaviors have been confirmed. The adjacent riparian habitat along the Horse Creek corridor likely provides much higher quality nesting and foraging habitat compared to the Webb Draw Pasture. For this reason long-billed curlews would likely preferentially select the riparian habitat outside of the allotment.

Ball Horse Creek Allotment

Given the prevalence of upland sagebrush habitat and distance from suitable riparian habitats it is unlikely that long-billed curlews would utilize the Ball Horse Creek allotment. The small sub-irrigated meadow is unlikely to provide substantial habitat. This species will not be analyzed further for this allotment.

Table 26: Summary of Threatened and Endangered and BLM Sensitive species their habitats and potential presence within the James Ryegrass, Ball Horse Creek, and Webb Draw Pasture allotments.

Common Name	Special Status	General Habitat	Presence in James Ryegrass, Webb Draw Pasture, and Ball Horse Creek, Allotments
MAMMALS			
Black-Footed Ferret	Federally Listed Endangered Species - BLM Sensitive	Closely associated with prairie dog towns of 12.5 acres or larger (burrows used for denning and shelter) and rely almost entirely on these rodents as prey.	NOT PRESENT - Prairie dog towns have not been documented within any of the allotments. All areas have been blocked cleared from survey by USFWS.
Canada Lynx	Federally Listed Endangered Species - BLM Sensitive	High-elevation forested areas that support ample populations of snowshoe hares and other preferred prey species.	NOT PRESENT – There is no suitable habitat within or adjacent to the James Ryegrass, Ball Horse Creek, or Webb Draw Pasture allotments.

Grizzly Bear	Federally Listed Endangered Species - BLM Sensitive	Montane forests	NOT PRESENT - Grizzly Bears are known to occur in the Upper Green River Basin, primarily on USDA Forest Service lands but occasionally have roamed onto BLM administered lands in the past. None of the three allotments provide suitable Grizzly Bear habitat.
Gray Wolf	Federally Listed – Experimental Non-essential	Greater Yellowstone Ecosystem	UNLIKELY – To date there has been no evidence of wolf activity in the James Ryegrass or surrounding area. Wolves have been observed in the Wyoming range and associated foothills to the west of the project area.
White-tailed Prairie Dog	BLM Sensitive	Basin-prairie shrub, grasslands	NOT PRESENT - Currently there are no known white-tailed prairie dog towns within the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Long-Eared Myotis	BLM Sensitive	Frequently found roosting under the bark or within cavities of ponderosa pine trees during the daytime, although it can also be found at much higher and lower elevations in deciduous forests and in caves.	NOT PRESENT - The long-eared myotis has been reported throughout the PFO (Orabona, Rudd, Grenier, Walker, Patla, & Oakleaf, 2012). There is no suitable roosting habitat within the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Idaho Pocket Gopher	BLM Sensitive	Can be found in subalpine mountain meadows, shrub steppes, and various grasslands, but appears to favor rocky, shallow soils.	NOT PRESENT – In 1911 multiple specimens were collected approximately 4 miles west of the allotments. To date no recent observations have been documented within the allotments (WYNDD 2014)
BIRDS			

Western Yellow-Billed Cuckoo	Federally Listed Threatened - BLM Sensitive	Large tracts of deciduous riparian woodlands with dense, scrubby undergrowth. Cuckoos frequently use willow thickets for nesting and they forage among large cottonwoods (Bennett & Keinath, 2001).	NOT PRESENT – Given the lack of suitable habitat It is unlikely that the Western Yellow Billed Cuckoo exists in the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments. The surrounding area along Horse Creek does support suitable habitat but there are no recorded observations.
Northern Goshawk	BLM Sensitive	Conifer and deciduous forests	NOT PRESENT - The nearest goshawk observations have been made in the Wyoming Range west of the project area. With limited habitat potential it is unlikely goshawks utilize the allotments.
Ferruginous Hawk	BLM Sensitive	Basin prairie shrub, grassland, rock outcrops	NOT PRESENT - To date raptor surveys have not documented nesting activity within the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments. Suitable nesting and foraging habitat exists within the area.
Bald Eagle	BLM Sensitive	Primarily along rivers, streams, lakes and waterways	POSSIBLE – To date raptor surveys have not documented nesting activity within the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments. Bald Eagle nests and observation locations exist along Horse Creek and use of the allotment areas during soaring and foraging activities is possible.
Burrowing Owl	BLM Sensitive	Burrowing owls nest in grassland, scrub, and steppe areas, usually using burrows excavated by other animals such as the prairie dog (Martin, 1973).	NOT PRESENT – No documented nesting has occurred in the James Ryegrass, Ball Horse Creek, and Webb Draw Individual allotments.
Mountain plover	BLM Sensitive	Short grass prairie/ sparse vegetation.	NOT PRESENT - Potential habitat does not exist in the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments and there are no documented

			sightings.
White-Faced Ibis	BLM Sensitive	Marshes and wet meadows	POSSIBLE - Confirmed as nesting in the PFO (Orabona, Rudd, Grenier, Walker, Patla, & Oakleaf, 2012) a flock of birds was observed in 2014 by WGFD personnel utilizing the private land adjacent to the Webb Draw Pasture Allotment. These birds could stop over at local stock reservoirs but are likely not found nesting in the assessment area.
American Peregrine Falcon	BLM Sensitive	Peregrine falcons nest on high cliffs, trees, high riverbanks, towers, and tall buildings (WGFD 2010).	NOT PRESENT - This species is considered uncommon in the PFO, but some nesting has occurred (Orabona, Rudd, Grenier, Walker, Patla, & Oakleaf, 2012). Peregrine falcons have been released on public lands near the Upper Green River. There is no suitable habitat within the James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Special Status Fish Species			
Colorado pikeminnow	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Razorback sucker	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Bonytail	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.

Humpback chub	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Yellowstone Cutthroat Trout	BLM Sensitive	Yellowstone drainage, small mountain streams and large rivers.	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Bluehead Sucker	BLM Sensitive	Bear, Snake, and Green drainages, all waters	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Flannelmouth Sucker	BLM Sensitive	CO river drainage, large rivers, streams and lakes	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Roundtail Chub	BLM Sensitive	CO river drainage, mostly large rivers also streams and lakes	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Northern Leatherside Chub	BLM Sensitive	Bear, Snake and Green River drainages, clear cool streams and pools	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Hornyhead Chub	BLM Sensitive	Lower Laramie and North Laramie River Watersheds in small to medium sized, moderate to low gradient, clear gravelly streams, preferring pools and slow to moderate runs and is often associated with aquatic plants. Requires gravel areas free of silt for spawning.	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.
Fine-spotted Snake River Cutthroat Trout	BLM Sensitive	Snake R. drainage, clear, fast water	NOT PRESENT - No habitat within James Ryegrass, Ball Horse Creek, or Webb Draw Individual allotments.

3.1.13 Air Resources

Air quality, air quality related values (AQRVs), such as visibility and atmospheric deposition, and climate change are the components of air resources which the BLM must consider and analyze to address the potential effects of authorized activities on air resources as part of the planning and decision making process. The Pinedale Resource Management Plan (RMP, November 26, 2008) addresses air quality issues, impacts, and potential mitigations (Sec. 2.3.1, Air Quality Management, p. 2-10).

Criteria Air Pollutants

Criteria Air Pollutants are those for which national concentration standards have been established. Pollutant concentrations that are greater than the established standards pose a risk to human health and/or welfare. Five of the six criteria pollutants for which the EPA has established NAAQs are:

- Carbon monoxide (CO): CO is an odorless, colorless gas formed during combustion of any carbon-based fuel, such as during the operation of engines, fireplaces, and furnaces. Because carbon monoxide data are generally collected only in urban areas where automobile traffic levels are high, recent data are often unavailable for rural areas.
- Nitrogen dioxide (NO₂): NO₂ is a highly reactive compound formed at high temperatures during fossil fuel combustion. During combustion, nitrogen monoxide (NO) is released into the air which reacts with oxygen in the atmosphere to form NO₂. NO plus NO₂ forms a mixture of nitrogen gases, collectively called nitrogen oxides (NO_x). NO_x emissions can convert to ammonium nitrate particles and nitric acid, which can cause visibility impairment and atmospheric deposition. NO_x can contribute to “brown cloud” conditions and ozone formation, and can convert to ammonium (NH₄), nitrate particles (NO₃), and nitric acid (HNO₃). Internal combustion engines are a major source of NO_x emissions.
- Ozone: Ozone is a gaseous pollutant that is not emitted directly into the atmosphere but is formed in the atmosphere from complex photochemical reactions involving NO_x and reactive volatile organic compounds (VOCs). Common sources of VOCs include automotive and heavy equipment emissions, paints and varnishes, oil and gas operations, and wildfires. Ozone is a strong oxidizing chemical that can burn the lungs and eyes and damage plants. Ozone is a severe respiratory irritant at concentrations in excess of the federal standards.

Particulate matter (PM): PM is small particles suspended in the air that settle to the ground slowly and may be re-suspended if disturbed. Ambient air particulate matter standards are based on the size of the particle. The two types of particulate matter are:

PM₁₀ (particles with diameters less than 10 micrometers): small enough to be inhaled and capable of causing adverse health effects.

PM_{2.5} (particles with diameters less than 2.5 micrometers): small enough to be drawn deeply into the lungs and cause serious health problems. These particles are a primary cause of visibility impairment.

Sulfur dioxide (SO₂) and sulfates (SO₄): SO₂ and SO₄ form during combustion from trace levels of sulfur in coal or diesel fuel. SO₂ also participates in chemical reactions and can form sulfates and sulfuric acid in the atmosphere.

Prevention of Significant Deterioration (PSD) Increments: PSD relates to Class I areas (wilderness areas with protected air quality status due to their pristine condition) and Class II areas (areas with protected air quality status due to their sensitive condition). The PSD program goal is to maintain pristine air quality required to protect public health and welfare from air pollution effects and “to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreation, scenic or historic value.

Ozone

Air quality in the Pinedale Field Office (PFO) meets the WAAQS and the NAAQS, with the exception of ozone. Several of Sublette County’s ambient air monitoring stations recorded ozone concentrations above the current ozone standard of 75 parts per billion (ppb) over an eight-hour period on several occasions.

Although elevated ozone occurs throughout the year, the occurrence of Upper Green River Basin (UGRB) high ozone events from early February to late March contrasts with the more typical summer occurrences in other areas of the United States. Winter ozone becomes elevated in the UGRB when there is a presence of ozone-forming precursor emissions including NO_x and VOCs coupled with strong temperature inversions, low winds, snow cover, and bright sunlight. Ozone action days are issued by the WDEQ when weather conditions appear conducive for the formation of ozone. Ozone levels are measured at five long-term monitoring stations in the UGRB: Big Piney, Pinedale, Daniel South, Boulder and Juel Spring.

On April 30, 2012, the EPA formally designated the UGRB as a ‘Marginal’ ozone nonattainment area, effective July 20, 2012. As a result of the nonattainment designation, the BLM must comply with General Conformity regulations in 40 CFR 93 subpart B and Chapter 8, Section 3 of the Wyoming Air Quality Standards and Regulations (WAQSR) for any federal action within the designated nonattainment area.

The BLM is required to conduct a General Conformity analysis and cannot approve any action that would cause or contribute to a new violation of the NAAQS or increase the frequency or severity of any existing violation. A formal General Conformity determination must be conducted for any action where the total of direct and indirect emissions for the proposed action exceeds the de minimis levels specified in 40 CFR 93.153(b) and WAQSR Chapter 8, Section 3. For projects located in a marginal ozone nonattainment area, this de minimis level is 100 tons per year (tpy) of VOC or NO_x. The proposed action cannot be implemented until a determination of conformity is achieved. For projects that are below the de minimis threshold level of 100 tpy for NO_x or VOC, the BLM must complete a conformity analysis and demonstrate that the proposed project will not exceed the de minimis threshold level and is therefore exempt from requiring a conformity determination.

In general, NO_x emissions from production and drilling have declined significantly from 2008 levels. These reductions are due to voluntary and mandatory emission reduction measures

implemented by operators since 2008. The BLM continues to work collaboratively with the WDEQ, the U.S. Forest Service, EPA, and local communities to address and mitigate air quality impacts from its proposed management actions.

Visibility

The Clean Air Act includes “as a National Goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I federal areas in which impairment results from manmade air pollution.” The CAA gives federal managers the affirmative responsibility, but no regulatory authority, to protect air quality-related values, including visibility, from degradation. A wide variety of pollutants can impact visibility, including PM, NO₂, NO₃, and SO₄. Fine particles suspended in the atmosphere decrease visibility by blocking, reflecting, or absorbing light. Regional haze occurs when pollutants from widespread emission sources become mixed in the atmosphere and travel long distances.

Visibility is quantified in terms of the deciview (dv), which is defined as a change in light extinction, with one dv representing the minimal perceptible change in visibility to the human eye, and in terms of the Standard Visible Range (SVR), which is defined as the greatest distance that a standard object can be seen by the unaided eye. Figure 3 displays annual average visibility in deciviews for the 20 percent best days, 20 percent worst days, and all days for each year during the period 2000-2010 for the Bridger Wilderness IMPROVE site.

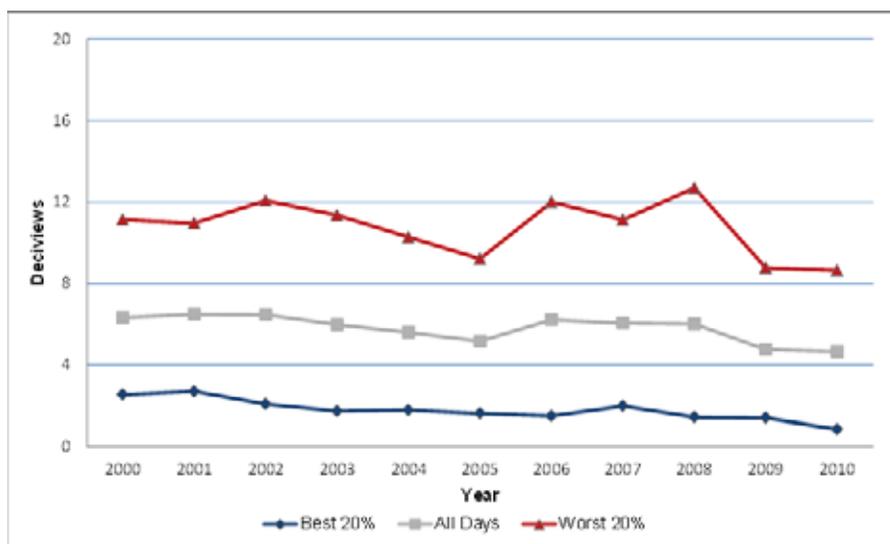


Figure 3. Annual Average Visibility (deciviews).
Source: VIEWS 2012

Deposition

Through a process called atmospheric deposition, air pollutants fall out of the atmosphere and are deposited on terrestrial and aquatic ecosystems. These pollutants are deposited via wet deposition (precipitation) and dry deposition (gravitational settling of particles and gaseous pollutants that adhere to soil, water, and vegetation). Substances deposited include:

- Acids, such as sulfuric acid and nitric acid (HNO₃) (referred to as “acid rain”)
- Air toxins, such as pesticides, herbicides, and VOCs
- Nutrients, such as nitrate and ammonium (NH₄⁺)

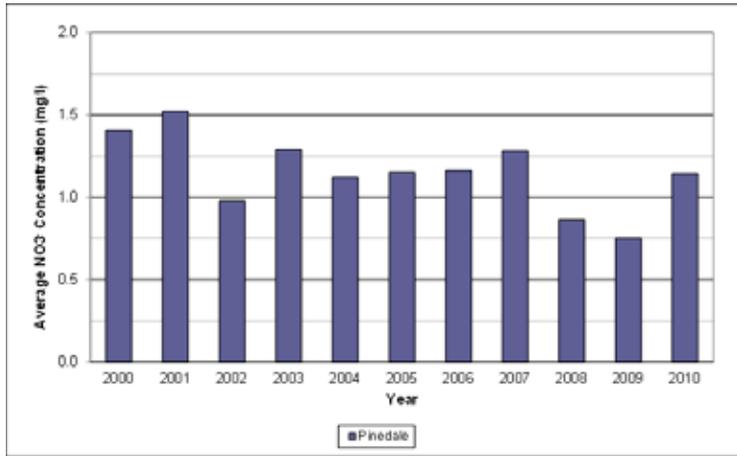
Deposition is reported as the mass of material deposited on an area (kilogram per hectare per year). Total deposition refers to the sum of airborne material transferred to the Earth's surface by both wet and dry deposition.

Atmospheric deposition of nitrogen and sulfur compounds can cause acidification of lakes and streams. One expression of lake acidification is a change in acid neutralizing capacity (ANC), which is a lake's ability to resist acidification from atmospheric deposition. ANC is expressed in units of micro-equivalents per liter ($\mu\text{eq/l}$). Lakes with ANC values of 25 to 100 $\mu\text{eq/l}$ are considered sensitive to atmospheric deposition; lakes with ANC values of 10 to 25 $\mu\text{eq/l}$ are considered very sensitive; and lakes with ANC values of less than 10 are considered extremely sensitive.

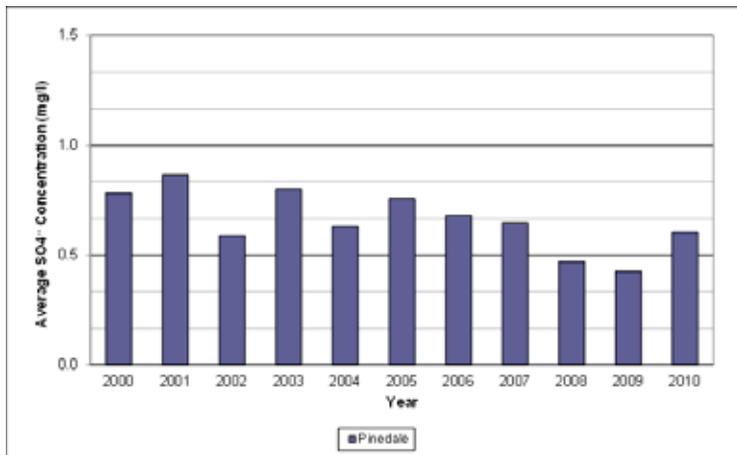
Site-specific lake water chemistry background data (pH, ANC, total bulk deposition of nitrate, sulfate, etc.) have been collected by the U.S. Forest Service (USFS) in Hobbs and Black Joe lakes in the Bridger Wilderness area to determine the chemical deposition of particles in the air, which are washed out with precipitation. These sites are sampled every two weeks in the summer, and every four weeks in the winter. The Rocky Mountain Research Station analyzes samples and the USFS reviews and summarizes the data to complete an annual report for the WDEQ and industry. These sample sites are co-located with long-term lake Sampling (LLS) sites to allow study of the cause and effect of pollutants. The USFS has identified a specific methodology to determine acceptable changes in ANC, which are used to evaluate potential air quality impacts from deposition at acid sensitive lakes. They have established a level of acceptable change (LAC) of no greater than a 1 $\mu\text{eq/l}$ change in ANC (from human causes) for lakes with existing ANC levels less than or equal to 25 $\mu\text{eq/l}$. A limit of 10 percent change in ANC reduction was adopted for lakes with an ANC greater than 25 $\mu\text{eq/l}$.

Atmospheric deposition is measured at NADP (wet deposition) and CASTNet (dry deposition) sites in Pinedale. Wet deposition is characterized by the concentration of NO_3^- , SO_4^{2-} , and NH_4^+ in precipitation samples. Figure 4 (a)-(c) displays annual average concentration data for NO_3^- , SO_4^{2-} , and NH_4^+ from precipitation samples for each year during the period of 2000-2010 for the NADP site. For each year, the data represent the average concentration based on all sampling periods. Units are milligrams per liter (mg/l). The data indicate a decrease over time for all three species in precipitation samples during this period. The downward trend is statistically significantly only for the sulfate ion.

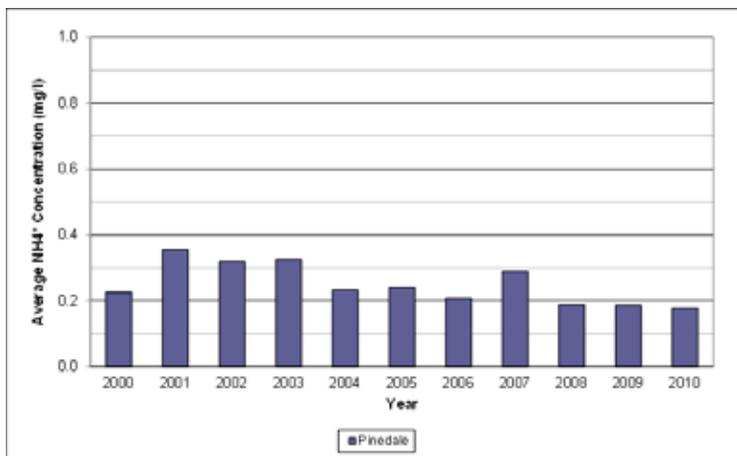
Figure 4. Annual Average Concentration in Wet Deposition (mg/l) for the NADP Monitoring Site at Pinedale.



(a) Nitrate Ion Concentration



(b) Sulfate Ion Concentration



(c) Ammonium Ion Concentration

Climate Change

Climate change refers to any significant change in the measure of climate, such as precipitation and temperature, lasting for an extended period of time (decades or longer). Temperatures in western Wyoming are expected to increase by 0.25°F to 0.4°F per decade and precipitation is expected to decrease by 0.1 to 0.6 inches per decade.

Several activities that occur in PFO area contribute to climate change, including: large wildfires, activities using combustion engines, changes to the natural carbon cycle, changes to radioactive forces and reflectivity, and emissions of greenhouse gases (GHGs). GHGs, including CO₂, as well as, methane (CH₄), nitrous oxide (N₂O), and fluorinated gases, are created and emitted through human activities, including oil and gas development, and agricultural activities. Without additional meteorological monitoring systems, it is difficult to determine spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

Regional air quality is influenced by the interaction of meteorology, climate, the magnitude and spatial distribution of local and regional air pollutant sources, and the chemical properties of emitted air pollutants.

The monitoring and enforcement of air-quality standards are administered by the Wyoming Department of Environmental Quality-Air Quality Division (WDEQ). Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS) identify maximum limits for concentrations of criteria air pollutants at all locations to which the public has access. The WAAQS and NAAQS are legally enforceable standards. Concentrations above the WAAQS and NAAQS represent a risk to human health that, by law, require public safeguards be implemented. State standards must be at least as protective of human health as federal standards, and may be more stringent than federal standards, as allowed by the Clean Air Act (CAA). Currently, the WDEQ-AQD does not regulate greenhouse gas emissions other than for permitted major stationary sources.

Pollutant concentration can be defined as the mass of pollutants present in a volume of air and is reported in units of micrograms per cubic meter (µg/m³), parts per million (ppm), or parts per billion (ppb). The state of Wyoming has used monitoring and modeling to determine compliance with WAAQS and NAAQS. In addition, other monitoring systems are operational in the Pinedale area, including the EPA's Clean Air Status and Trends Network (CASTNET) and Wyoming Air Resources Monitoring System (WARMS). Monitoring data from these systems have been determined to be representative of the area. There are six WDEQ sites, two NADP sites, two IMPROVE sites and one WARMS/CASTNET site within the project area.

Air quality is determined by comparing ambient air levels with the concentration limits of the NAAQS or WAAQS for each criteria pollutant. Geographic areas that exceed NAAQS are designated as non-attainment for the specific pollutant that is in violation of the standard, whereas areas that meet NAAQS are designated as being in attainment for the criteria pollutant (USEPA 2012a). Sublette County is in nonattainment for 8-hour ozone (USEPA 2012c).

4.0 ENVIRONMENTAL EFFECTS

4.1 Introduction

The purpose of this chapter is to analyze and disclose the environmental consequences of the Proposed Action and alternatives. The analysis is guided by the regulations set forth by the Council on Environmental Quality (CEQ), which call for analysis of the direct, indirect, and cumulative impacts of the Proposed Action and the alternatives (40 Code of Federal Regulations [CFR] 1500-1508). Direct effects are those caused by an action and occurring at the same time and place as the action (e.g., removal of vegetation when animals are grazing).

4.1.1 Direct and Indirect Effects

Indirect effects are caused by the action but typically occur at later time or location than the action area (e.g., the effects on plant communities of grazing by animals over many years or decades). Cumulative impacts are those that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Direct and indirect impacts are described together under each resource section and cumulative impacts are presented in Section 4.2 (*Cumulative Effects*).

Direct impacts are generally attributable to implementation of an alternative that affects a specific resource, and generally occur at the same time and place. Indirect impacts can result from one resource affecting another (e.g., soil erosion and sedimentation affecting water quality) or can occur in a different time or place, but can be reasonably expected to occur. Short-term impacts result in changes to the environment that are stabilized or mitigated rapidly, do not result in any long-term effects, and typically occur for less than 5 years. Long-term impacts result in lasting effects that typically occur for more than 5 years.

4.1.2 Cultural and Paleontological Resources

Proposed Action

Livestock grazing is not without effect on cultural resources. One report by the BLM notes that damage to archeological sites is negligible except in areas where cattle concentrate, such as at stock tanks and corrals. In those locations, damage to stone artifacts can be profound, ranging from nicking and breakage to both vertical and horizontal displacement. Soil compaction can also occur in heavily trampled areas, which has the potential of damaging or mixing data levels (U.S. BLM 1979:3–30-31; see also Osborn & Hartley 1991).

Livestock grazing is known to trample, dislocate and sometimes destroy certain types of cultural resources (Gifford-Gonzales 1985). Compression and trampling caused by livestock can negatively affect fossils, which can be directly related to effects on cultural remains. Livestock use can lead to dislodging, breakage and loss of provenance (Ross 1976) of individual fossils/artifacts and destruction of known and undiscovered fossil localities or archaeological sites. “Badlands” (areas containing high amounts of shale and clay) are the most susceptible to damage and erosion problems affecting fossils. Cultural materials can often be found in sandy areas that are affected in the same way as fossils in “Badlands” and are susceptible to erosional degradation. Historic remains that tend to be surficial are highly vulnerable to breakage and dislocation due to trampling (Gifford-Gonzalez 1985). Areas of sandstone and limestone outcrops are sometimes used by animals as “rubbing areas” and may have in the past served as

shelter for indigenous peoples and rock art locations, these areas may also contain fossil localities. Concentrating animal use in outcrop areas can also dislodge, rub out, and break cultural/fossil remains. Such areas should be inventoried prior to any development including fence placement, or trail and road construction/reclamation. Water wells/tanks/troughs and livestock supplement locations should not be placed within known cultural sites or fossil localities due to the same effects mentioned above in other areas of animal concentration.

In order to assess potential impacts of grazing on cultural material, 411.7 acres of additional Class III inventory was conducted in 2014 in areas where cattle tend to concentrate (fence lines, water sources, and identified livestock supplement locations as reported by the permittee) and the tops of landforms likely to contain significant cultural features such as rock cairns, rings, or alignments. In addition, 41.2 acres of Class III inventory was conducted for three planned range improvements. The range improvements included one new water well, a new fenceline, and a small enclosure. Altogether, a total of 452.9 acres of Class III inventory was performed within the allotments by BLM-PFO staff. As a result of this additional inventory, nine new prehistoric sites and two isolated resources (one prehistoric and one historic) were identified and recorded by PFO cultural staff. Of these nine sites, three were determined eligible for the NRHP by PFO cultural staff; all three of these sites were comprised of stone rings (two with associated cairns) and all were found atop landforms that were considered likely to contain such sites. None of these sites appeared to have suffered any impacts to grazing. The remaining six sites were determined to be ineligible. The six ineligible sites were found along allotment fence lines. No impacts from grazing to five of these six sites could be conclusively identified due to the dynamic nature of their location on slopes subject to alluvial and/or colluvial action. The sixth ineligible site, a stone cairn, was not impacted by grazing. No cultural materials were noted during the inventories for the range improvements.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Impacts would be similar to those described for the proposed action. Changing seasons of use would not change the impacts on these resources.

No Livestock Grazing Alternative

The impacts described for the Proposed Action would not take place under this alternative. No trampling, breakage, or movement of cultural or paleontological materials would occur due to the presence of livestock.

4.1.3 Economic and Social Impacts

Proposed Action

While livestock grazing is no longer the primary economic activity of Sublette County or Wyoming, it has been the major land use in James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments. The permittee is operating a family ranch that has been in existence for over 57 years. Ranching is an important use for economic, social, and historic terms. The proposed action would provide for the stability of the ranching operation, to the extent that continued access to public lands for grazing would provide that stability. Other factors, including market prices, weather, family dynamics, and local and national economic and cultural forces

could also impact the stability of ranching in James Ryegrass and Webb Draw Pasture Allotments.

The proposed action would result in an increase of active grazing use by 1% in the James Ryegrass Allotment due to the incorporation of a portion of the former Ball Horse Creek Allotment, and authorizes 35 additional cattle for an additional 70 AUMs. A total of 798 AUMs would be active to support grazing for 398 head of cattle from June 1 through July 31. The remaining 17 AUMs of the Ball Horse Creek Allotment would be suspended. With the increase in the number of cattle within the James Ryegrass Allotment it increases the opportunity for higher livestock sales and income to the permittee. The new water well would make more beneficial use of the grazing permit and should result in some economic benefit.

For both allotments flexibility is built into the grazing permit and would result in economic benefit. The flexibility allows for the permittee changing the permitted number of livestock and/or the date of livestock turnout as long as it does not exceed Active AUMs. This term and condition allows flexibility to adjust livestock numbers and livestock move dates among pastures in response to climatic conditions and permittee needs. After the fact grazing billing would allow payment at the end of the grazing season allowing even more flexibility during the grazing season based on forage and water availability.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Impacts would be similar to those described for the proposed action, with the exception that the Ball Horse Creek Allotment and associated AUMs would not be incorporated into the James Ryegrass Allotment. The proposed water well, sub-irrigated meadow enclosure and new fence alignment would not be constructed. However, the ranching operations would continue to require goods and services provided by local businesses and the county would continue to have stable agriculture.

Recreation use will continue and would improve the local economy.

No Livestock Grazing Alternative

This alternative would eliminate permitted AUMs on these allotments for 10 years on the public land. Eliminating livestock grazing would impact the grazing permittee and businesses where ranch supplies are purchased. The permittee would have to move their livestock to other private land and possibly outside of Sublette County, or sell their livestock. Loss of livestock grazing on these allotments could render the ranch non-viable economically. Although it is not possible to say what other sources of income are available to the grazing permittee, it is safe to predict that the impact, both economically and socially, to those who lose the grazing permit could be devastating. In addition to a source of income, ranching is a way of life for the permittee, and its loss would cause impacts on family dynamics, career paths, individual economic status, and the collective culture.

On a larger scale, the economic impact of loss of livestock grazing would likely be apparent in Sublette County, detectable in western Wyoming, and not detectable on a national scale.

Existing recreational use would continue or increase with improved resource conditions resulting in increased recreational in the local economy and an increase in oil and gas activity would improve the local economy.

4.1.4 Livestock Grazing

Proposed Action

Under the proposed action, the grazing operator would be able to renew the lease for the James Ryegrass (12102) and Webb Draw Pasture (02101) Allotments and would continue to authorize grazing use. However, stipulations would be added to better define the limits of grazing management and the kind and amount of flexibility and the allowed use would help the BLM achieve land health standards and other resource objectives.

This alternative provides flexibility to livestock operations by allowing the permittee to adjust their stocking density or turnout dates based on climatic and resource conditions. The new permitted active use would increase from 728 AUMs to 798 AUMs (Table 3 and 4).

Impacts to health and vigor of native perennial grasses would occur from livestock grazing during the growing season. However, the deferred grazing system in the James Ryegrass Allotment would allow for recovery from these impacts, by deferring grazing during the critical growing period 1 out of every 3 years would ensure that key plant species have the time to promote plant vigor, seed production, seedling establishment, root production, and litter accumulation. This is also true of adjusting the grazing season in the Webb Draw Pasture Allotment. Trailing use would be restricted to only three days in the Webb Draw Pasture during the hot season. The restricted trailing would enable increased production of warm season grasses and riparian plants along the riparian areas.

The proposed action in James Ryegrass would complement grazing by providing a new watering source on BLM lands since the existing water gap that is on private land is being fenced off and will not be usable by livestock in the allotment. The adequate supply of water at this site could assist in keeping grazing animals in a better distribution pattern during the season of use. The proposed sub-irrigated meadow exclosure would exclude livestock grazing from the sub-irrigated meadow that would provide the BLM with guidance on what these sites potential could be without livestock grazing.

The proposed action would continue or work towards meeting the Wyoming Rangeland Health Standards and meet the objectives from the PRMP and those objectives outlined in section 1.1.

There would be no impacts to the remaining portion of the Ball Horse Creek allotment, which would remain unpermitted for livestock grazing.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Livestock grazing will continue but with no grazing flexibility to livestock operations by not allowing the permittee to adjust their stocking density or turnout dates based on climatic resource conditions. The permitted use would remain at 1,145 AUMs, the proposed water well wouldn't

be constructed and the additional stipulations as found in the proposed action would not be added to define the limits of grazing management and the allowed use. The permittee could still voluntarily do a deferred grazing system in James Ryegrass and would ensure that key plant species have time for reproduction and restoration of plant vigor. However, in the Webb Draw Pasture Allotment the season of use wouldn't change and would run May 20 to June 25.

There would be no impacts to the Ball Horse Creek Allotment since it would not be incorporated into the James Ryegrass Allotment and would remain unpermitted for livestock grazing.

The no action alternative would continue to meet the upland standards for rangeland health but standard 2 would not be met and would not meet the PRMP livestock and riparian objectives.

No Livestock Grazing Alternative

If the no grazing alternative were selected, one would expect to see the most drastic change in vegetation. Impacts to plants during the growing season from grazing would only exist from wild herbivores and insects. Growing season impacts from only insects and wild herbivores would allow native perennial grasses to complete their growth cycle with a reduced impact due to non-native herbivory.

4.1.5 Vegetation

Proposed Action

The proposed action is expected to have an both short term negative and long term positive effects on vegetation resources. Short term impacts would result from grazing of vegetation and occasional trampling of vegetation by livestock moving through the allotments. Proposed action design features including a deferred grazing rotation in the James Ryegrass Allotment, changing the season of use in the Webb Draw Pasture, limiting the trailing period during the hot season, and setting utilization levels could result in maintaining or improving plant health, reproduction, diversity, and composition by allowing the plants to maintain and continue photosynthetic processes to initiate regrowth for recovery, improve plant health and vigor and would meet the objectives for the allotments as well the PRMP objectives outlined in section 1.1.

Installation of the new water well and troughs would cause some trampling and loss of vegetation in the immediate area of the well and troughs. These impacts could also be seen adjacent to the new fence and sub-irrigated meadow enclosure. The new water source could change the distribution of livestock, leading to grazing of plants in areas that have not been recently grazed. This could lead to changes in the plant community in these areas. These changes would be offset to some extent by improvements in plant communities in other areas of the allotment where grazing pressure is reduced.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Under the No Action Alternative there would be no improvement in the condition of vegetation resources in the James Ryegrass or Webb Draw Pasture Allotments. Continued spring use could further reduce the ability of the native grasses to recover. Along with continuing drought conditions, the native habitat could be negatively affected.

There would be no loss of vegetation around the new water well, fence realignment or enclosure since they would not be constructed.

The no action alternative would renew the permit for grazing of domestic livestock under the same terms and conditions of the current grazing permit. Continued spring use, along with natural vegetation succession, has contributed to the current condition of plant communities described in section 3.1.6 where shrubs are dominant in the community and perennial mid-stature bunchgrasses are less dominant than expected for the ecological sites present.

With no changes in grazing management, plant communities in stable states would be expected to remain in those states. Sagebrush and shrubs would remain at levels above what is described in the reference states for the ecological sites in the allotments, as is suggested for the plant community states represented in the majority of the assessment area.

No Livestock Grazing Alternative

Elimination of livestock grazing removes impacts to vegetation resources resulting from permitted use. Defoliation of herbaceous and shrub species would be limited to that which occurs from insects and native herbivore use.

Over the long term, the no grazing alternative could improve the plant community vigor by allowing the native grasses to produce greater above ground foliage and increase the root reserves throughout the season. Wildlife could consume some of this extra vegetative growth, but overall the condition of the native habitat would be improved, which would be a benefit for wildlife. This would also help prevent upland erosion through increased vegetative cover, and improving water quality.

However, this alternative alone would not be sufficient to reduce the dominance of shrubs in the vegetation community.

This alternative would have a more beneficial impact when compared to the proposed action.

4.1.6 Soils

Proposed Action

The proposed action would authorize grazing during the late spring and summer accordance with the mandatory and other terms and conditions as outlined in Section 2.2.

Active AUMs would increase by 1 percent in the James Ryegrass Allotment and would not damage the growth and vigor to native perennial grasses because the plants would be deferred 1 out of every 3 years during the critical growing season and would maintain or enhance their reproduction capability. This would also promote soil stability, soil cover, decrease bare ground and watershed function. Native perennial grasses would increase infiltration, provide litter and aid in hydrologic function and nutrient cycling.

Management would continue in the Webb Draw Pasture Allotment as a custodial allotment, but with flexibility as outlined in the other terms and conditions in the permit. The season of use was adjusted as well as the trailing period of use which would benefit soils by reducing livestock

concentration along adjacent upland areas near the riparian areas that could promote sediment movement into the riparian areas from the concentrated use.

Soil erosion may occur along cattle trails. The actual amount of erosion that could occur would depend on wind, snow melt, rainfall, soil erodibility, slope length and gradient, plant cover, and erosion control practices. Soil erosion would also negatively impact soil health and productivity.

Concentrated activity along cattle migration routes would cause compaction which could damage soil structure, minimize infiltration and increase runoff potential.

Loss of plant cover due to heavier grazing in livestock concentration areas could increase bare soil, which would increase erosion potential. Erosion could result in sediment loading and nutrient loading from animal waste into perennial surface water bodies. Compaction could result in reduced vegetation restoration, by disallowing new shoots to penetrate soil and reduce plant uptake of water because of reduced water infiltration due to ponding and surface runoff.

The proposed well and associated watering facility would be constructed on slopes less than 5 percent; thus, minimal erosion would be expected to occur. Rutting may occur where slopes are greater than ten percent and during wet conditions where cross country travel would occur. Compaction may occur around the water facility, sub-irrigated meadow enclosure, and new fence line due to livestock and wildlife use and may also occur in areas where cross country travel has occurred. Compaction in both cases would likely increase surface runoff and erosion. Erosion and compaction would be minimized by graveling areas around the water troughs. Allowing vegetation to grow where cross country travel has occurred would reduce soil loss and compaction. Cross country travel would occur during drilling and installation of the well, associated facilities and enclosure and fence construction.

The other terms and conditions that are applied to the permit for upland and riparian areas would be beneficial to improve or maintain soil stability, hydrologic function, plant productivity, and nutrient cycling would be a positive affect over the life of the permit.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

The no action alternative would continue to authorize grazing with the same terms and conditions that are currently in place.

Impacts would be similar to those described in the proposed action. Grazing would continue to occur during the critical growing season (April to June) and native perennial grasses would experience a decrease in soil moisture that wouldn't provide the opportunity for regrowth before the dormant period. With livestock use during the active growing season, improvements to soil and hydrologic function would be minimal or decline and may not provide adequate opportunity for recovery of plant health and vigor following repeated years of active growing season use since the deferred grazing rotation wouldn't be implemented.

Since grazing would occur during the critical growing season with limited deferment and flexibility and other terms and conditions would not be built into the permit little to no improvement to ecological function and site potential because proper nutrient cycling, hydrologic cycling, and energy flow would not be improved.

Soil erosion may occur along cattle trails. The actual amount of erosion that could occur would depend on wind, snow melt, rainfall, soil erodibility, slope length and gradient, plant cover, and erosion control practices. Soil erosion would also negatively impact soil health and productivity.

Concentrated activity along cattle migration routes would cause compaction which could damage soil structure, minimize infiltration and increase runoff potential.

No Livestock Grazing Alternative

The no grazing alternative would eliminate all grazing in the James Ryegrass Allotment and the Webb Draw Pasture Allotment for 10 years. This alternative would provide for the most unimpeded and rapid improvement of soils affected by livestock grazing but would not eliminate soil impacts resulting from other uses.

There would be no impacts to the Ball Horse Creek allotment, which is currently unpermitted for livestock grazing.

Sites that are currently impacted from grazing would move toward desired conditions of improved soil quality, increased water infiltration, and vegetative cover. Site productivity would increase and damage to the soil surface from livestock hoof action would cease. Extended rest from livestock grazing would enhance perennial plant vigor and production.

Soil conditions have the potential to improve over time, although recovery would depend on soil and site characteristics and climate and may not be evident in all locations. Natural processes of recovery would be achieved through cycles of wetting and drying, shrinking and swelling, freeze and thaw, root growth and provide additional soil organic matter. Increases in residual vegetation, energy flow and nutrient cycling, ground cover, and soil stability would improve over time.

4.1.7 Noxious Weeds

Proposed Action

Some noxious weeds and other invasive species are present in the allotments. Development of new watering sources, construction of the new fence and sub-irrigated meadow enclosure would cause soil disturbance which could allow for the establishment of weeds. Livestock grazing has the potential to spread seed distribution. These weeds, once established, could spread from the project site into adjacent undisturbed areas. Treatment of weeds in the allotments is done by utilizing Integrated Pest Management techniques and is handled through a Cooperative Agreement between BLM and the Sublette County Weed & Pest District.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Impacts would be similar to those described for the Proposed Action, with invasive species having similar distribution and abundance, with the exception that there would be no impacts from development of the water well, fence or sub-irrigated meadow enclosure.

No Livestock Grazing Alternative

The no livestock grazing alternative would be similar to the Proposed Action, with invasive species having similar distribution and abundance. With no livestock grazing there would be one less vector for the introduction and distribution of weed seeds, but with continued access by vehicles and other wildlife there would be little difference seen in the overall abundance or distribution.

4.1.8 Recreation

Proposed Action

Effects to recreation would be the interaction with livestock during the grazing season. No impacts would be expected when livestock are not in the allotments. With an increase in AUMs and livestock numbers it could result in a more frequent interaction with recreationists in the James Ryegrass Allotment. Grazing actions that improve rangeland condition may also enhance the recreation setting, and increase recreation opportunities such as hunting. The water well development and enclosure fence would improve forage conditions and access to water for wildlife. Enhanced opportunities for hunting and wildlife observation would be an indirect effect of these improvements. The fence construction would better define private lands and reduce accidental trespass by recreationists. Subsequent removal of the old fence would reduce impediments to cross country access for hiking, and wildlife observation. Adverse impacts created during construction would be temporary and therefore minimal.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Impacts would be similar to the proposed action.

No Livestock Grazing Alternative

There would be no interaction between livestock and recreationists. Without livestock interaction the recreation experience could be more enjoyable for some recreationists.

4.1.9 Riparian Resources, Watershed, and Hydrology

Proposed Action

The riparian area in James Ryegrass Allotment consists of a sub-irrigated meadow. Current riparian potential of this site is unknown. The proposed action would address this by having an enclosure built that would provide the opportunity to observe what this site's potential is without livestock grazing. The observations will be done using photo points and measurement of plant composition by cover.

Riparian areas in the Webb Draw Pasture Allotment consist of deep-soil sites that rely on vegetation for channel stability. Along some streams, the vegetation community is not at its potential. The proposed action would address the riparian standard by changing the season of

use and shortening the length of grazing pressure while trailing during the hot season. In the past, hot season grazing has occurred by both cattle and horses. Since the allotment's grazing period is during the growing season in early summer, herbaceous plants are preferred since they are highly nutritious, resulting in better livestock distribution between riparian areas and uplands. The reduced trailing time that is allowed would reduce grazing pressure on riparian vegetation during the hot season (Riparian Area management TR 1737-20).

The implementation of the proposed action would provide rest of riparian areas for part of the growing season. This would allow riparian vegetation to increase in density and vigor, shifting the riparian areas to an upward trend to meet the PRMP Objectives and the Webb Draw objectives outlined in section 1.1.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Continuing the current grazing strategy in the Webb Draw Pasture Allotment could result in continued functioning at risk condition on riparian areas in the allotment, Rangeland Health Standard 2 would not be met, and the PRMP Objectives and the Webb Draw Pasture Allotment Objective outlined in section 1.1 would not be achieved. The sub-irrigated meadow in the Ball Horse Creek Allotment would not have an enclosure built around it and would remain unpermitted and its own allotment.

No Livestock Grazing Alternative

Elimination of livestock grazing for a 10 year period in the Webb Draw Pasture Allotment would restore the riparian ecosystem because the rest from livestock could allow for the recovery of a functional riparian plant community. It is unknown to what extent the removal of domestic grazing impacts in the Webb Draw Pasture Allotment would allow for increases in obligate wetland plants, or in what timeframe these effects would be seen. However, it is common for areas excluded from livestock grazing to experience increases in density and vigor of obligate wetland species such as Nebraska and beaked sedge. These plants provide the root mass necessary to dissipate stream energy, reduce erosion, filter sediment, develop floodplains, improve flood-water retention and groundwater recharge, and stabilize stream banks. This, in turn, could result in an increased amount of riparian area, narrowed channels and increased capacitance in terms of the riparian areas' ability to capture and slowly release water volumes associated with high flows. Areas that presently experience the greatest grazing impacts would most likely show the greatest change.

The sub-irrigated meadow in the Ball Horse Creek Allotment would not have an enclosure built around it and the allotment would remain unpermitted.

4.1.10 Special Status Plants

Webb Draw Pasture Allotment

Proposed Action

Antennaria arcuata does not represent a key or desired browse species for livestock so there would be little to no grazing pressure on the population. While there is potential for livestock

trampling, the hummocky soil surface favored by *Antennaria arcuata* is typically attributed to livestock utilization of riparian areas and frost heaving.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Impacts to *Antennaria arcuata* would be similar to those described for the Proposed Action.

No Livestock Grazing Alternative

Removal of livestock would reduce the potential for trampling and browsing. It also has the potential to reduce riparian area soil compaction and associated hummocks which could potentially reduce the quality of available habitat for *A. arcuata*.

4.1.11 Visual Resource Management

Proposed Action

The visual impacts would be in the foreground and site specific. All of the actions proposed would comply with the visual resource management objectives. The implementation of grazing prescriptions would not generate a visual impact to the area's visual values. The installation of the livestock watering facility, fence and riparian enclosure would create contrast in line, form, color and texture with characteristic landscape. The facilities could attract the attention of the casual observer, but would not dominate the landscape when viewed from nearby vantage points.

The application of best management practices would be required to mitigate visual impacts. These mitigations would include; proper facility placement and blending the facility into the landscape by painting with an approved earth color. With mitigation the project would comply with visual resource management class III objectives.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

The impacts described for the proposed action would not take place under this alternative. Livestock watering facilities and the proposed fence would not be constructed. There would be no impacts to visual resource values.

No Livestock Grazing Alternative

The no grazing alternative would provide the greatest benefit to visual resources since there would be no new range improvements constructed and no effects to upland and riparian vegetation from livestock. Increased vegetation density and vigor would contribute to a more natural set of form, line, and color characteristics on the landscape.

4.1.12 Wildlife and Fisheries Resources

Proposed Action

James Ryegrass Allotment

Establishing stocking rates consistent with those suggested by NRCS and formalizing the voluntary deferred rotational grazing system within this allotment would continue to distribute livestock utilization more evenly throughout the grazing season in order to promote rangeland health and improve wildlife habitat. This management strategy was developed with the objective

of creating a sustained balance among forage species, increasing vigor, and allowing for a period of seed-set. Current grazing practices have resulted in upland utilization rates consistently classified within the light use category (21-40%) (Table 17). These rates allow for 60-80% of annual stem leaf production to be available for use by wildlife. Maintaining or enhancing the overall health of the rangelands through better distribution of livestock utilization benefits several species of wildlife, in particular big game and sage-grouse populations inhabiting the James Ryegrass Allotment.

Sage-grouse

Direct effects from livestock grazing include nest and habitat trampling and the flushing of birds (Beck & Mitchell 2000, BLM 2011). Indirect effects include those associated with infrastructure that would not be on the landscape but for grazing activity. These include mortalities associated with water troughs and fence strikes. Most of these effects would be localized to areas of high livestock concentration i.e. water sources, salt blocks, and fence lines.

The voluntary deferment employed by the permit holder has restricted early season grazing for each pasture to once every three years. The proposed action would formally establish an official rotational system and associated habitat objectives. This rotational system reduces the direct impacts on wildlife such as sage-grouse and protects current suitable habitat conditions by continuing to restrict early season grazing for each pasture to once every three years. Rotational grazing could reduce the probability of nest trampling and disturbance during the nesting season, increase vegetative production thereby improving nesting cover and forb diversity, and reduce competition for forage especially lush forbs required by young sage-grouse (Adams *et.al* 2004, Hockett 2004). By continuing practices that have the potential to increase diversity of the forb community the proposed action would continue to address one of the factors contributing to the marginal habitat status for nesting and upland habitats determined in the Habitat Assessment Framework for one of the three monitoring locations. In order to reduce the high level of sage canopy cover, additional mechanical or chemical treatments may be necessary.

The sagebrush/rhizomatous grass/bluegrass state is exceptionally important, because it represents a highly stable community and can provide an acceptable volume of herbaceous cover and can meet the breeding season habitat requirements of sage-grouse (Cagney *et.al.* 2010). Therefore, all other habitat types would likely continue to remain in suitable condition. Water sources and salt blocks would be distributed to reduce concentrated impacts on habitats.

The proposed fence line relocation and new construction associated with the incorporation of the Ball Horse Creek Allotment may result in crushing of sage-brush habitat, temporary increase in human activity and associated noise, and potentially increase the probability of fence strikes. Fence construction and maintenance is considered a “*de minimus*” action based on the Core Area Policy (Executive Order 2011-05, Attachment C). In order to reduce potential for avian strikes the portion of the proposed fence line within 0.6 miles of the nearest lek perimeter would be monitored and retrofitted with flight diverters. The proposed action would result in the removal of approximately 0.25 miles of existing fence and installation of 0.55 miles of new fence for a total of 0.3 miles of additional fence line within the 0.6 mile buffer. All construction and other disturbance activities would adhere to seasonal timing restrictions and the amount of disturbed sagebrush habitat would be minimized as practicable. In addition to the boundary fenceline a

livestock enclosure would be constructed around the sub-irrigated meadow within the incorporated Ball Horse Creek allotment. This enclosure would consist of 0.3 miles of 2-wire fence with a top wooden rail. Strike diverters would be attached in order to reduce the probability sage-grouse mortalities and still allow wildlife access to the meadow. Data collected from this enclosure could be used in future determination regarding the habitat potential for these types of sub-irrigated meadows. In addition, all existing fence lines throughout the allotment would be monitored and high risk fence lines would be identified and marked with strike diverters.

Installation of a water well may result in the temporary removal or crushing of sagebrush habitat during construction, disturbance from construction noise and human activity, loss of sage brush habitat around the trough, well facilities, and cross country travelways. Well facilities provide vertical structure on the landscape that serve as potential nesting and perching structures for predatory bird species. Vertical structures could also serve as a perceived threat to prey species thereby altering behavior by deterring use away from what could otherwise be suitable habitat. Utilization of solar panels instead of windmills may reduce these perching opportunities. All new water troughs would be fitted with escape ramps to minimize the potential for avian drowning. Ramps have already been installed in existing troughs. In accordance with Executive Order 2011-05 a Density Disturbance Calculation Tool consistency review is not necessary for construction of agricultural reservoirs less than 10 surface acres and drilling of agricultural water wells (including installation of tanks, water windmills and solar water pumps) within 0.6 miles of the perimeter of a lek provided that construction does not occur March 15 to June 30 and construction does not occur on the lek (Executive Order 2011-05, Attachment C). All management actions would comply with and incorporate the appropriate disturbance and timing restrictions relating to Core habitat set forth in BLM IM WY-2012-019, Executive Order 2011-05, and the PRMP.

Increasing the number of standing water sources potentially used by breeding mosquitos may increase the potential for West Nile virus (WNV) infection within the sage-grouse population. West Nile virus is a mosquito-borne virus. Mosquitoes are the primary vector, and birds, which are commonly infected, serve as a primary reservoir of the disease. Sage-grouse are susceptible to WNV and declines in infected populations have been shown (Naugle et al. 2004). A series of studies examining the distribution of WNV within sage-grouse populations conducted in 2003 reported a total of 19 individual grouse infected in the state of Wyoming none of those occurred in Sublette County (wgfd.wyo.gov/web2011/wildlife-1000317). The Wyoming Department of Health has only documented two occurrences of WNV in Sublette County in humans in 2003 and 2007.

Based on the discussion above the proposed action is consistent with the objective to maintain or enhance habitat suitability outlined in section 1.1. In addition, the proposed action conforms within all wildlife objectives set forth in the PRMP. With application of SOPs, applied mitigation, Required Design Features and Conditions of Approval identified for Greater Sage-Grouse under the proposed action, impacts caused by surface-disturbing and disruptive activities would be minimized.

Big Game

Maintaining a balance and diversity of forage species on the landscape would benefit big game such as mule deer and pronghorn as they transition between summer and winter ranges during critical spring and fall seasons. Increased vegetation vigor and production could retain a greater proportion of digestible biomass for big game species to utilize.

The proposed fence line relocation and new construction is located within key big game migration corridors for mule deer and pronghorn. The presence of an additional 0.5 miles of fence line has the potential to increase the probability of entanglements and associated mortalities or injuries. In order to minimize these impacts and protect the integrity of migration routes new fence construction would adhere to BLM wildlife friendly specifications (BLM 1989). The proposed enclosure surrounding the sub-irrigated meadow in the incorporated Ball Horse Creek allotment could have similar impacts to big game as those outlined for the boundary fence line. This enclosure would consist of approximately 0.3 miles of 2-wire fence with a top wooden rail in order to reduce the probability of big game mortalities and still allow wildlife access to the meadow.

The proposed drilling and installation of a water well and associated infrastructure could cause some localized disturbance including dispersal and/or avoidance. In general big game may be impacted by temporary removal or crushing (reduction in habitat quality) of sagebrush habitat during construction. The expected increased livestock utilization of the area immediately surrounding stock water troughs may reduce herbaceous cover. A decrease in the amount of shrub and herbaceous canopy could decrease the amount of forage available. The period of livestock use could minimize this impact through timing and short duration of use associated with the deferred grazing rotation. All construction and other disturbance activities would adhere to seasonal timing restrictions outlined in the PRMP and the amount of disturbed sagebrush habitat would be minimized as practicable.

Direct interaction between livestock and big game would be unlikely. While the area has been designated as spring/summer/fall for several big game species the vast majority of individuals transition through and out of the area during early spring and late fall outside of the proposed grazing season.

Based on the discussion above the proposed action is consistent with the objective to maintain the integrity of migration corridors outlined in section 1.1. In addition, the proposed action conforms within all wildlife objectives set forth in the PRMP.

Federally Listed Threatened, Endangered, and Proposed Species

Due to the lack of species observation and suitable habitat availability the Proposed Action would have no effect on federally listed wildlife species or their habitats.

Sensitive and Special Status Wildlife

All proposed actions would comply with the BLM Special Status Species Management protocol. In compliance with existing laws, including the BLM multiple use mission as specified in the FLPMA, the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their

conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA (BLM 2008).

Pygmy Rabbit

Primary impact to pygmy rabbits from livestock grazing include, trampling of burrow structure, habitat avoidance (Siegel-Thines *et.al.* 2004), and changes in vegetation composition (Siegel-Thines *et.al.* 2004). Grasses and forbs make up approximately 50% of the late summer pygmy rabbit diet (Green & Flinders 1980). Livestock grazing during the late summer can remove grass cover and reduce the nutritional quality (Siegel-Thines *et.al.* 2004). The deferred rotation outlined in the proposed action would maintain reduced livestock impacts on late summer pygmy rabbit forage by limiting late summer grazing to once every three years within each pasture. Limiting livestock use within each pasture to only a portion of the grazing season reduces the probability of structural damage to burrows.

Impacts to pygmy rabbits from the proposed fence line relocation and new construction are similar to those described for sage-grouse. Proposed fence lines would be surveyed for the presence of occupied burrows. If occupied burrows are identified efforts to avoid structural damage would be employed.

The installation of a water well has potential to result in the degradation and/or destruction of suitable pygmy rabbit habitat in the immediate vicinity of the well location through increased levels of livestock utilization and trampling. In order to reduce the potential impacts to habitat quality a project location would be identified that minimize sagebrush disturbance. In addition, occupancy surveys would be conducted within ¼ mile of potential locations. Utilization of solar panels instead of windmills would reduce perching opportunities for predators.

Sagebrush Obligate Songbirds

Potential direct impacts are similar to those described for sage-grouse. Livestock grazing may indirectly increase the risk of nest predation by reducing the availability of nest sites with tall, dense vegetation (Sutter & Ritchison 2005). Moderate-intensity grazing is consistent with the conservation needs of ground nesting songbirds (Lusk & Koper 2013). The proposed action is designed to maintain or enhance the condition of existing rangeland, therefore it may retain and potentially improve existing vegetative structure necessary for nesting habitat. Limiting livestock use within each pasture to only a portion of the grazing season reduces the probability of direct impacts.

The installation of a proposed water well and fence line relocations and new construction may present impacts similar to those described for sage-grouse and pygmy rabbits. Site specific nesting surveys would be conducted prior to initiation of proposed construction activities in order to identify active nest locations. All previously discussed mitigation actions could therefore minimize impact to songbirds.

Colorado River System

The installation of one range improvement outlined in the proposed action would result in the removal of water from the Upper Colorado River Basin. These troughs have a water surface area of 113 sq. ft. each. They would contain water for approximately 61 days during the grazing

season. With a maximum evaporation rate of 0.25"/day (0.0208 feet/day) during the summer, this trough would have a total evaporation of 0.00329 acre-feet per year. As of August 11, 2009, the USFWS, in accordance with the Upper Colorado River Endangered Fish Recovery Program, adopted a *de minimus* policy, which states that water-related activities in the Upper Colorado River basin that result in less than 0.1 acre-foot per year of depletions in flow have no effect on the Colorado River endangered fish species, and thus do not require consultation for potential effects on those species.

Webb Draw Pasture Allotment

Grazing would be restricted to three days of trailing during the key growing season in July and early August enabling the increased production of warm season grasses, sedges, and forbs associated with upland sub-irrigated meadow habitats. A reduction in the time available for late season grazing from previously allowed levels could increase the amount of residual forage and cover and limit late season impacts to riparian habitats (Hockett 2002). Delaying turn out until June could allow time for early season growth of cold season bunch grass and forbs. Within the framework of the proposed action allowing for horses to be grazed in place of cows would have impacts on wildlife habitat similar to those expected for cows. Current grazing practices have resulted in upland utilization rates classified within the light use category (21-40%) (Table 18). These rates allow for 60-80% of annual stem leaf production to be available for use by wildlife.

Sage-grouse

Direct effects would be similar to those described for the James Ryegrass. The proposed trailing plan to limit utilization to three days within a ten day window could allow for retention of vegetation re-growth, reduce hot season grazing and impacts to the sub-irrigated meadow area. Reducing impacts to potential these habitats could address the marginal habitat rating for riparian summer and late brood rearing habitat through improved grass and forb species vigor and production. Managing for increased dried standing crop could allow for more residual cover to be carried into the following nesting season. Management actions that increase the potential amount of residual herbaceous vegetation represent the most beneficial to sage-grouse populations (BLM 2011). All other habitats would likely remain in suitable condition.

Based on the discussion above the proposed action is consistent with the objective to maintain or enhance habitat suitability outlined in section 1.1. In addition, the proposed action conforms within all wildlife objectives set forth in the PRMP. With application of SOPs, applied mitigation, Required Design Features and Conditions of Approval identified for Greater Sage-Grouse under the proposed action, impacts caused by surface-disturbing and disruptive activities would be minimized.

Big Game

Increasing the availability of forage species on the landscape could benefit big game such as mule deer and pronghorn as they transition between summer and winter ranges during critical spring and fall seasons. Increased vegetation vigor and production may retain a greater proportion of digestible biomass for big game species to utilize.

Impacts of direct interaction between big game and livestock are similar to those described for James Ryegrass.

Based on the discussion above the proposed action is consistent with the objective to maintain the integrity of migration corridors outlined in section 1.1. In addition, the proposed action conforms within all wildlife objectives set forth in the PRMP.

Federally Listed Threatened, Endangered, and Proposed Species

Due to the lack of species observation and suitable habitat availability the Proposed Action would have no effect on federally listed wildlife species or their habitats.

Sensitive and Special Status Wildlife

All proposed actions would comply with the BLM Special Status Species Management protocol (BLM 2008).

Pygmy Rabbit

Impacts to pygmy rabbits and their habitat from livestock grazing would be similar to those outlined for James Ryegrass. No grazing through most of July and early August could allow for regrowth of key forb and grass species critical for cover and late summer forage. Limiting the number of days and management of late season trailing based on range condition may prevent the over utilization of late summer pygmy forage.

Sagebrush Obligate Songbirds

Impacts from grazing would be similar to those outlined for James Ryegrass.

Amphibians

Impacts to amphibian species include mortality from trampling, fecal contamination of water, compaction of soil preventing burrowing, changes in vegetation cover and structure and associated changes in predation risk and forage availability, desiccation of site, improved basking opportunities, and benefits of eutrophication to larval food sources (McGee & Keinath 2004, Smith & Keinath 2004, Patla & Keinath 2005). Restricting trailing to three days would reduce the number of days of late season grazing from historic use patterns potentially reducing pressure on habitats associated with the sub-irrigated meadows and associated vegetation. The probability of trampling, level of soil compaction, and level of fecal contamination could be reduced by restricting the number of trailing days.

In accordance with the BLM and FWS Boreal Toad Programmatic Biological Opinion (USFWS 2005) the proposed action would manage grazing practices in habitats associated with the sub-irrigated meadow and springs with an objective of meeting PFC status (section 1.1). PFC status has been identified as providing necessary habitat requirements for amphibian species through improved water quality, system stability, and enhanced forage conditions (Keinath & McGee 2005, Colorado Division of Wildlife 2001, USFWS 2005). Improvements in riparian condition in the Webb Draw Pasture resulting from changes in livestock grazing management in the Proposed Action would provide improved habitat for amphibians with denser and more vigorous riparian vegetation and better water holding capacity of floodplain soils.

Trumpeter Swans

Impacts to trumpeter swans from grazing may include contamination of water, desiccation of site, and changes in vegetative community adjacent to open water. The proposed action is

unlikely to have any negative impacts to trumpeter swans given there is no suitable open water nesting and foraging habitat within the allotment boundaries.

Long-billed Curlews

Impacts to Long-billed curlews may include trampling of nest locations, changes in vegetative cover and structure and associated changes in predation risk and forage availability. The proposed action would manage grazing practices in habitats associated with the sub-irrigated meadow and springs with an objective of meeting PFC status (section 1.1). Restricting trailing to three days would reduce the number of days of late season grazing from historic use patterns potentially reducing pressure on these habitats. The probability of trampling would be reduced and lower levels of late season use on vegetation. The presence of abundant high quality habitat in the adjacent Horse Creek corridor suggests that individuals of this species would likely preferentially select higher quality habitats outside of the allotment thereby reducing the probability of livestock impacts.

No Action

Wildlife and Fisheries Resources

Impacts of grazing on wildlife populations and habitats would be similar to those described in the Proposed Action. With no change in management any existing trends toward increasing or decreasing habitat quality would likely continue. Wildlife objectives outlined in section 1.1 and all efforts outlined in the proposed action to meet those objectives would no longer be incorporated into the grazing permit. Due to the lack of species observation and suitable habitat availability the No Action Alternative would have no effect on federally listed wildlife species or their habitats.

James Ryegrass Allotment

Impacts associated with the proposed water wells and fence line alterations would no longer occur. The voluntary rotational system and associated benefits currently being employed would not be formalized. All positive benefits to wildlife and their habitats could potentially be eliminated with the cessation of the voluntary rotational system.

Webb Draw Allotment

The currently permitted grazing season does not authorize late season trailing. Therefore, compared to the Proposed Action adherence to the current permit could result in the availability of additional residual forage and cover, increased late season production, and reduced late season grazing impacts to habitats associated with the sub-irrigated meadows. Turnout would continue to be authorized for May which could result in continued negative impacts on the growth and production of early cold season bunchgrass and forbs. Riparian condition would stay the same (functioning at risk with no apparent trend) in Webb Draw.

Ball Horse Creek Allotment

The Ball Horse Creek allotment would remain unpermitted for livestock under this alternative. There would be no change in management and impacts to wildlife habitat.

No Grazing

Wildlife and Fisheries Resources

The no grazing alternative would result in the elimination of livestock grazing within the James Ryegrass and Webb Draw Pasture allotments. Therefore all impacts discussed in the proposed action would be eliminated.

Greater Sage-Grouse

The no grazing alternative would eliminate cattle grazing in the project area therefore eliminates the potential effects described above to sage-grouse and their habitats. There would be no need for internal allotment fencing or livestock water tanks. Removal of these structures could decrease potential raptor perching and predation opportunities and associated avoidance behavior by sage-grouse. The removal of internal allotment fencing could also eliminate injuries and mortalities associated with fence collisions.

Big Game

The no grazing alternative would eliminate cattle grazing in the project areas thereby eliminating the previously described potential effects on pronghorn, mule deer, moose, and elk habitats.

Federally Listed Threatened, Endangered, and Proposed Species

Due to the lack of species observation and suitable habitat availability the No Grazing Alternative would have no effect on federally listed wildlife species or their habitats.

Pygmy Rabbit

The cessation of livestock grazing within the allotments would result in the elimination of previously described potential effect on pygmy rabbits.

Sagebrush Obligate Songbirds

The cessation of livestock grazing within the allotments would result in the elimination of previously described potential effects on songbirds species.

Amphibians

The no grazing alternative would eliminate livestock grazing within the allotments thereby eliminating previously described potential effects on the boreal toad, northern leopard frog, and Columbia spotted frog.

Long-billed Curlew

This species requires short grassland and meadow habitats for nesting and early brood rearing. Livestock grazing could be responsible for the maintenance of these habitats therefore removing grazing from the landscape could reduce the availability of important habitats.

4.1.13 Air Resources

Proposed Action

Ozone

The Wyoming Department of Environmental Quality (WDEQ) has responsibility for air quality regulation in Wyoming. WDEQ does not require analyses of methane emissions from cattle when doing general conformity reviews for BLM actions in the ozone nonattainment area in the

Upper Green River Basin in Wyoming. Neither the State of Wyoming nor the Environmental Protection Agency (EPA) considers methane to be a volatile organic compound with respect to ozone formation. Methane has been determined by the EPA to have negligible photochemical reactivity, meaning that it does not react easily in the presence of sunlight to form ozone.

Global Climate Change

The assessment of greenhouse gas (GHG) emissions and climate change is in its formative phase. It is currently not feasible to know with certainty the net effects from the proposed action on climate change. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future effects of decisions made at this level. When further information on the effects to climate change is known, such information would be incorporated into the BLM's planning and NEPA documents as appropriate.

Air quality impacts from the proposed action would occur from pollutants emitted during the drilling of the proposed water well and construction of the fence and enclosure. These include exhaust from the drilling rig and any equipment used to install associated watering facilities and fencing, and fugitive dust from vehicular traffic. Pollutants from these activities could include NO_x, CO, SO₂, PM₁₀ and PM_{2.5}.

Because of the short duration of drilling, the utilization of cross country travel, and utilization of a truck mounted rig, the proposed action would have minimal impacts on existing air quality.

By allowing horse use in the Webb Draw Pasture impacts would be the same as cattle use.

No Action Alternative

Under this alternative, there would be no additional effects to the current air quality because the proposed well, fence, and enclosure would not be constructed.

No Livestock Grazing Alternative

Under this alternative, there would be no additional effects to the current air quality.

4.2 Cumulative Effects

4.2.1 Introduction

According to the 1994 BLM publication "Guidelines for Assessing and Documenting Cumulative Impacts," the cumulative analysis can be focused on those issues and resource values identified by management, the public and others during scoping that are of major importance." Additionally, the guidance provided in the National BLM NEPA Handbook H-1790-1 (2008), for analyzing cumulative effects issues states, "determine which of the issues identified for analysis may involve a cumulative effect with other past, present, or reasonably foreseeable future actions. The purpose of this analysis, for the allotments is temporally defined by the ten-year term of the proposed action.

The cumulative impact analysis area (CIAA) is set to the boundary of the James Ryegrass, Webb Draw Pasture, and Ball Horse Creek Allotments. The CIAA was selected because the direct and

indirect effects of grazing management are within the allotment boundaries. Outside of the area direct and indirect effects of the grazing scheme will be so small as to not create identifiable cumulative effects. At greater distances from the allotments, it becomes even more difficult to determine any impacts due to the dilution effect that comes with the increase acreage.

Livestock grazing management (discussed in section 3.1.4) has had a long history within the allotments and remains the dominant use in the CIAA. There are several primitive two track roads that are unimproved and an improved county road that provides access within the allotments.

The Proposed Action and Alternatives would authorize 10 year grazing permits for the livestock operator. Therefore, the time frame for analyzing the effects of any reasonable foreseeable future actions would be for a period of 10 years. The past and present actions listed below would continue throughout the time frame.

Past and Present Actions

Livestock grazing has a long history in the area dating back to the 1800's. Historically since 1957 mostly yearling cattle have been ran and continues today. There were several range improvement projects implemented to improve the quality of forage and these projects consisted of fences, reservoirs, spring development, and drilling of water well and pipeline.

Livestock improvement projects that may have long term residual effects on vegetation include fences, reservoirs, spring developments, water well and pipeline, which are designed to provide livestock water. The residual effects of surface disturbance from these activities or extensive maintenance of each project is limited, while indirect impacts to vegetation resulting from livestock concentration around these improvements. Livestock concentration reduces and removes vegetation and increases bare ground and erosion adjacent to these areas. However, these areas are small and localized when compared to the total area of the allotments

Livestock grazing on the allotments has provided both positive and negative impacts to ranch revenues. Added costs were encountered in the development of range improvement projects. However, these added costs were offset by allowing better management of their livestock. The primary agents affecting the riparian areas in the allotments are discussed in 4.1.9. Grazing has had an adverse effect on the riparian areas because grazing has primarily occurred during the late spring and summer months when riparian soils and vegetation are most vulnerable. Current grazing practices have been described in this document and demonstrate that riparian areas are functioning at risk.

Various vegetation treatments have occurred. Treatments in 2005, 2006, 2007, and 2009 were mechanical and the 1964 treatment was an aerial sagebrush spray. The results of these projects were to reduce sage canopy and increase grass and forb production.

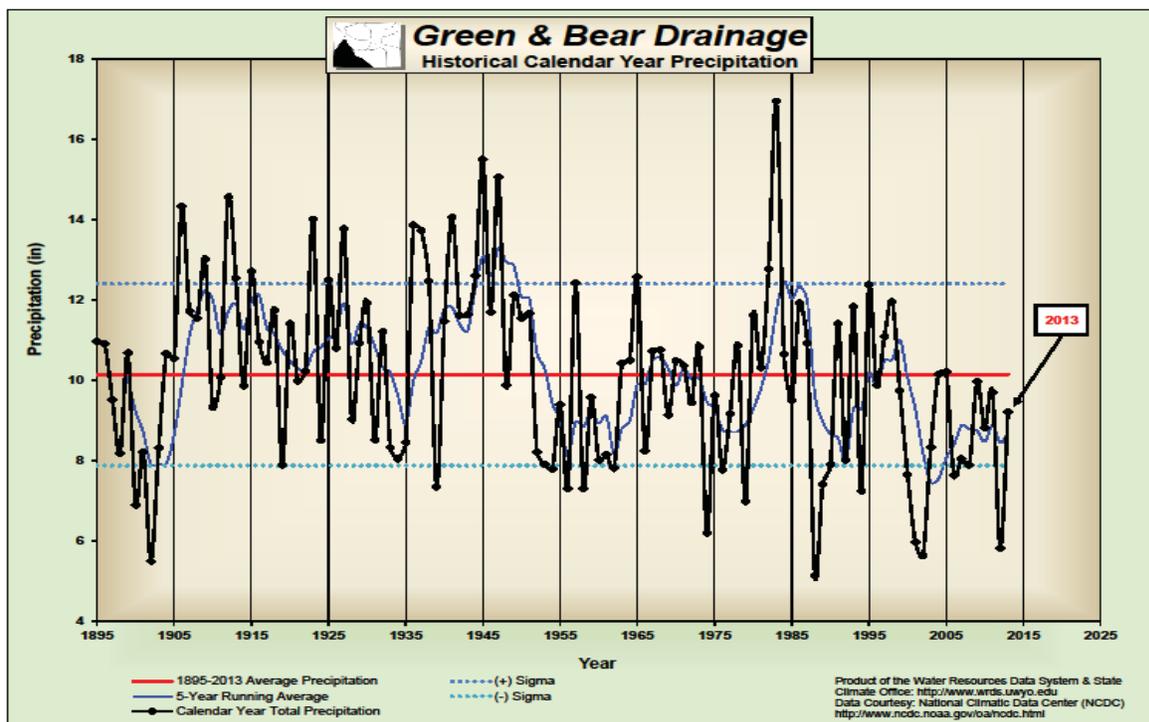
There have also been seasonal vehicle winter range closures to minimize stress to wintering wildlife.

Recreation activities that occur within the allotments include: hunting, antler hunting wildlife viewing, camping, and OHV use.

Based on the 2008 PRMP the affected environment is unavailable to leasing for mineral development. However, there is a natural gas pipeline that goes through the allotments.

Figure 5, “Green & Bear Drainage Historical Calendar Year Precipitation (1895-2013) from Product of the Water Resources Data System and State Climate Office” depicts the precipitation history of the area and shows that the area has sustained drought.

Figure 5. “Green & Bear Drainage Historical Calendar Year Precipitation (1895-2013) from Product of the Water Resources Data System and State Climate Office”



On February 10, 2012 the BLM Wyoming implemented a Greater Sage-Grouse Habitat Management Policy that is consistent with the guidelines and recommendations provided for in the Core Population Area Strategy (BLM IM No.WY-2012-019). This guidance effectively adopted the State’s Sage-Grouse Core Protection Area Strategy standards and practices for habitat conservation, restoration and reclamation practices in designated Core habitat in Wyoming. The BLM Wyoming IM meets the intent of the National Policy set forth in WO IM-No.2012-044 and therefore represents the official management policy for BLM land in the State of Wyoming.

Reasonably Foreseeable Actions

It is expected that livestock grazing will continue within the CIAA. Range improvement projects would be maintained in accordance with cooperative agreements. New range improvement

projects are considered and analyzed on a site specific basis and would benefit vegetation and wildlife habitat through better livestock distribution and control.

Sublette Mule Deer Habitat Improvement Project has been proposed to occur. The objectives are to improve mule deer transitional ranges and crucial winter range habitat through various vegetation manipulations and range improvements.

The Greater Sage-Grouse Land Use Plan Amendment will replace the Wyoming Greater Sage-Grouse Habitat Management Policy for management of Sage-Grouse.

4.2.2 Cultural and Paleontological Resources

Cultural staff of the PFO performed 411.7 acres of inventory within the permitted allotments in order to identify potential impacts to cultural properties in areas where cattle concentrate or where cultural manifestations are likely to occur, and determine whether any impacts are the result of grazing. Water features, fencelines, salt block placement areas, and, in particular, the tops of landforms that were considered likely to contain cultural materials were inventoried at a Class III level. This inventory recorded nine new sites, of which three were determined to be eligible for the National Register of Historic Places (NRHP). All three of these eligible sites were located atop prominent landforms and contained stone rings and, in two cases, stone cairns. Each of the nine sites, and particularly those sites determined to be eligible, were examined for impacts from cattle grazing. There were no impacts from cattle grazing to any of the three eligible sites, and no impacts to any of the non-eligible sites that could be conclusively attributed to grazing. All of the non-eligible sites are comprised of scatters of thermally altered rock and all were located in dynamic locations, i.e., on slopes with alluvial and colluvial action that could account for the observed dispersal of the rock. Human agency during the site formation process could also account for the scattering. Based on these observations, there will not be any cumulative impacts for any of the three alternatives.

Paleontological Resources

The geologic formations (Wasatch or Green River) that hold high potential for yielding fossil material are present within the CIAA. However, there is no surface expression of either formation in the allotments. The possibility of cumulative impacts from the proposed action and alternatives to significant paleontological locales is extremely low.

4.1.3 Economic and Social Impacts

For the proposed action and no action alternative, as long as the ranch remains in business it will continue contributing to employment and the purchase of sale goods and services in the local areas, and community cohesion will be maintained. For the no grazing alternative, not renewing the grazing permit would mean that the lands within the grazing allotments would still be allocated for livestock grazing, as described in the PRMP, but grazing would not be permitted on the allotment for a term of 10 years and if the rancher chose to close the ranch, the operator would no longer be contributing to employment and the purchasing of goods and services in the community.

4.2.4 Livestock Grazing

Grazing activities analyzed in this EA would contribute toward cumulative effects on upland and riparian vegetation by influencing plant species composition within the CIAA.

Implementation of the proposed action would maintain or improve land health within the CIAA. Past and present actions along with future planned activities would have negligible effects on livestock grazing as long as the ranch remains in business. Effects to resources from grazing are likely to change and resources improve throughout the area from historical conditions. Along with the past and present and reasonably foreseeable future actions an improvement in ecological condition over a period of time is expected therefore, benefiting the sustainability of livestock grazing management.

The no grazing alternative for a term of ten years would have beneficial, but very slight, cumulative effects by contributing no detrimental grazing effects to the CIAA from livestock grazing. There would be an increase in fine fuels resulting from no grazing which could potentially increase the risk of wildfire within the CIAA.

4.2.5 Vegetation

Livestock grazing is the dominant land use. Vegetation within the CIAA has been effected by livestock grazing overtime because livestock selectively eat larger bunch grasses, altering the species composition over time. Heavy grazing since the late 1800s and following has altered the vegetation by reducing large bunchgrasses, allowing an increase in Sandberg bluegrass. There have also been several range improvements developed to aid in livestock management; these improvements remove or disturb vegetation in localized areas.

Grazing activities analyzed in this EA would contribute toward cumulative effects on upland and riparian vegetation by influencing plant species composition as described in direct and indirect effects.

The proposed action is expected to have noticeable positive changes to upland and riparian vegetation in the form of improved plant health and vigor. The CIAA would make progress towards meeting standard #2 in the Webb Draw Pasture when combined with past, present, and reasonably foreseeable future actions that have impacted vegetation resources within the CIAA, an upward trend in the vegetation condition and health would be anticipated.

The no action alternative would have no additional cumulative effects beyond past, present, and reasonably foreseeable future actions that have impacted vegetation resources would be expected.

The no livestock grazing alternative for a period of ten years would have beneficial effects by contributing no detrimental grazing effects within the CIAA. With no grazing it would provide an overall increase ground cover and plant vigor. There could be an increase in fence construction in the Webb Draw Pasture on private land if the landowner wanted to continue grazing private land that had been grazed in common with the BLM land. The new construction would disturb vegetation in localized areas but would have short term effects until the disturbed areas naturally revegetate.

4.2.6 Soils

Since the proposed action is expected to have noticeable positive changes to upland and riparian vegetation, improved soil health is expected such as increased water infiltration and reduced bare ground, erosion and compaction; thus, less negative cumulative effects than the no action alternative, but more negative cumulative effects than the no livestock grazing alternative.

The no action alternative would result in continuation of current grazing practices. Additional cumulative effects beyond past, present, and reasonably foreseeable future actions that have impacted soil resources would not be expected. The no action alternative would have more negative cumulative effects to soil resources than the proposed action and the no livestock grazing alternative.

The no livestock grazing alternative for a period of ten years would have beneficial cumulative effects by reducing bare ground, erosion and compaction and increasing water infiltration. The new construction of the fence would disturb vegetation in localized areas; thus, locally increasing bare ground, compaction and erosion and reducing water infiltration, but would have short-term effects until the disturbed areas naturally revegetate. The no livestock grazing alternative would have less negative cumulative effects to soil resources than the proposed action and no action alternative.

4.2.7 Noxious Weeds

Invasive non-native species such as, Canada thistle, musk thistle, black henbane, and cheat grass are known to occur within or near the CIAA boundary. These species have the capacity to expand following disturbance and have done so in the past. Past, present and reasonably foreseeable future disturbances within the CIAA include county road maintenance, recreation activities, OHVs, development of range improvement projects, and wildlife and livestock use. However, these actions incrementally have very little cumulative impact on the level of threat or the likelihood of the increase in either the distribution or abundance of noxious or invasive species.

Invasive non-native species seeds and plant parts may be transported into the CIAA by numerous means. Seeds may be brought into the CIAA on automobile and ATV tire treads and heavy equipment. Livestock, wildlife, and birds may transport seeds on hooves or coats and within digestive systems. The spreading of these species would be minimized through the CIAA since there is a cooperative agreement between the BLM and Sublette County Weed and Pest to treat and map invasive species.

The proposed action and no action alternative would have similar effects on non-native and noxious weeds and most closely resemble the current use within the CIAA and would not greatly increase or decrease the distribution of noxious and invasive species.

The no grazing alternative would not meet multiple use objectives outlined in the PRMP. If this alternative were implemented, existing noxious and non-native species would still remain within the CIAA. Invasive species populations sensitive to spread via livestock herbivory will not benefit from reduced grazing pressure, but would still spread by other factors such as wildlife, birds, and vehicles. Perennial vegetation would not be affected by livestock grazing. Expansion

of invasive species may be slowed by the no grazing alternative, but would still be aggravated by the vectors mentioned above.

4.2.8 Recreation

Cumulative analysis of the proposed action and alternatives when added to past, present, and future actions, within the CIAA, would have minimal effects to recreation. The opportunities for recreation within the CIAA would sustain minimal impacts from the alternatives. Access could be restricted during the Sublette Mule Deer Habitat Improvement Project in a portion of the CIAA, depending on the timing of treatments, would affect the ability to access areas for recreationists. Cumulatively with winter road closures as a result in protecting wintering wildlife, accessibility in the area for recreationists who rely on these roads for motorized access would be reduced during the closures. During periods of livestock use, there would be an increase in potential human/livestock interactions.

In the long term, the combined effects of grazing management within the CIAA would be beneficial to the overall health and scenic quality of the area, which in turn would result in an improved recreation experience.

4.2.9 Riparian Resources, Watershed, and Hydrology

Because the allotments within the CIAA have been and continue to be grazed during the vulnerable riparian area growing season, and also during the hot season, riparian areas within the analysis area have been affected by past and present livestock grazing. Changes under the proposed action include changes in grazing management within the CIAA to make progress towards meeting the riparian standard and meet the PRMP Riparian Objectives by providing rest for part of the riparian areas growing season and limiting use during the hot season. These changes would increase riparian density and vigor and the channel should narrow and deepen.

Past and current livestock grazing within the CIAA occurs during the late spring and summer months, degrading the riparian areas because riparian vegetation is removed during the vulnerable growing season and hot season. However, since future proposed changes in grazing management to make progress towards meeting standard #2 is expected to occur, there should be an improvement in the condition of the riparian areas because an increase in herbaceous riparian vegetation would occur. As the plant community improves, stream banks would stabilize due to increases in deep rooted riparian vegetation. Eventually the channel would narrow and deepen and conditions would improve as the channel recovers. Overall, there should be an improvement in the condition of riparian areas within the CIAA.

Other activities that have and continue to occur within the CIAA that impact the riparian areas and overlap with those caused by livestock grazing include, drought, irrigation diversions, wildlife use, and impacts from mineral development and a road crossing the channel.

Under the no action alternative the riparian areas would continue to be impacted by grazing during the riparian area's vulnerable time, and the continued impacts would continue to slumping of banks, impacting sinuosity and width/depth ratio of the channel because riparian vegetation would be removed since the late season of use would not be restricted.

The no grazing alternative would result in greater and faster recovery to riparian resource improvement. The impacts would be similar to the proposed action because the proposed action would move the Webb Draw Pasture toward meeting standards and PRMP objectives. Implementation of the no grazing alternative would have the most beneficial effects.

4.2.10 Special Status Plants

As described above in the direct and indirect effects Section 4.0, the theme is to authorize livestock use during the late spring and summer. When added to the past, present and reasonably foreseeable future actions that would affect upland and riparian vegetation and associated special status plant occurrences. The proposed action would change the grazing management and conditions should improve and cumulatively have incremental positive effects on special status plants and their habitats. The no action alternative would continue with current grazing management and conditions would not improve and cumulatively have incremental negative effects on special status plants and their habitats.

The no grazing alternative would provide extended rest to special status plants from livestock grazing over the life of the permit. Removing this stress would allow for recovery from year to year and added resilience. This alternative, when added cumulatively to effects from other activities described above, would not lead to listing under the Endangered Species Act for the special status plants that are within the CIAA. In fact, this alternative would initiate proactive conservation measures that reduce the threat of livestock impacts in an effort to minimize any need for listing under the Endangered Species Act.

4.2.11 Visual Resource Management

Few effects are expected from the proposed action and alternatives, cumulative effects would be minimal for visual resources within the CIAA. Grazing throughout the analysis area would contribute in varying magnitudes towards cumulative effects by influencing plant species composition within the uplands as well as the riparian areas.

In the short term, some visual impacts would occur within the CIAA during construction of the new range improvement projects as new areas of disturbance are created. However, because of the topography and vegetation within the CIAA these new features would be unnoticeable except at close distances.

Vegetation treatments from the Sublette Mule Deer Habitat Improvement Project would have effects on visual resources but would be minimal. Overall, the combined effects of the vegetation treatments within the CIAA would be beneficial to the overall health of the area and in the short term would be visible but not obtrusive and the visibility would fade with time.

4.2.12 Wildlife and Fisheries Resources

Maintenance of range improvement projects and livestock grazing has been an ongoing action within the allotments for many years and will likely continue. Maintenance activities may result in the temporary displacement of wildlife species due to the presence and noise associated with vehicles and tools. These improvements can assist with grazing management and livestock distribution across the landscape. Properly managed livestock grazing can reduce the impact of grazing utilization allowing a suitable level of forage and cover to remain for wildlife use.

Habitat enhancement projects have resulted in a mosaic of reduced sage canopy and associated increase in grass and forb production within the James Ryegrass allotment.

Recreational activities may result in temporary disruption to and avoidance of habitat by wildlife populations. Unauthorized off-road use may also lead to habitat degradation. Unauthorized use is infrequent and any disruptive footprint would be limited to a small size.

Road maintenance has been ongoing and will likely continue along designated county roadways. Noise and disturbance associated with maintenance activities may result in temporary avoidance of suitable habitat by wildlife. All actions occur within established ROWs limiting any potential damage to adjacent habitat condition.

Seasonal motorized vehicle winter range closures have been implanted to protect big game winter range through limiting disturbance to wildlife during the critical winter season. The Greater Sage-Grouse Land Use Plan Amendment will replace the Wyoming Greater Sage-Grouse Habitat Management Policy for management of Sage-Grouse. This amendment will outline the conservation measures and management practices BLM will utilize in the management of grouse.

The Sublette Mule Deer Mitigation Project could reduce sage canopy and associated increase in grass and forb production with the objective of improving mule deer transitional ranges and crucial winter range habitat through various vegetation manipulations and range improvements. Treatment actions may include mechanical, chemical, prescribed burning, protective fencing and water developments.

4.2.13 Air Resources

Air Quality

The decrease in actual emissions in the marginal non-attainment area is a result of a slower pace of drilling that what was originally analyzed the PAPA operators' liquid gathering system (LGS) which reduces emissions from facilities and substantially reduces truck traffic; cleaner rigs and better drilling technology. The air quality modeling completed for the PAPA FSEIS shows that cumulative effects from existing and proposed development, in conjunction with background emission sources and other oil and gas development and production projects in the PFO area and elsewhere in southwestern Wyoming for PM10, PM2.5, NO2 and SO2 would not exceed the National Ambient Air Quality and Wyoming Ambient Air Quality Standards (NAAQS/WAAQS) or the Prevention of Significant Deterioration (PSD) Class I or Class II increments.

Greenhouse Gas

There are no active well pads or producing gas wells within the CIAA of the proposed action or the alternatives. As of 2008, there are over 33,000 active gas and oil wells in the state of Wyoming, 45 operational gas processing plants, 5 oil refineries, and over 9,000 miles of gas pipelines. There are significant uncertainties associated with estimates of Wyoming's GHG emissions from this sector. This is compounded by the fact that there are no regulatory requirements to track CO2 or CH4 emissions. Therefore, estimates based on GHG emissions

from the proposed action measurements in Wyoming are not possible at this time (Sec. 4.2.1.2, EA, 2011, p. 89)

No additional cumulative impacts are anticipated from the proposed action and alternatives.

Cumulative Effects Summary

Neither the proposed action nor any of the alternatives in combination with the actions described as past, present or reasonably foreseeable would cumulatively have impacts that would rise to a level of significance. There is a potential that a net positive benefit could result for both wildlife and livestock as a result of the selection of the proposed action. Under the no grazing alternative, there is a potential for a net benefit to wildlife, but a net decrease to livestock grazing and a potential for economic impacts to the permittee and the community.

5.0 TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED

Tribal Consultation

Tribal Coordination Letters were sent out on December 9, 2013 for this project notifying the tribes of Eastern Shoshone Tribe of the Wind River Reservation, Northern Arapaho Tribe, The Ute Tribe of the Uintah and Ouray Reservation, Shoshone-Bannock Tribes of the Fort Hall Reservation, and the Blackfeet Tribal Business Council of the proposed action and asking for comments. Follow up phone calls were also made on February 6, 2014 and messages were left. No comments were received.

Cooperating agencies consulted during the preparation of this EA include:

Sublette County Commission
Sublette County Conservation District
Wyoming Game and Fish Department
Wyoming Department of Agriculture

6.0 LIST OF PREPARERS

Interdisciplinary Team

The BLM ID team which prepared the EA:

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Josh Hemenway	Wildlife Biologist
J.D. (Sam) Drucker	Paleontology Coordinator
James D. Collis	Archeologist
Martin Hudson	Outdoor Recreation Planner
Brian Roberts	Natural Resource Specialist

7.0 LIST OF REVIEWERS

Kyle Hansen	Assistant Field Manager, Resources
Shane DeForest	Field Manager
Kellie Roadifer	Supervisory Rangeland Management Specialist
Caleb Hiner	High Desert District Resource Advisor

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Appendix A.

Wyoming Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management

STANDARDS FOR HEALTHY PUBLIC RANGELANDS

STANDARD #1

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

THIS MEANS THAT:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly varied within Wyoming.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Water infiltration rates;
- Soil compaction;
- Erosion (rills, gullies, pedestals, capping);
- Soil micro-organisms;
- Vegetative cover (gully bottoms and slopes); and
- Bare ground and litter.

The above indicators are applied as appropriate to the potential of the ecological site.

STANDARD #2

Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

THIS MEANS THAT:

Wyoming has highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- **Erosion and deposition rate;**
- **Channel morphology and flood plain function;**
- **Channel succession and erosion cycle;**
- **Vegetative Cover;**
- **Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.);**
- **Bank stability;**
- **Woody debris and in stream cover; and**
- **Bare ground and litter.**

The above indicators are applied as appropriate to the potential of the ecological site.

STANDARD #3

Upland vegetation on each ecological site consist of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbances.

THIS MEANS THAT:

In order to maintain desirable conditions and/or recover from disturbance within acceptable timeframes, plant communities must have the components present to support the nutrient cycle and adequate energy flow. Plants depend on nutrients in the soil are used over and over by plants, animals, and microorganisms. The amount of nutrients available and the speed with which they cycle among plants, animals, and the soils are fundamental components of rangeland health. The amount, timing, and distribution of energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- **Vegetative Cover;**
- **Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.);**
- **Bare ground and litter;**
- **Erosion (rills, gullies, pedestals, capping); and**
- **Water infiltration rates.**

The above indicators are applied as appropriate to the potential of the ecological site.

STANDARD #4

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

THIS MEANS THAT:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species (State of Wyoming-designated). The intent of this standard is to allow the listed species to recover and be delisted, and to avoid or prevent additional species becoming listed.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- **Noxious weeds;**
- **Species diversity;**
- **Age class distribution;**
- **All indicators associated with the upland and riparian standards;**
- **Population trends; and**
- **Habitat fragmentation.**

The above indicators are applied as appropriate to the potential of ecological sites.

STANDARD #5

Water Quality meets State standards.

THIS MEANS THAT:

The state of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and Wyoming's Water Quality Rules and Regulations. The latter regulations contain Quality Standards for Wyoming Surface Waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- **Chemical characteristics (e.g., pH, conductivity, dissolved oxygen);**
- **Physical characteristics (e.g., sediment, temperature, color; and**
- **Biological characteristics (e.g., macro- and micro-invertebrates, fecal coliform, and plant and animal species).**

STANDARD #6

Air quality meets State standards.

THIS MEANS THAT:

The state of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming Air Quality Standards and Regulations.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- **Particulate matter;**
- **Sulfur dioxide**
- **Photochemical oxidants (ozone);**
- **Volatile organic compounds (hydrocarbons);**
- **Nitrogen oxides;**
- **Carbon monoxide;**
- **Odors; and**
- **Visibility.**

BLM WYOMING GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

1. Timing, duration, and levels of authorized grazing will ensure that adequate amounts of vegetative ground cover, including standing plant material and litter, remain after authorized use to support infiltration, maintain soil moisture storage, stabilize soils, allow the release of sufficient water to maintain system function, and to maintain subsurface soil conditions that support permeability rates and other processes appropriate to the site.
2. Grazing management practices will restore, maintain, or improve riparian plant communities. Grazing management strategies consider hydrology, physical attributes, and potential for the watershed and the ecological site. Grazing management will maintain adequate residual plant cover to provide for plant recovery, residual forage, sediment capture, energy dissipation, and ground water recharge.
3. Range improvement practices (instream structures, fences, water troughs etc.) in and adjacent to riparian areas will ensure that stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform are maintained or enhanced. The development of springs, seeps, or other projects affecting water and associated resources shall be designed to protect the ecological and hydrological functions, wildlife habitat, and significant cultural, historical, and archaeological values associated with the water source. Range improvements will be located away from riparian areas if they conflict with achieving or maintaining riparian function.
4. Grazing practices that consider the biotic communities as more than just a forage base will be designed in order to ensure that the appropriate kinds and amounts of soil organisms, plants, and animals to support the hydrologic cycle, nutrient cycle, and energy flow are maintained or enhanced.
5. Continuous season-long or other grazing management practices that hinder the completion of plants' life-sustaining reproductive and/or nutrient cycling processes will be modified to ensure adequate periods of rest at the appropriate times. The rest periods will provide for seedling establishment or other necessary processes at levels sufficient to move the ecological site condition toward the resource objective and subsequent achievement of the standard.
6. Grazing management practices and range improvements will adequately protect vegetative cover and physical conditions and maintain, restore, or enhance water quality to meet resource objectives. The effects of new range improvements (water developments, fences, etc.) on the health and function of rangelands will be carefully considered prior to their implementation.
7. Grazing management practices will incorporate the kinds and amounts of use that will restore, maintain, or enhance habitats to assist in the recovery of Federal threatened and endangered species or the conservation of federally-listed species of concern and other State-designated special status species. Grazing management practices will maintain existing habitat or facilitate vegetation change toward desired habitats. Grazing management will consider threatened and endangered species and their habitats.
8. Grazing management practices and range improvements will be designed to maintain or promote the physical and biological conditions necessary to sustain native animal populations and plant communities. This will involve emphasizing native plant species in the support of ecological function and incorporating the use of non-native species only in those situations in which native

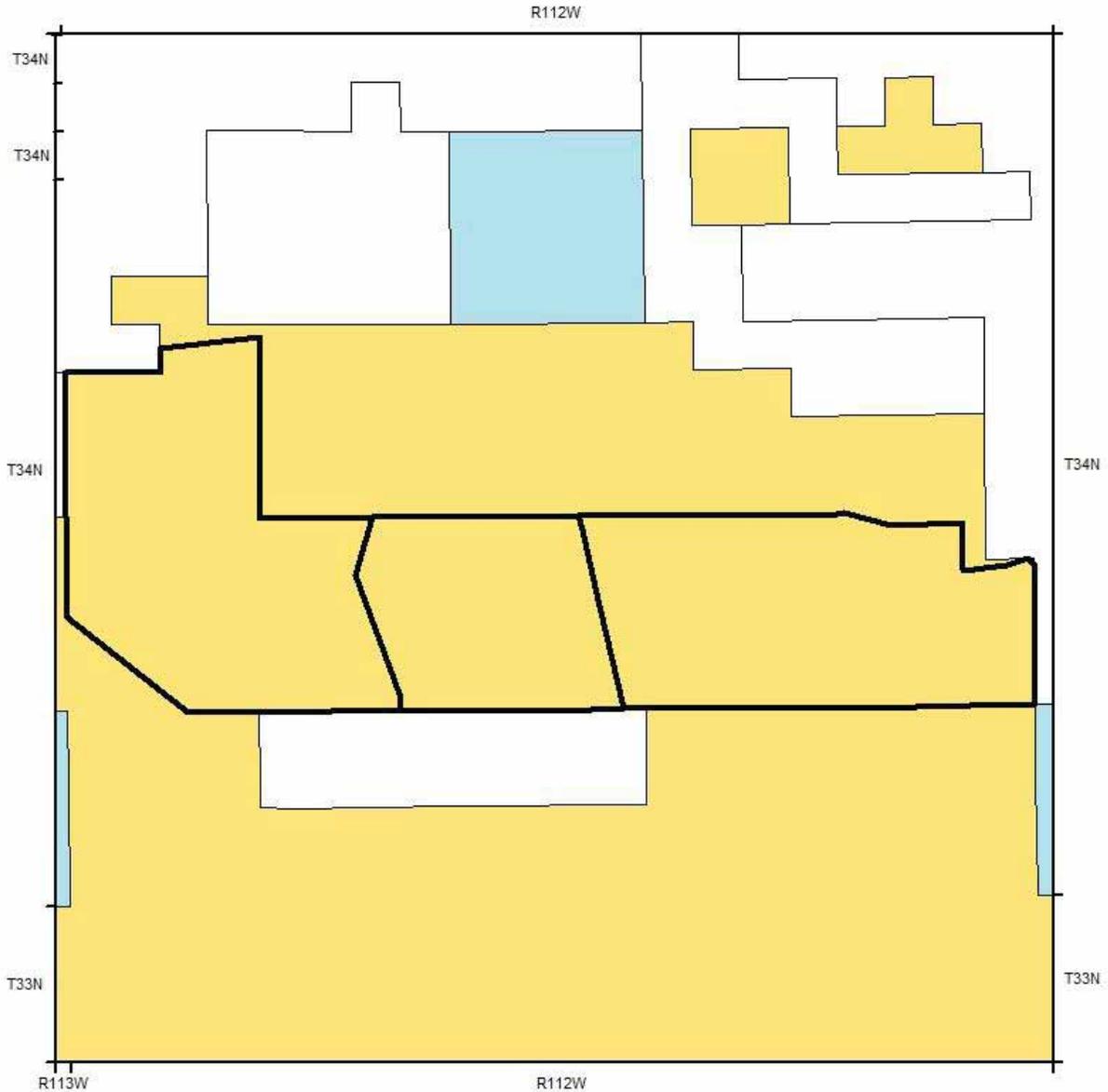
plant species are not available in sufficient quantities or are incapable of maintaining or achieving properly function conditions and biological health.

9. Grazing management practices on uplands will maintain desired plant communities or facilitate change toward desired plant communities.

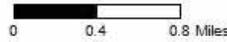
Appendix B. Maps

MAP 1

James Ryegrass Individual Allotment



- James_EA
- Bureau of Land Management
- Private
- State
- Water



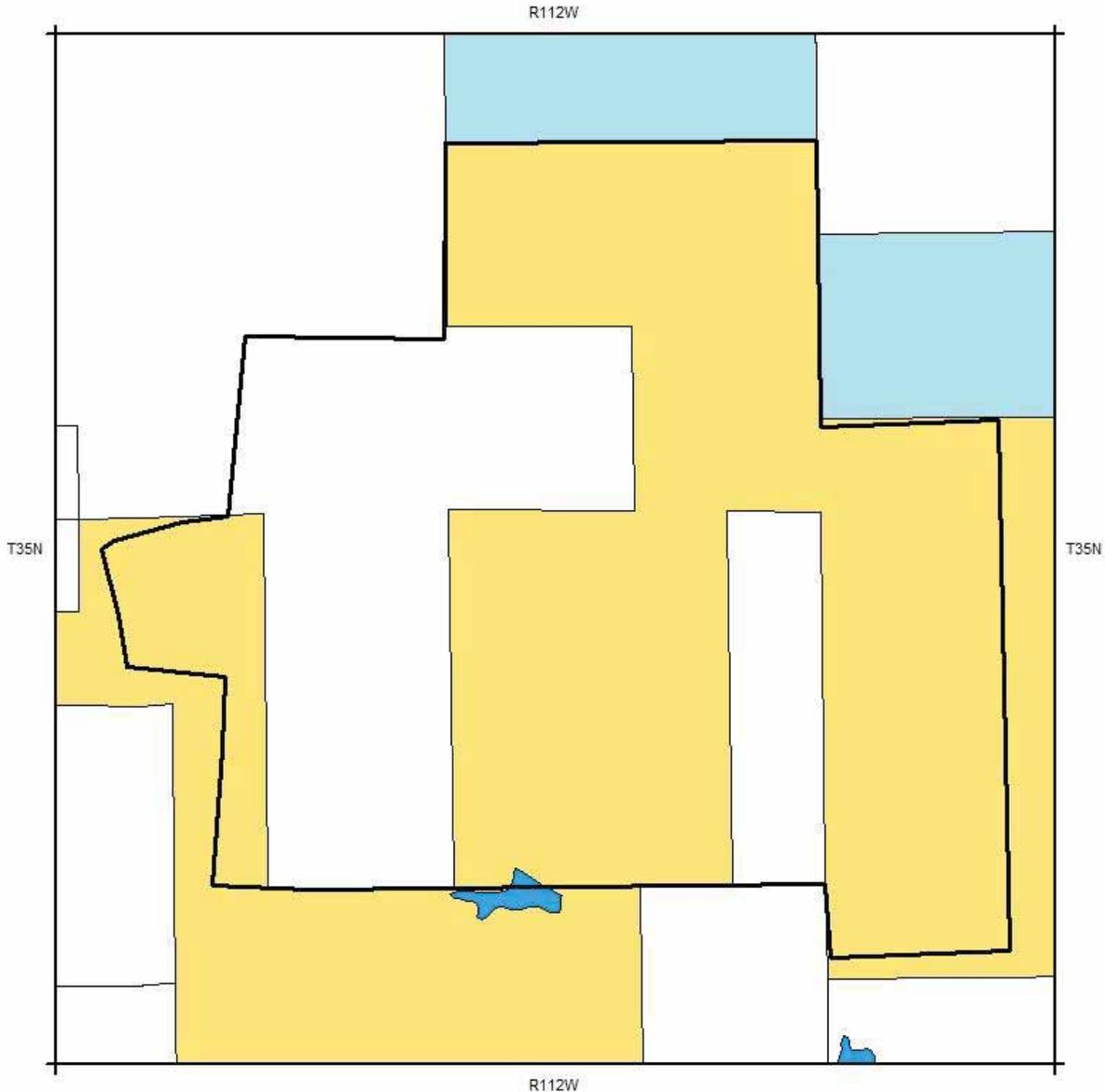
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N

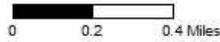


MAP 2

Webb Draw Pasture Allotment



- Webb Draw Pasture Allotment
- Bureau of Land Management
- Private
- State
- Water



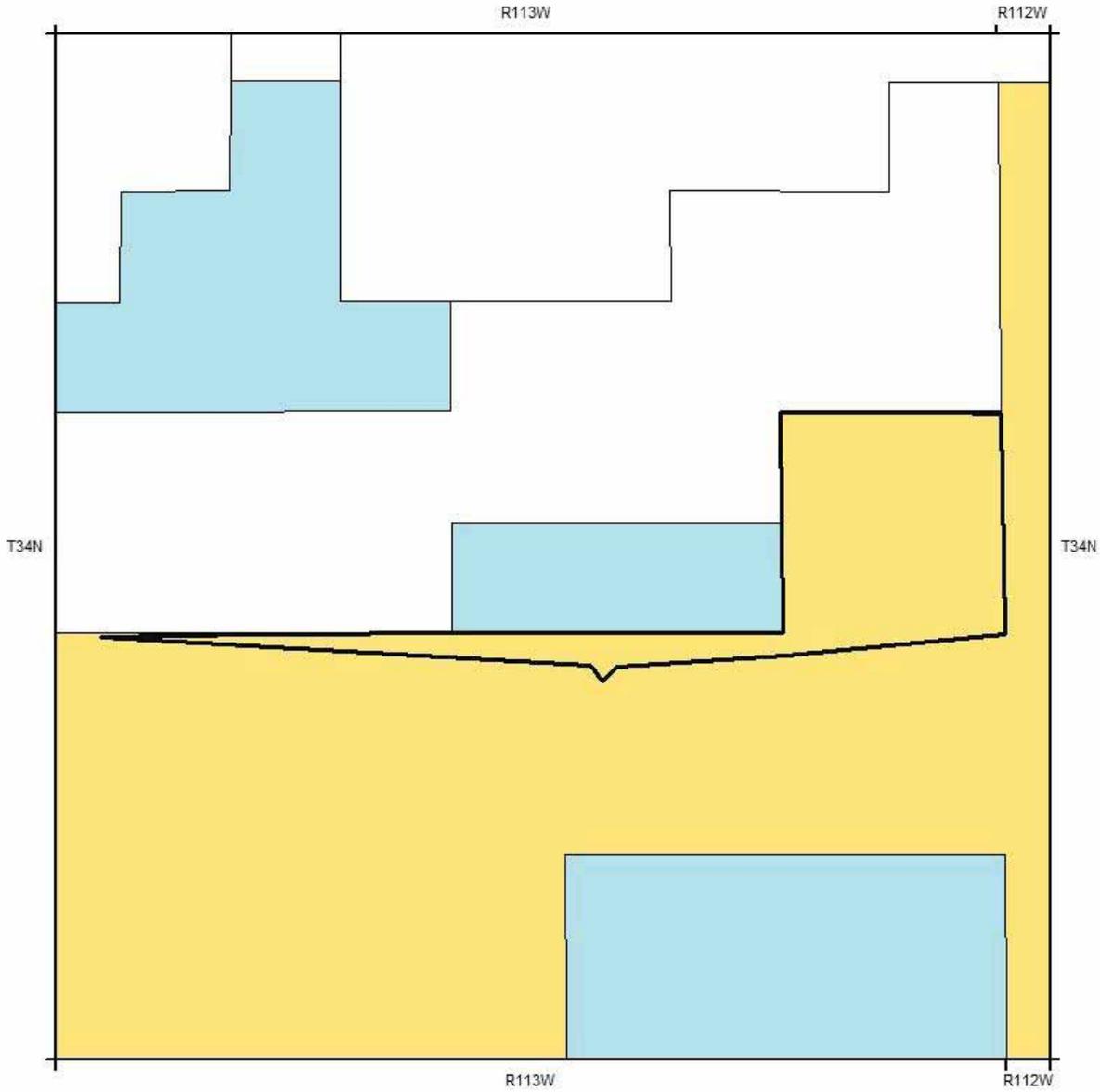
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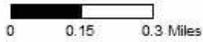


MAP 3

Ball Horse Creek Allotment

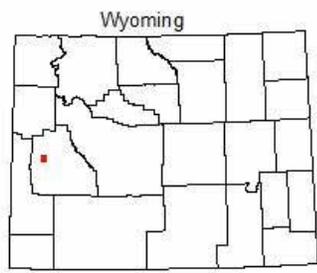


- Ball Horse Creek Allotment
- Bureau of Land Management
- Private
- State
- Water



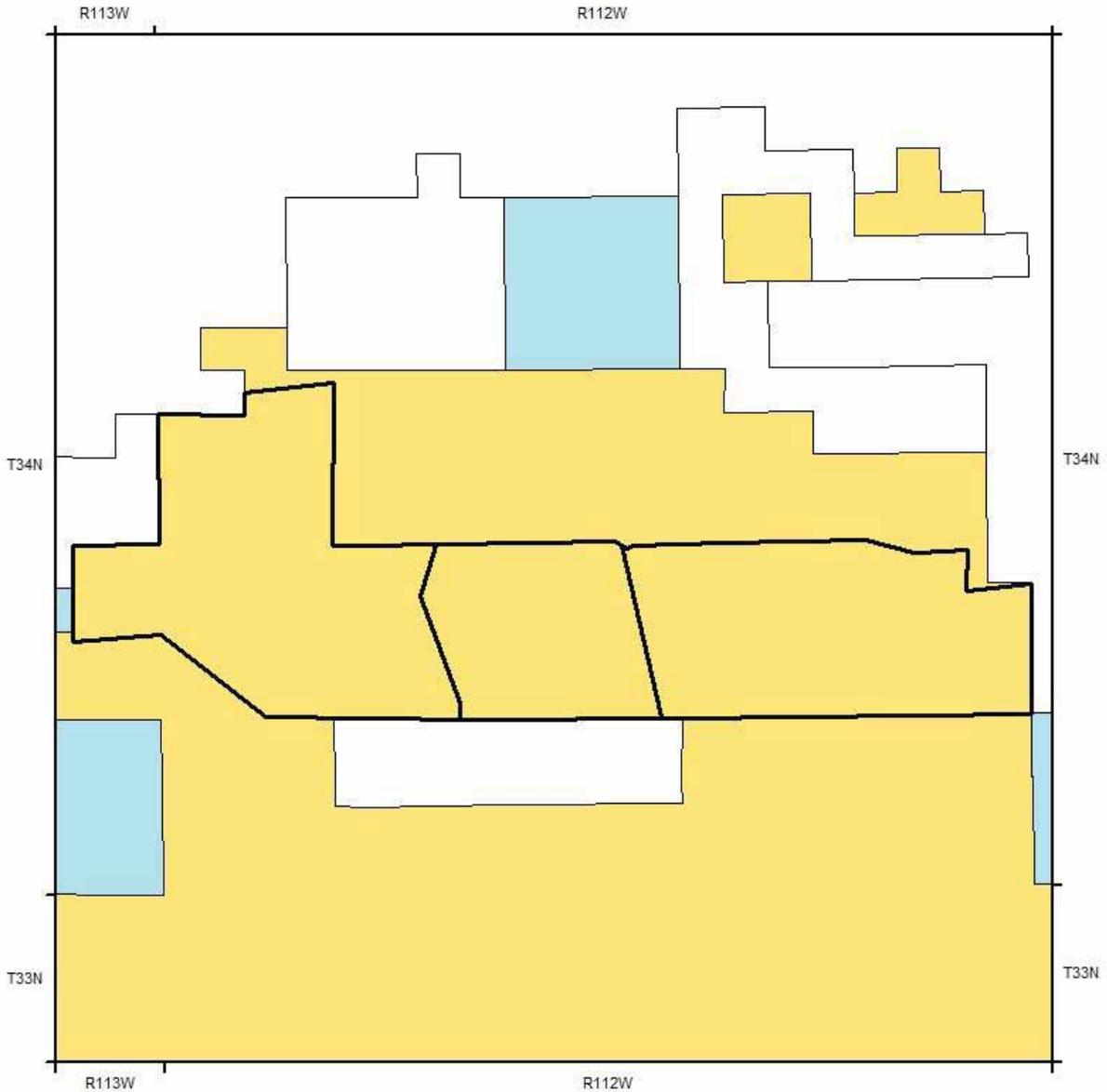
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N

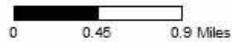


MAP 4

New James Ryegrass Allotment

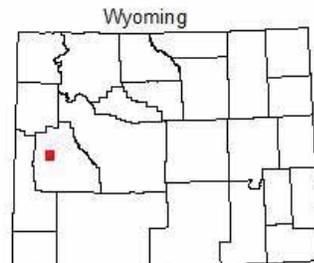


- New James Ryegrass Allotment
- James Ryegrass Pasture Fences
- Bureau of Land Management
- Private
- State
- Water



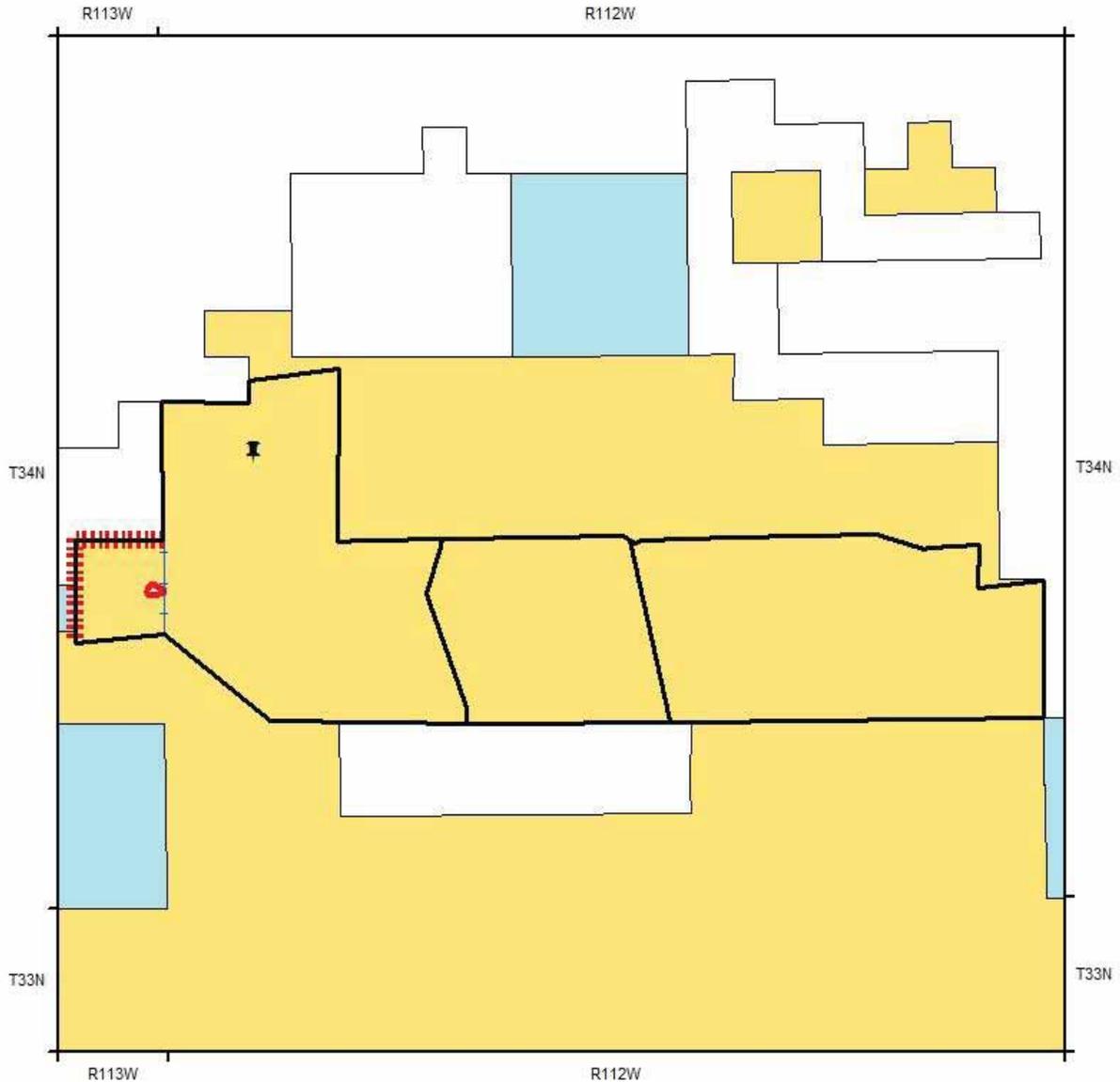
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Projection: UTM NAD83 Zone 12N

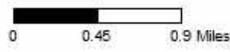


MAP 5

James Ryegrass Allotment Proposed Range Improvements



- New James Ryegrass Allotment
- James Ryegrass Pasture Fences
- Existing Fence Removed
- Proposed New Fence
- Proposed Water Well
- James Ryegrass Riparian Exclusion
- Bureau of Land Management
- Private
- State
- Water



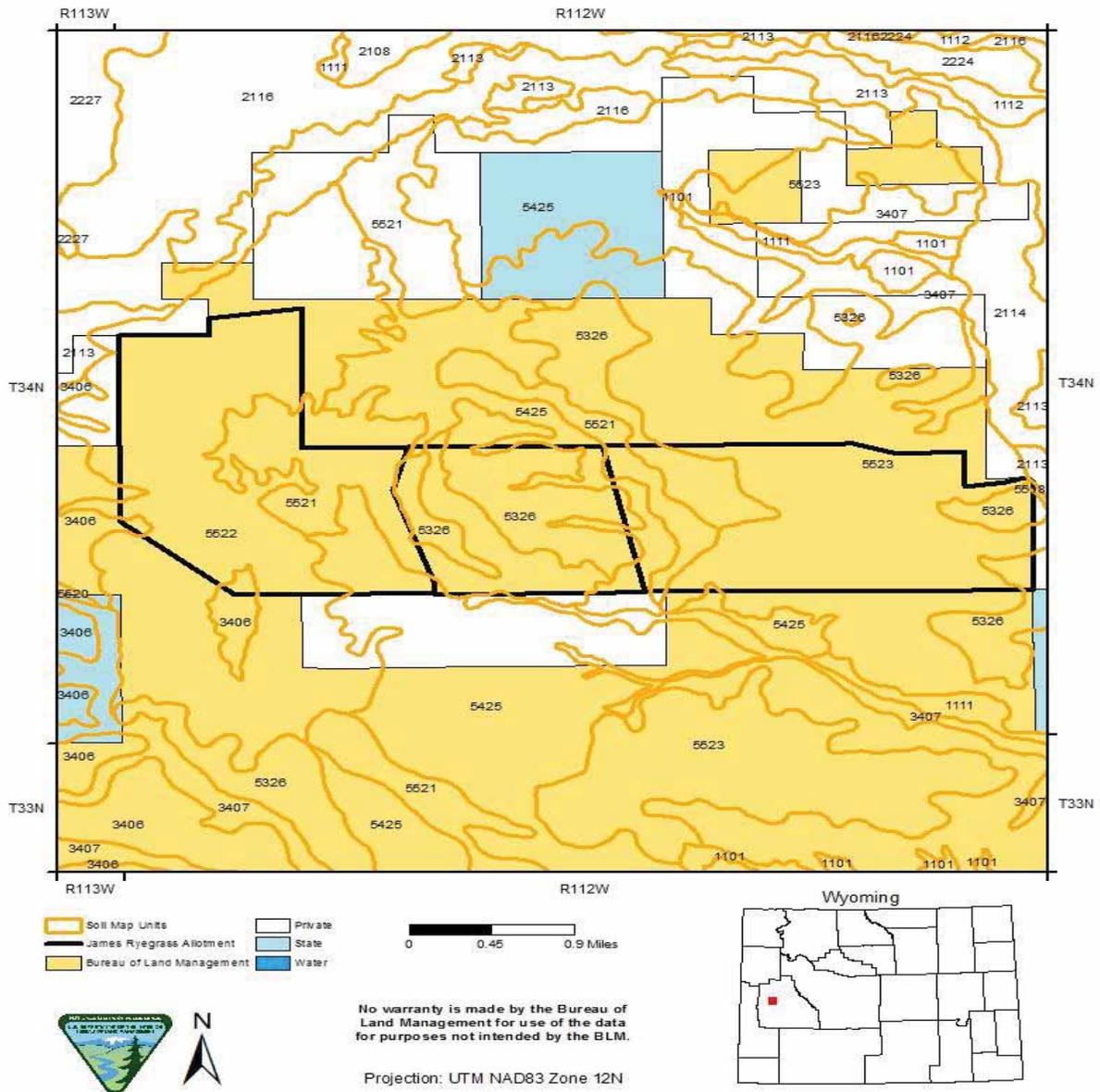
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Projection: UTM NAD83 Zone 12N



MAP 6

James Ryegrass Allotment Soils

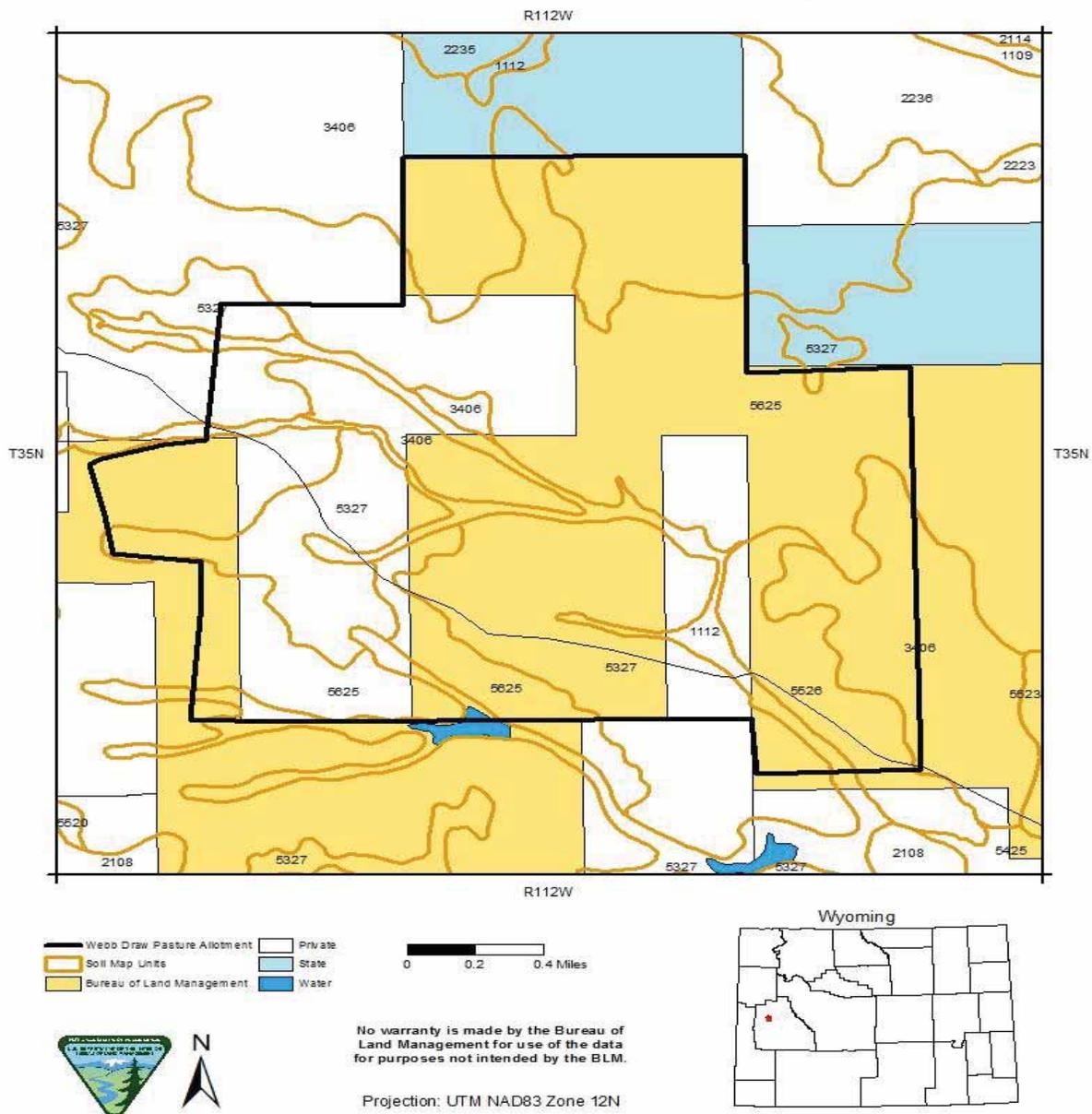


Soil Map Unit Key:

- 1111—Typic Cryohemists, 0 to 2 percent slopes
- 3406—Onionspring-Brodie complex, 2 to 15 percent slopes
- 5326—Cortyzack-Ryedraw complex, 2 to 15 percent slopes
- 5521—Golphco-Pinehill complex, 6-25 percent slopes
- 5425—Cheeseman-Pagoda complexes, 2 to 15 percent slopes
- 5522—Millerlake-Brodie-Conwaycreek complex, 6 to 25 percent slopes
- 5518—Golphco-Broback complex, 4 to 25 percent slopes
- 5523—Cortyzack-Ryedraw complex, 4 to 25 percent slopes

MAP 7

Webb Draw Pasture Soils Map



Soil Map Unit Key:

1111-- Typic Cryohemists, 0 to 2 percent slopes

1112—Furniss mucky peat complex, 0 to 3 percent slopes

5625--Sledrunner-Leavitt-Bridgimmer complex, 8 to 30 percent slopes

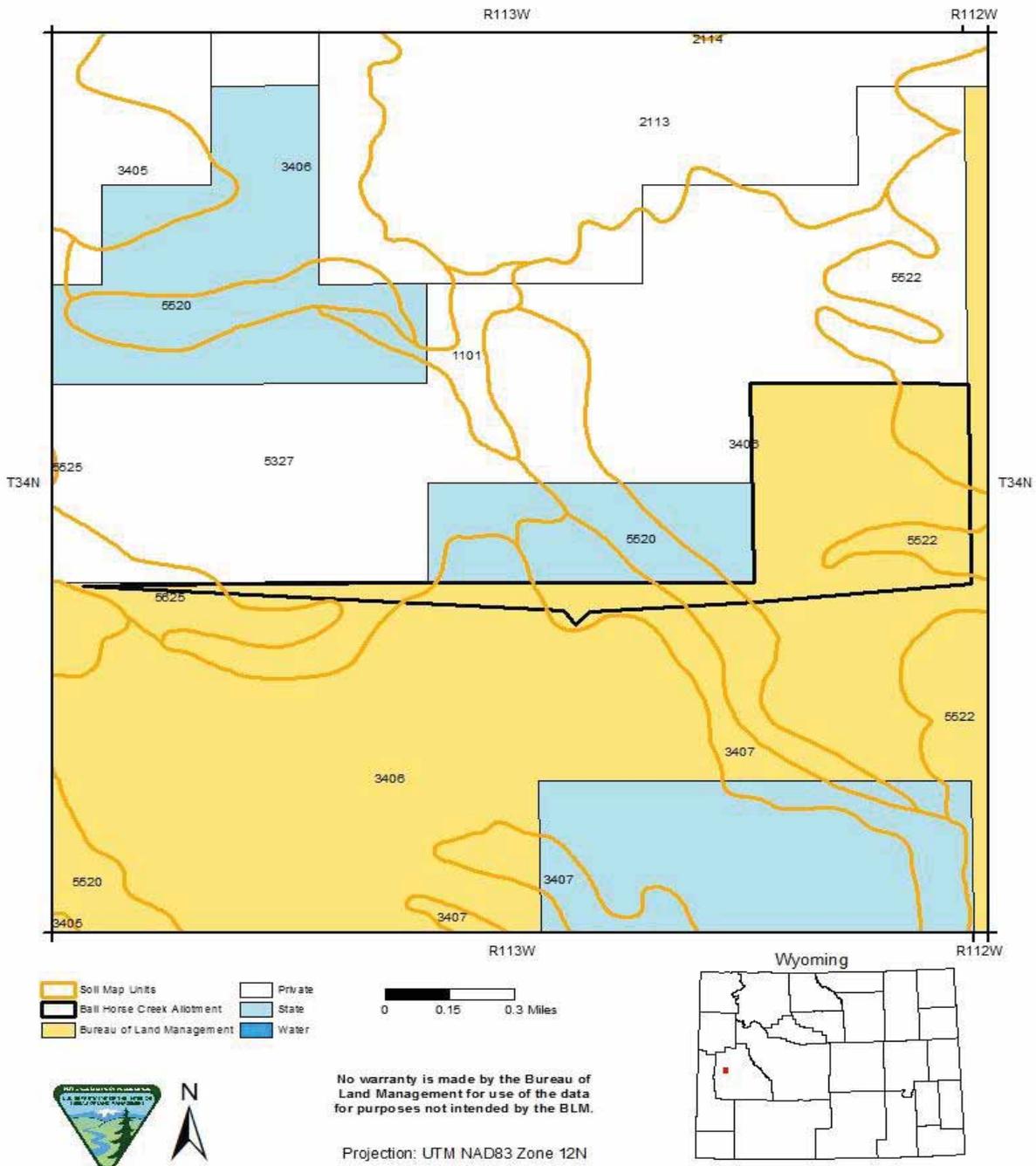
3406--Onionspring-Brodie, very stony complex, 2 to 15 percent slopes

5327--Webbdraw fine sandy loam, 2 to 12 percent slopes

5526--Coutis fine sandy loam, 4 to 25 percent slopes

MAP 8

Ball Horse Creek Allotment Soils



Soil Map Unit Key:

3406--Onionspring-Brodie, very stony complex, 2 to 15 percent slopes

3407--Onionspring-Millerlake complex, 4 to 20 percent slopes

5327--Webbdraw fine sandy loam, 2 to 12 percent slopes

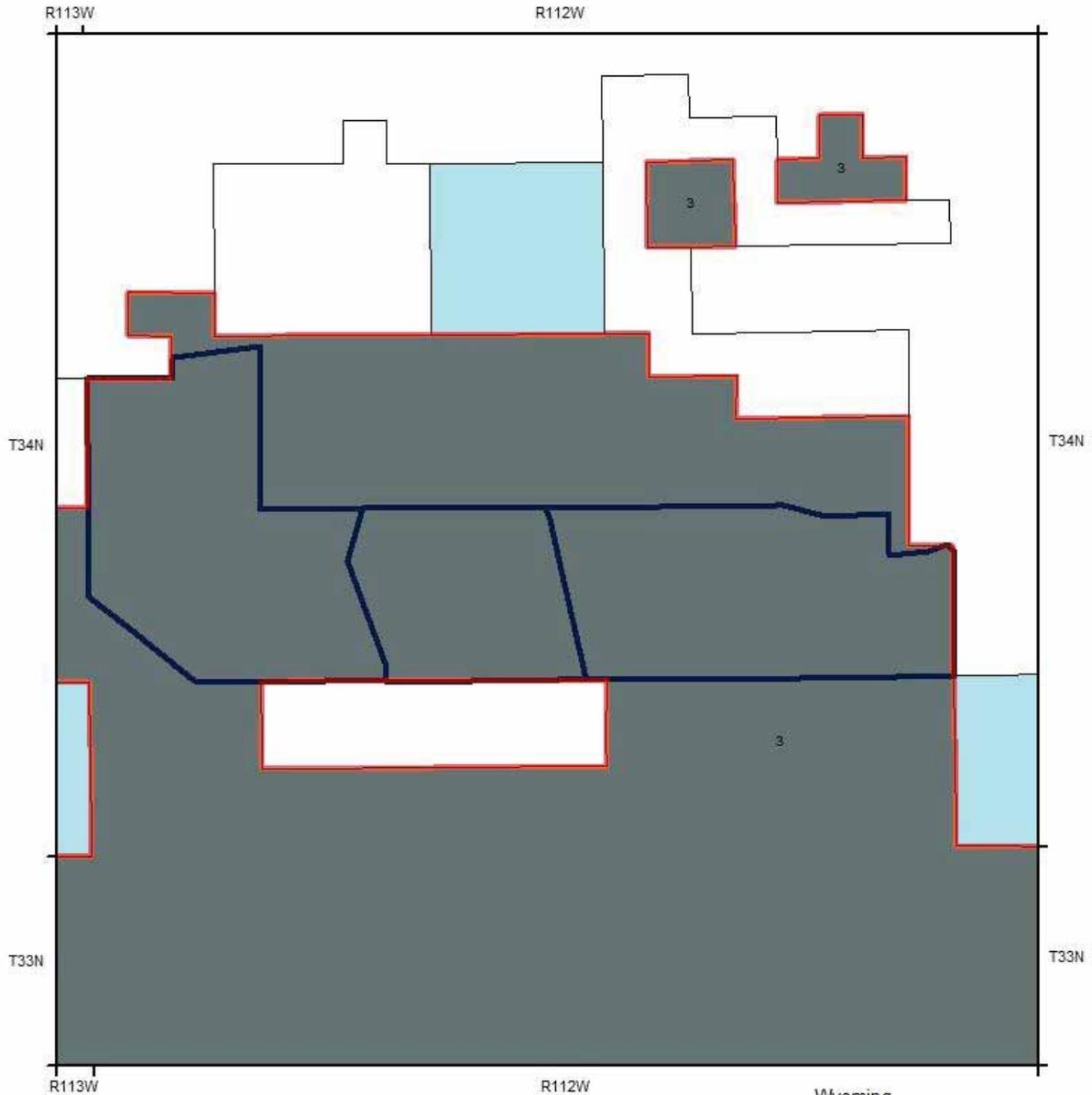
5520--Conwaycreek-Calpet-Inabnit complex, 8 to 30 percent slopes

5522--Millerlake-Brodie-Conwaycreek complex, 6 to 25 percent slopes

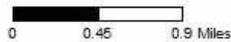
5625--Sledrunner-Leavitt-Bridgimmer complex, 8 to 30 percent slopes

MAP 9

James Ryegrass Individual Allotment VRM



- VRM Class III
- James Ryegrass Allotment
- Bureau of Land Management
- Private
- State
- Water



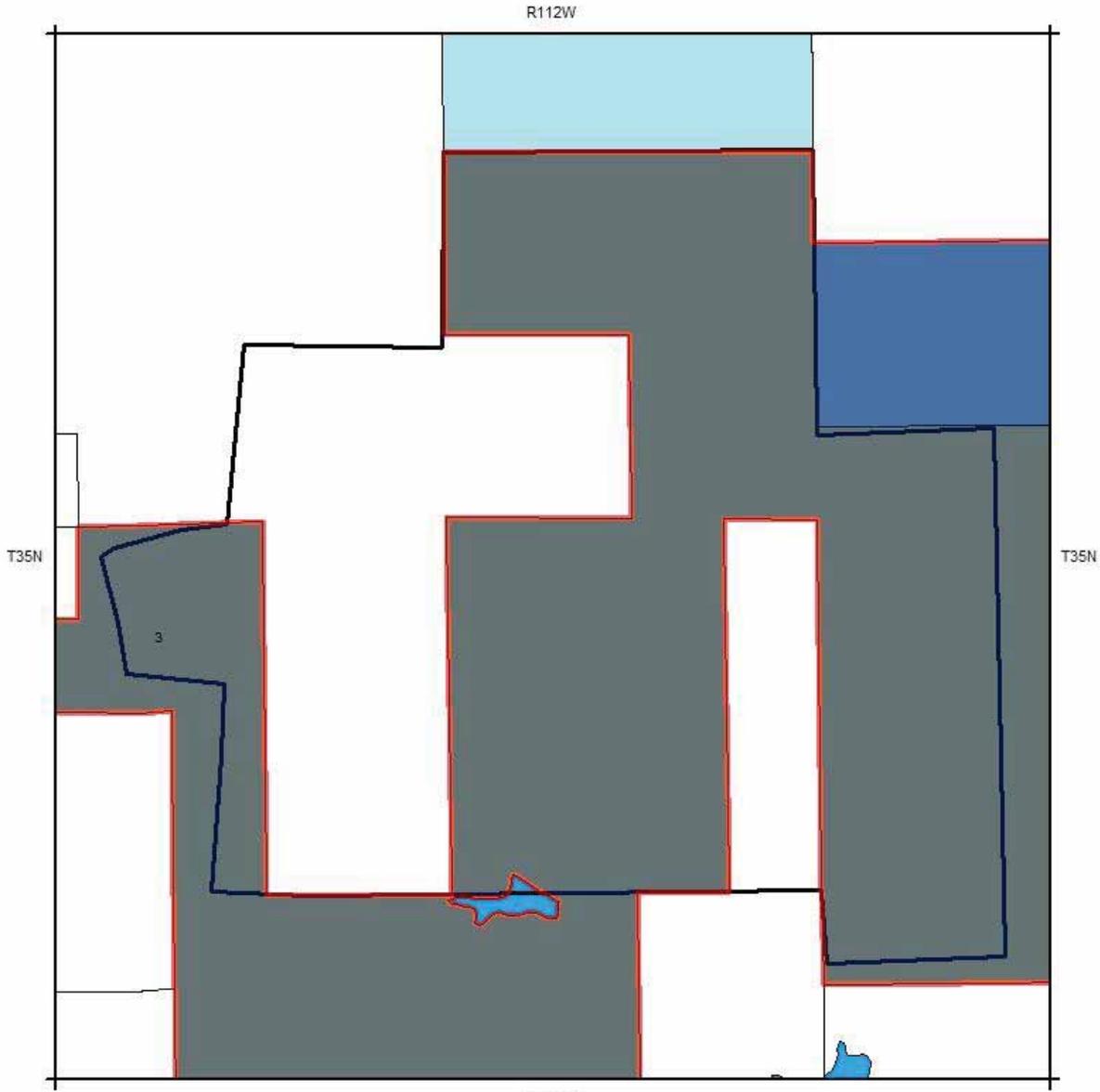
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Projection: UTM NAD83 Zone 12N



MAP 10

Webb Draw Pasture Allotment VRM



- VRM Class III
- Webb Draw Pasture Allotment
- Bureau of Land Management
- Private
- State
- Water



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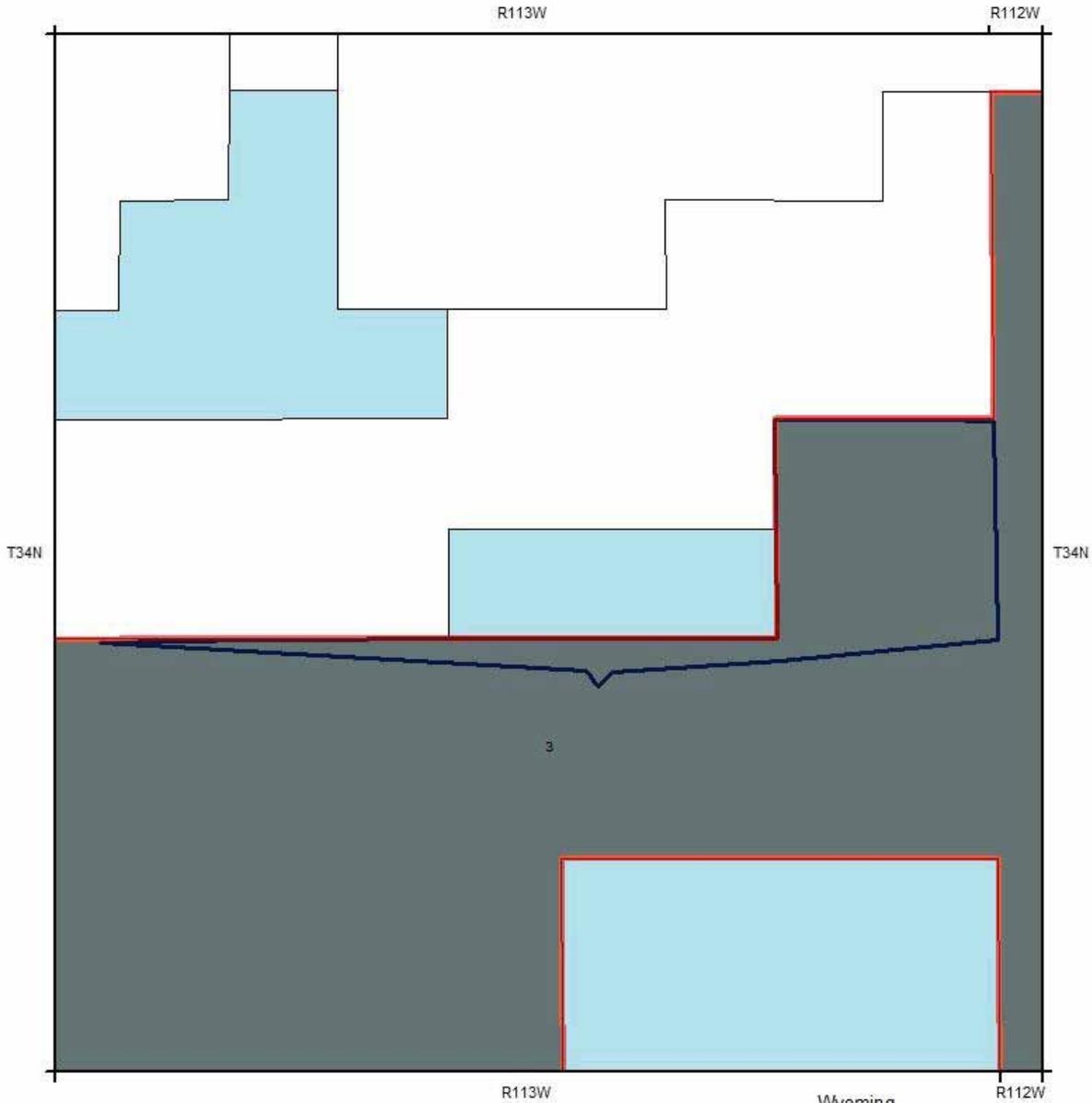
Projection: UTM NAD83 Zone 12N

Wyoming

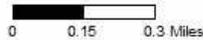


MAP 11

Ball Horse Creek Allotment VRM



- VRM Class III
- Ball Horse Creek Allotment
- Bureau of Land Management
- Private
- State
- Water

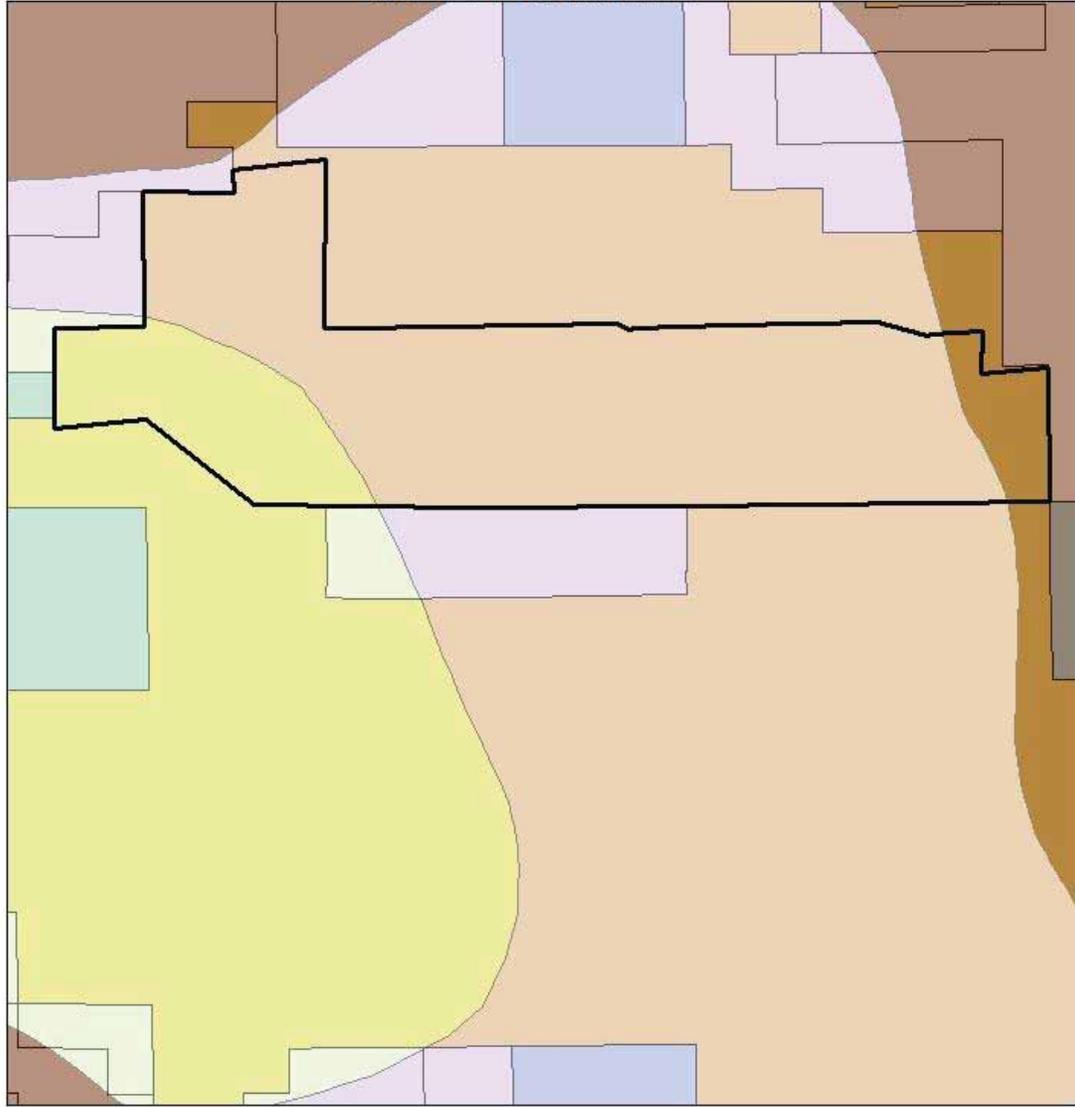


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

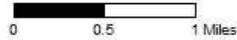
Projection: UTM NAD83 Zone 12N



James Ryegrass and Ball Horse Creek Moose Habitats

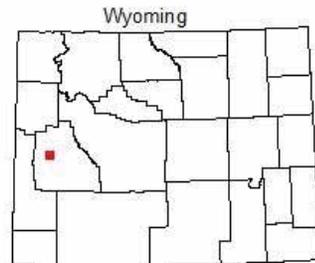


- Combined Allotments
- Private
- Moose Spring-Summer-Fall
- State
- Moose Winter Year-long
- Water
- Moose Crucial Winter Range
- Bureau of Land Management

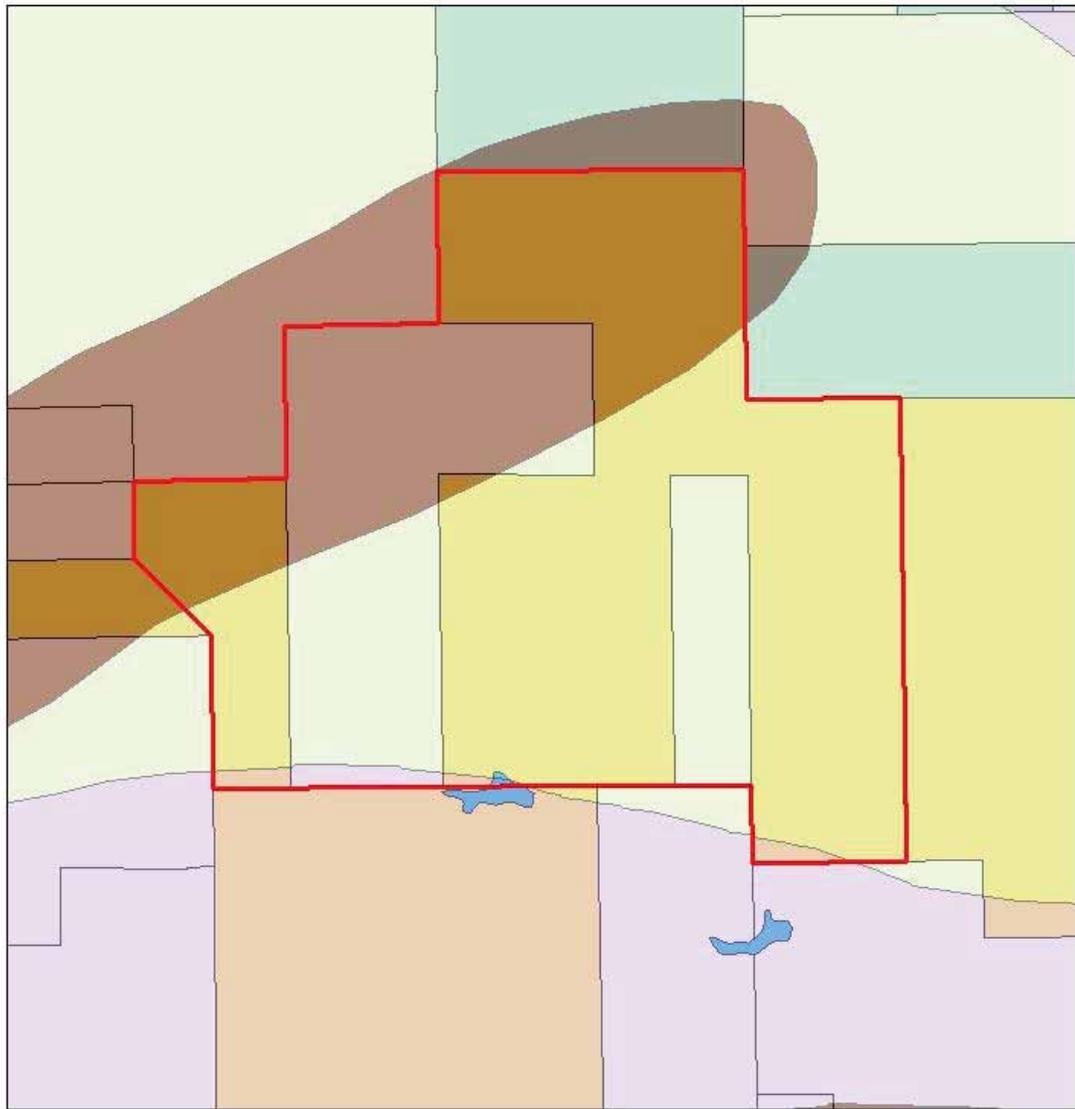


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

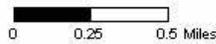
Projection: UTM NAD83 Zone 12N



Webb Draw Moose Habitats



- | | |
|-----------------------------|---------|
| Webb Draw | Private |
| Moose Spring-Summer-Fall | State |
| Moose Winter Year-long | Water |
| Moose Critical Winter Range | |
| Bureau of Land Management | |

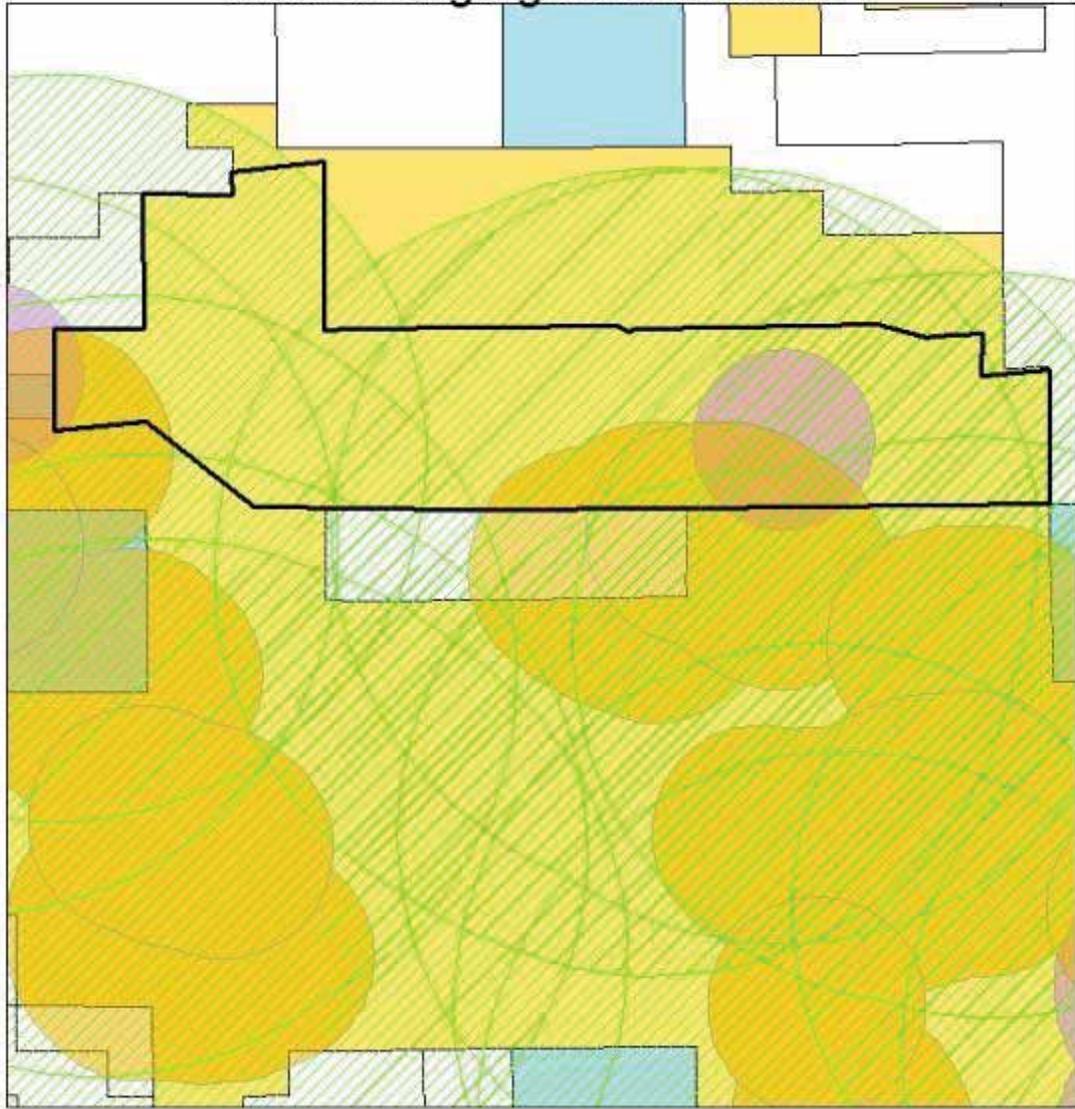


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N



James Ryegrass and Ball Horse Creek Greater Sage-grouse Habitats



- Combined Allotments
- Sage-grouse Nesting
- Lake 0.6 mile buffer
- Sage-grouse Winter Concentration
- Bureau of Land Management

- Private
- State
- Water



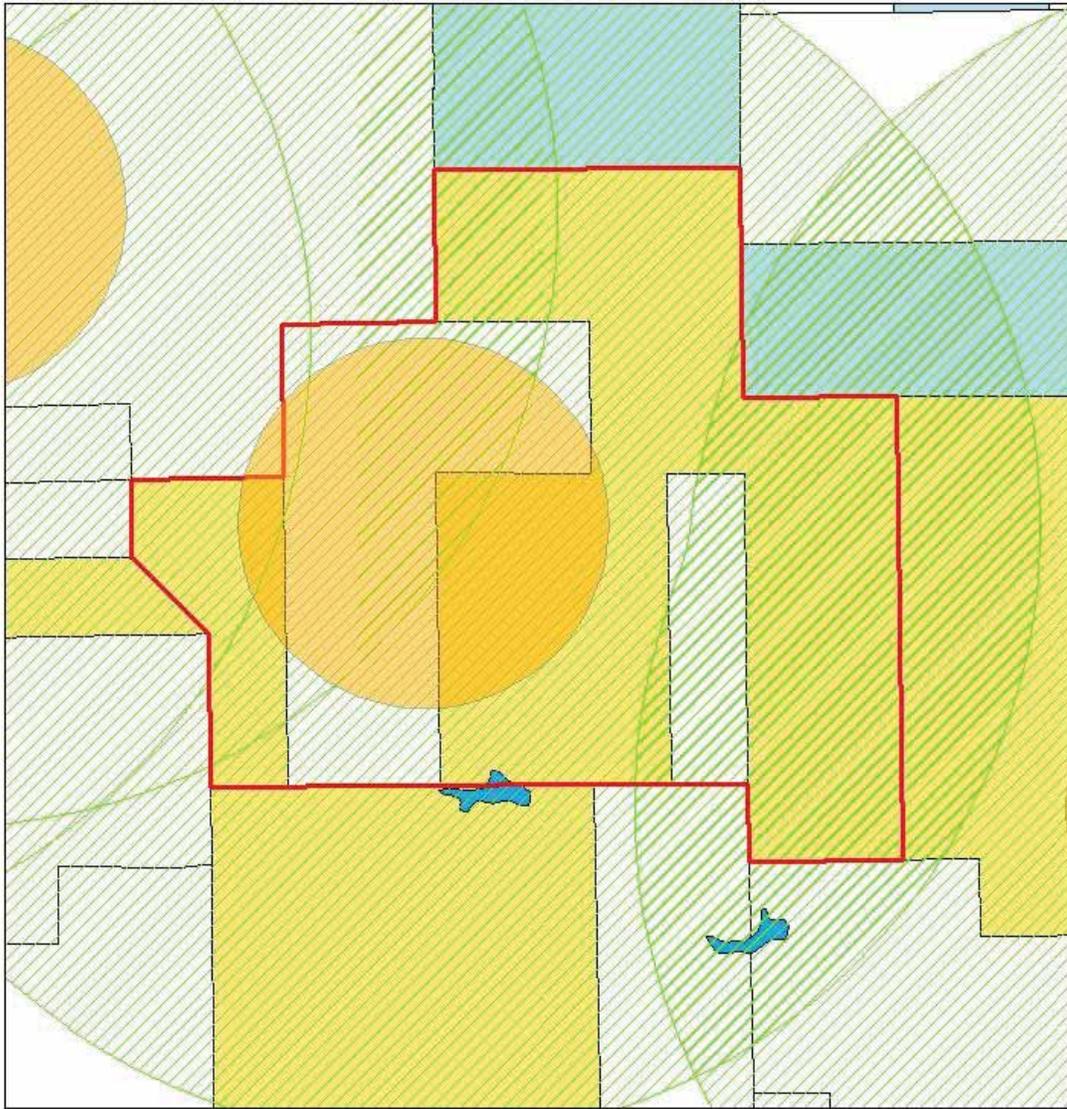
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N

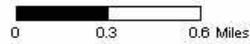


MAP 15

Webb Draw Greater Sage-grouse Habitats



- Lek 0.6 mile buffer
- Webb draw
- Sage-grouse Nesting
- Bureau of Land Management
- Private
- State
- Water

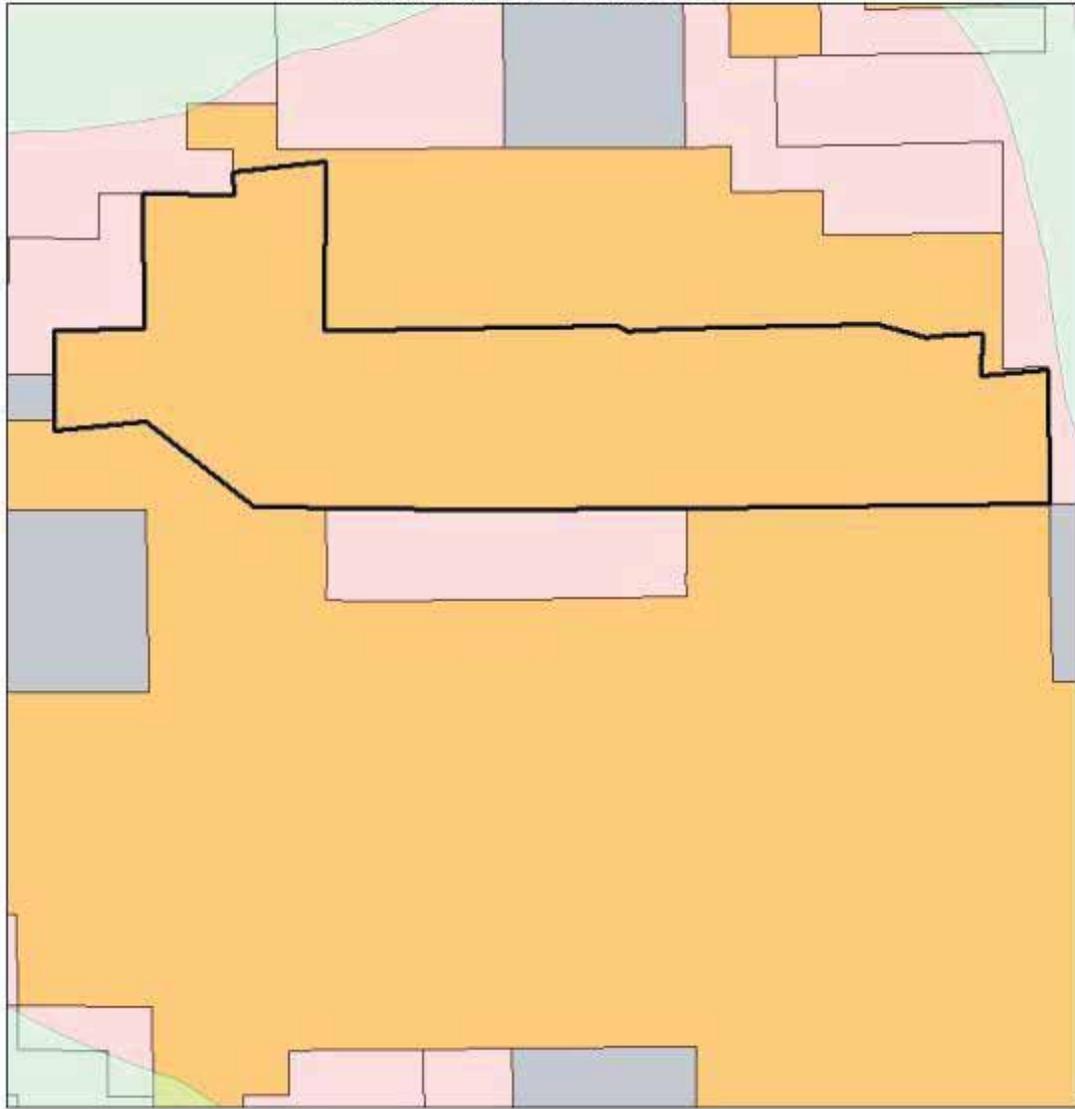


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N



James Ryegrass and Ball Horse Creek Mule Deer Habitats



- Combined Allotments
- Mule Deer Spring-Summer-Fall
- Mule Deer Critical Winter Range
- Bureau of Land Management
- Private
- State
- Water

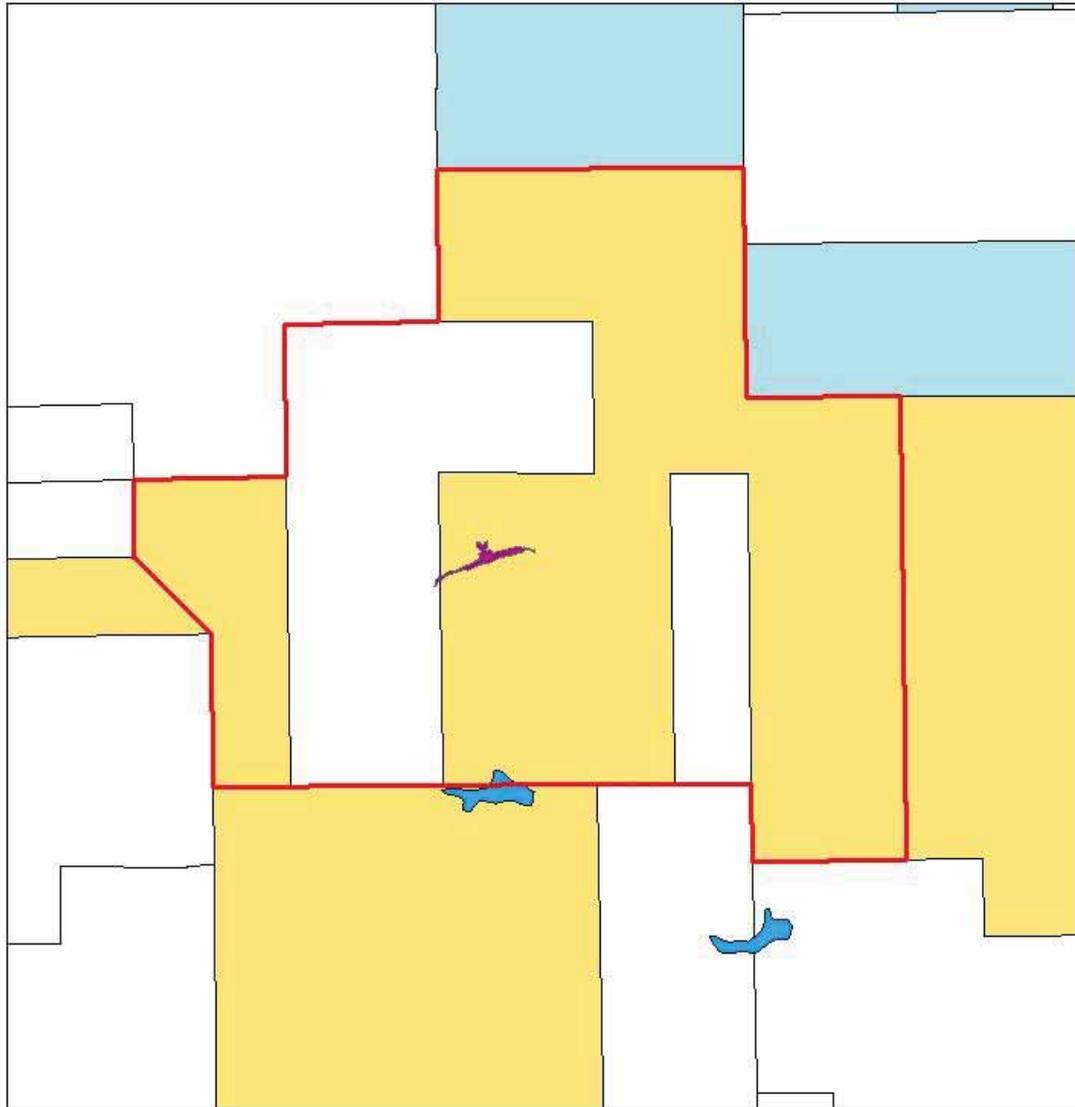


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

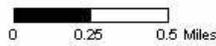
Projection: UTM NAD83 Zone 12N



Webb Draw Sensitive Plant Species



- Artemisia arbuscula*
- Webb_draw
- Bureau of Land Management
- Private
- State
- Water



Wyoming



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Projection: UTM NAD83 Zone 12N

APPENDIX C. James Ryegrass Health
Assessment

James Ryegrass Individual Allotment

Rangeland Health Assessment

Pinedale Field Office
High Desert District
Bureau of Land Management



I. Introduction

In accordance with 43 CFR 4180.2(b), the Standards for Healthy Rangelands and Guidelines for Livestock Grazing management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming were approved by the Wyoming State Director in August 1997. The objectives of the rangeland health regulations are to “promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions... and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.”

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Initially, the standards focused on livestock grazing on BLM-administered lands, but the standards were developed to apply to all users and resources. BLM collected the indicators for rangeland health on the James Ryegrass Allotment and conducted a rangeland health assessment in the fall of 2012, Site selections were based on the dominant ecological sites within the allotment.

II. Background

Wyoming Standards for Rangeland Health

The standards are the basis for assessing and monitoring rangeland conditions and trend. The assessments evaluate the standards and are conducted by an interdisciplinary team. The six standards are as follows:

Standard #1

Standard 1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

This Means That:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly variable within Wyoming.

Indicators May Include But Are Not Limited To:

Water infiltration rates

Soil compaction

Erosion (rills, gullies, pedestals, capping)

Soil micro-organisms

Vegetative cover (gully bottoms and slopes)

Bare ground and litter

Standard #2 Riparian

Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.

This Means That:

Wyoming had highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

Indicators May Include But Are Not Limited To:

Erosion and deposition rate
Channel morphology and floodplain function
Channel succession and erosion cycle
Vegetative cover
Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
Bank stability
Woody debris and instream cover
Bare ground and litter

Standard #3 Upland Vegetation

Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

This Means That:

Plant communities must have the components present to support the nutrient cycle and adequate energy flow to maintain desirable conditions and/or recover from disturbance within acceptable timeframes. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and the soil are fundamental components of rangeland health. The amount, timing and distribution on energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

Indicators May Include But Are Limited To:

Vegetative cover
Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
Bare ground and litter
Erosion (rills, gullies, pedestals, capping)
Water infiltration rates

Standard #4 Wildlife

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened, endangered, species of special concern, or sensitive species will be maintained or enhanced.

This Means That:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species to recover and be delisted.

Indicators may Include But Are Not Limited To:

Noxious weeds
Species diversity
Age class distribution
All indicators associated with the upland and riparian standards
Population trends
Habitat fragmentation

Standard #5 Water Quality

Water Quality meets State standards.

This Means That:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming's Water Quality rules and Regulations. The latter regulations contain Quality Standards for Wyoming Surface Waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

Indicators may Include But Are Not Limited To:

- Chemical characteristics (e.g., pH, conductivity, dissolved oxygen)
- Physical characteristics (e.g., sediment, temperature, color)
- Biological characteristics (e.g., macro- and micro- invertebrates, fecal coliform, and plant and animal species)

Standard #6 Air Quality

Air quality meets State standards

This Means That:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming Air Quality Standards and Regulations.

Indicators may Include But Are Not Limited To:

- Particulate matter
- Sulfur dioxide
- Photochemical oxidants (ozone)
- Volatile organic compounds (hydrocarbons)
- Nitrogen oxides
- Carbon monoxide
- Odors
- Visibility

Standards Not Met

If an assessment shows that the standard(s) is/are not being met, factors contributing to the non-attainment are identified and management recommendations developed so the standards may be attained. A determination will be made whether livestock grazing is contributing to non-attainment of the standard(s). If livestock are contributing to the nonattainment of a standard, management practices will be implemented to ensure that progress is being made toward attainment of the standard(s). These practices must be implemented as soon as practical but no later than the start of next grazing season, The rangeland standards established a threshold; however, the desired resource condition will usually be at a higher level than the threshold.

General Information

The James Ryegrass Allotment is located approximately 18 miles west of Pinedale, Wyoming in Township 34 North, Range 112 West, Sections 19, 26, 27, 28, 29, and 30. The allotment includes 3,585 acres of public lands administered by the Bureau of Land Management in three pastures (Appendix 1.

Map 1). The allotment ranges in elevation between 7,400 and 7,800 feet with annual precipitation from 12 to 17 inches per year. Daytime winds are generally out of the northwest with occasional wind gusts of 30 mph or greater. Average low temperature is 20 degrees Fahrenheit and average high temperature is 48 degrees Fahrenheit, with temperatures ranging from -35 to 87 degrees Fahrenheit.

Soils

The soils in the James Ryegrass Allotment are moderately to very deep and as you go east to west it goes from an Aridic Ustic to a Typic Ustic soil moisture regime with a frigid soil temperature regime (USDA NRCS (SOIL SURVEY)). Family soil particle size classes in the James Ryegrass Allotment are fine-loamy, fine, and loamy skeletal. Depending on slope and cover the susceptibility for water erosion ranges from slight to severe. In general, soils within the James Ryegrass Allotment are stable with little to no erosion and tolerable soil loss is 4 to 5 tons per acre per year. Soil map units can be seen in Appendix 2 Map 2.

Noxious Weeds

There are 25 designated weeds as noxious in the State of Wyoming. Sublette County has 5 additional species on its declared list of weeds. Noxious weeds and other invasive species that occur within the assessment area include Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), and black henbane (*Hyoscyamus niger*). Black henbane and musk thistle are found along the main road that passes through the assessment area. Canada thistle is found around a few range improvements. Cheatgrass is known to occur in the area but none has been reported or found within the assessment area. Sources of potential invasion include vehicles, recreational vehicles, livestock, and wildlife.

Ecological Sites

The Natural Resources Conservation Service (NRCS) has divided up the United States into Major Land Resource Areas (MLRAs). MLRAs are geographic areas with similar elevation, topography, soils, geology, climate, water, soils, biological resources, and land use (Cagney 2010). The James Ryegrass Grazing Association Allotments encompass two MLRAs (MLRA 34A Cool Central Desertic Basins and Plateaus; MLRA 43B Central Rocky Mountains). The NRCS has made revisions to the MLRAs based on soil, precipitation zones and divided them up into Ecological Site Descriptions (ESDs). The dominant Ecological Sites within the allotments are as follows:

James Ryegrass Ecological Sites

Ecological Site	BLM acres	Percent of Allotment
Loamy 10-14"	835	23
Loamy 15-19"	427	12
Coarse Upland 10-14"	599	17
Coarse Upland 15-19"	192	5
Shallow Clayey 10-14"	618	17
Gravelly 15-19	185	5
Minor Components	729	20
Total:	3585	99

Ecological sites are based on the historic reference plant community (HRPC). The HRPC for a site in North America is the plant community that existed at the time of European immigration and settlement. It is the plant community that's best adapted to the unique combination of environmental factors associated with the ecological site (National Range and Pasture Handbook).

Most ecological sites can support several different vegetation communities and can exhibit change between plant communities due to various management interactions. These different vegetation communities are called states. State-and-transition models describe the various states for an ecological site and how the states can change from one to another. There are two important elements of a state and transition model, which are resistance and resilience. Resistance refers to the capability of the state to

absorb disturbance and stress and retain its ecological structure. Resilience is the amount of disturbance or stress a state can endure and still function after the stress and disturbance is removed (Nation Range and Pasture Handbook). Once a threshold has been crossed in a state it can't be changed back to its natural state by a simple change in management or naturally occurring events. Disturbances such as fire, mowing, or plantings are required to return vegetation communities to their natural state. A new state is formed when the system reestablishes stability among the ecological processes with a different plant community.

Upland Vegetation

Much of the assessment area falls within the Wyoming Big Sage/Rhizomatous Grass-Bluegrass State. This state contains a sagebrush canopy with an herbaceous plant community dominated by rhizomatous grasses and bluegrasses. This community is the result of continuous season-long grazing (Cagney 2010). Rhizomatous grasses and bluegrasses are more resistant to grazing than are larger stature bunchgrasses. This state produces less forage and cover than the Sagebrush/Bunchgrass State. Wyoming big sagebrush eventually dominates this plant community. Forbs such as phlox, larkspur, buckwheat, and pussytoes increase. Grasses such as Sandberg bluegrass, Letterman needlegrass, and rhizomatous wheatgrass increase in proportion to other grasses such as bluebunch wheatgrass, Indian ricegrass, and needleandthread.

The Sagebrush/Bunchgrass Plant Community is considered a dominant state or the "potential" within the assessment area. This state evolved with grazing by large herbivores (Cagney 2010). This HRPC provides a mix of sagebrush and herbaceous understory for ample cover and forage for livestock and wildlife. Potential vegetation is estimated at 75% grasses or grass-like plants, 10% forbs, and 15% woody plants (USDA). The major grasses include rhizomatous wheatgrass, bluebunch wheatgrass, Letterman needlegrass, Canby bluegrass, and needleandthread. Other grasses may include Indian ricegrass, prairie junegrass, and bottlebrush squirreltail, Sandberg and mutton bluegrass, threadleaf and needleleaf sedge. Wyoming big sagebrush is the dominant woody plant. Other woody species include rabbitbrush and winterfat (USDA). For further description of the plant communities associated with the James Ryegrass Assessment ecological sites, refer to the USDA NRCS Technical Guide, Section III. See Appendix 3 and for a list of plant species that occur within the assessment area.

The health of vegetation communities includes the stage of succession within the ecological site and other factors, such as grazing or browsing, insects, disease, fire, chemical and mechanical treatments, and climate. Typical elements used in describing health include: species and cover composition, vertical structure, and age class and contains appropriate plant communities that are resilient, diverse, and able to recover from natural and human disturbance.

The reference state for the Loamy 10-14 is described by the relative dominance of sage brush vs. bunchgrass. Several states outside of the reference are also described and often are attributed to disturbance such as grazing or lack of natural disturbance like fire. The plant communities that are most common for the Loamy ESD in the assessment area include Bunchgrass/WY Big Sagebrush or WY Big Sagebrush/Bunchgrass (reference state) and WY Big Sagebrush/Rhizomatous/Sandberg bluegrass (grazing resistant). The reference state provides diverse plant communities that support hydrologic and biological function. It's thought that historic continuous spring grazing and lack of fire (disturbance) has led to the transition to the WY Bigsage/Sandberg bluegrass state. In this state, mid-size bunchgrasses are less abundant or absent and have been replaced by smaller bunchgrasses (Sandberg) and rhizomatous wheatgrasses that are more grazing resilient. This plant community is stable under light to moderate grazing. Inputs such as mechanical sagebrush removal and seeding with desired perennial grasses, along with grazing management (rest or deferment), would be needed to transition back to the reference state. Increased intensity and/or frequency of disturbance (grazing/treatments) may push this state to the WY Big Sagebrush/Bare ground or WY Big Sagebrush/Rabbitbrush.

In some instances bunchgrasses have been reduced compared to the reference state and grazing resistant grasses and sagebrush have increased. The current deferred grazing rotation system provides for plant health, reducing the potential for further transition from reference.

Wildlife

The plant communities associated with different habitat types that occur within the assessment are described earlier in this document. While some wildlife species use several to many habitat types, other species are specific in their habitat needs. This section presents the current known status, distribution and habitat needs of wildlife within and specific to the James Ryegrass as well as important topics related to those species.

Big Game Species

For WGFD Habitat Designation definitions see Appendix 4.

Pronghorn

Pronghorn are selective browsers that require a variety of vegetative species on the landscape. Their diet is typically dominated by sagebrush and other low growing shrubs and forbs. Grass is only consumed when green and succulent. The availability of browse, especially sagebrush, appears to be a limiting factor on winter range. Under severe winter conditions, pronghorn are confined to lower south-southwest facing slopes that typically retain some level of exposed vegetation during adverse conditions.

The assessment area is located within the 10,546 square-mile Sublette Pronghorn Herd Unit. Pronghorn in this herd unit are migratory, primarily making the 150 plus mile migration between summer ranges in the Jackson Hole Valley and wintering areas along the Green River near Seedskaadee National Wildlife Refuge and areas within and south of Jonah Natural Gas field (Sawyer and Lindzey 2000).

The sage-brush dominated uplands in the assessment area serve as habitat for pronghorn through-out the spring summer and fall seasons (Table 2). The snow load associated with this area limits its value as winter habitat. The assessment area does encompass portions of migration corridors that extend from the upper Hoback to crucial winter range south and east of the allotment (Appendix 7 Map 3).

Mule Deer

Mule deer are primarily browsers with various forb and shrub species comprising the majority of their diet. Due to their smaller rumen mule deer diets tend to be more selective relative to other ungulates such as elk. It is therefore important to maintain a diversity of forage on the landscape allowing for a variety of browse options. Winter browse habitats are dominated by shrubs such as sagebrush, saltbush, and bitterbrush. Shrubs are typically more available in the winter and retain a higher percent of their nutritional value compared to dormant forbs and grass.

The assessment area serves as habitat for mule deer in the Sublette Herd Unit. The assessment provides crucial wintering habitat for deer that summer in the Hoback Canyon and Wyoming range (Table 2). The primary value this area provides is transitional habitat for deer migrating to winter ranges on the Mesa Winter Range Complex. The Sublette mule deer herd is potentially the most migratory herd within the western states, often spending 5 to 6 months per year on transition ranges and travelling over more rugged terrain than any other Wyoming deer herd (Sawyer and Lindzey 2001).

In general, transitional ranges such as those found in the assessment area provide a more diverse foraging regime than lower elevation winter ranges. Retaining deer within transition ranges for a longer period of time can effectively reduce foraging pressure on winter ranges (Sawyer and Lindzey 2001).

Sawyer and Nielson (2011) summarized WGFD population estimates for the entire Sublette herd unit and revealed that a 23% reduction in deer abundance occurred from 2001 to 2010. The ryegrass and Soapholes winter range area have been monitored as a reference study area for the Mesa complex since 2006. During that period (2006-2010) there has been a 12% increase in the number of deer using in the Ryegrass/Soapholes area. The Mesa winter range proper has seen a 43% decline (2001-2010). Estimates are based on weighted linear regression analysis and annual aerial population counts (Sawyer and Nielson

2011). Resident deer are also known to use the agricultural lands along Horse Creek year round. Although some parturition may occur within the assessment area, the majority of deer give birth to young outside of the area.

Elk

Elk diets consist mostly of grasses and forbs in the spring and summer, with shrubs representing an important winter forage component, respectively. The entire assessment area is designated as spring/summer/fall habitat for the Piney Elk Herd (PEH) (Table 2). These habitats are portions of a larger contiguous designation extending from the Green River in the east to the Wyoming range in the west and bound by LaBarge Creek to the south and the East Rim in the north.

The nearest major elk migration routes occur between summer range in the mountains to the west and nearby feedgrounds. The feedground nearest to the assessment area (Jewett) is approximately 7 miles to the west with the Bench Corral feedground 13 miles to the southeast. Feedgrounds are used to prevent starvation during severe winters and prevent or reduce the chance of comingling with cattle in order to limit the likelihood of disease transmission.

Table 2: Designated habitats total acres and percent of the allotment for big game and Greater Sage-grouse within the James Ryegrass allotment.

Habitat Type	Mule Deer <i>acres(% allotment)</i>	Pronghorn <i>acres(% allotment)</i>	Moose <i>acres(% allotment)</i>	Elk <i>acres(% allotment)</i>	Greater Sage-Grouse <i>acres(% allotment)</i>
Crucial Winter Range	3585 (100%)	0	240 (6.7%)	0	-
Winter/Yearlong	0	0	2869 (80.2%)	0	-
Spring/Summer/Fall	0	3585 (100%)	469 (13.1%)	3578 (100%)	-
Parturition	0	0	0	0	-
Nesting	-	-	-	-	3558
Winter	-	-	-	-	(99.24%)
Concentration	-	-	-	-	463 (12.9%)
Core Area	-	-	-	-	3585 (100%)
Core Area NSO	-	-	-	-	487 (13.6%)
RMP NSO	-	-	-	-	59 (1.6%)
	Mule Deer	Pronghorn	Moose	Elk	Greater Sage-Grouse
Number of Leks	-	-	-	-	0
	Mule Deer (miles)	Pronghorn (miles)	Moose (miles)	Elk (miles)	Greater Sage-Grouse (miles)
Migration Corridors	1	3	0	0	-

The congregation of hundreds of elk in relatively small wintering and supplemental feeding areas can have negative consequences. Density dependent diseases such as *Brucellosis abortus* (brucellosis) and Chronic Wasting Disease (CWD) can be more easily spread amongst the numerous congregated elk. Brucellosis is known to be present in the elk herd using nearby feedgrounds and usually causes cow elk to abort the first pregnancy following infection. CWD has yet to be documented in the Upper Green River Basin.

Moose

The assessment area supports the Sublette moose herd unit. Moose are generalist browsers and are known to eat willow, bitterbrush, serviceberry, sedges rushes, and a number of conifer species. Moose can be found within the assessment area along riparian areas associated with Horse Creek. Crucial winter, winter/yearlong and spring /summer/fall habitat is found within the assessment and adjacent riparian areas (Table 2).

Upland and Migratory Game Birds

The assessment area is dominated by sagebrush uplands with a few small aspen stands present in the western portion of the allotment. Given the limited amount of suitable habitat, upland and migratory game birds such as blue and ruffed grouse and waterfowl species are unlikely to represent a major wildlife component in the James Ryegrass. Numerous waterfowl species likely inhabit the adjacent riparian lands along Horse Creek.

Trophy Game

Given the distance from higher elevation midsummer and fall habitat and presence of private agricultural land surrounding the assessment area the allotment is unlikely to support populations of trophy game.

Small Game Mammals

Cottontail and jack rabbits can be found throughout the assessment in tall sagebrush stands along ephemeral drainages, within aspen and mixed shrub stands on north facing slopes and around man-made structures such as water wells and reservoirs. Red squirrels may be present in the small north facing aspen stands. No assessment of habitat condition, population size estimates, mortality or natality rates, or hunter effort is known for these species.

Furbearers

Badgers represent the furbearing species most likely to inhabit the area, however they may not be regularly observed due to their secretive nature. Bobcats occur in most habitats except high mountain areas so potential exists for occurrence within the allotment however sightings would likely be infrequent and rare. Species that may occur outside of the allotment within the riparian habitat associated with Horse Creek include beaver, mink and muskrat.

Nongame Species

A variety of nongame mammals are likely to inhabit the allotment. These include various species of bats, squirrels, gophers, mice/rats, porcupines and various members of the weasel family. Coyotes can be found throughout the area and likely represent the apex predator within the allotment. Red fox are less common but may occur.

Migratory Birds

More than 400 avian species have been documented in Wyoming. Most of the avian species are classified as passerine or songbirds, and more than half of these are considered year-round residents. Most songbird populations in the area are adapted for open areas. The vast sagebrush component of the assessment area provides habitat for several species—namely, sage thrasher, Brewer’s sparrow, and sage sparrow. Corvid species such as the common raven and magpie are common in the assessment area. American Crows may also occur in the area. Corvids are opportunistic and intelligent scavengers that feed on carrion; eggs, including sage-grouse eggs; and garbage.

Raptors

Raptor nesting data for the PFO outside of developed gas fields is limited due to a lack of intense survey efforts. Given the presence of suitable habitat throughout the assessment area nesting raptor abundance is most likely greater than currently represented in the data set. Key nesting locations in the area include north facing aspen stands, hilltops, and the Horse Creek riparian corridor. There are known nesting locations for red-tailed hawk within the assessment area (appendix 9 Map 2). A number of nests were

identified during the 2012 season in the western aspen stands however species occupancy has yet to be determined. Other common raptors that may be present within the allotment or adjacent habitats include Osprey, bald eagle, golden eagle, Swainson's hawk, ferruginous hawk, sharp-shinned hawk, northern harrier, prairie falcon, and long-eared and short-eared owls. Raptors that reside in the area solely in the winter months include the rough-legged hawk and potentially, the snowy owl.

Reptiles and Amphibians

Climate and habitat types found in the assessment area restrict the diversity and abundance of reptiles and amphibians. Ten species of reptiles and amphibians are known to inhabit all or portions of the PFO. Only a subset of those species has potential to be encountered in the assessment area including the, eastern short-horned lizard, northern sagebrush lizard, and wandering garter snake.

To date there have been no official herpetological surveys conducted within the assessment area. Surveys conducted in neighboring allotments documented the presence of the eastern short-horned lizard in 2011.

SENSITIVE AND SPECIAL STATUS WILDLIFE

Further discussion of Threatened and Endangered/BLM Sensitive Species that have potential to occur in the assessment area but are not addressed below can be found in Appendix 5.

Colorado River Cutthroat Trout

Colorado River Cutthroat Trout (CRCT) is the only native Colorado River trout and one of only two native salmonids (the other being the mountain whitefish). Analysis of distribution data indicates that they currently occupy approximately 14% of its former range (Hirsch, Albeke, & Nesler 2006). CRCT exist in isolated sub-drainages in Colorado (1,359 miles), Utah (1,111 miles), and Wyoming (552 miles) (Behnke 1992, Hirsch et al. 2006, Young 1995). They have hybridized with non-native salmonids in many areas, reducing the genetic integrity (CRCT Coordination Team 2006). Pure populations of CRCT have been extirpated from much of their historical range.

The assessment area is dominated by upland sagebrush with no riparian areas or streams within the allotment. Therefore no current or historical CRCT habitat occurs within the assessment area. The nearest potential habitat occurs within the adjacent Horse Creek riparian corridor.

Greater Sage-grouse

Greater sage-grouse, heretofore referred as sage-grouse, are an obligate species dependent upon sagebrush for nearly all components of its lifecycle. In general sage-grouse require a mosaic of sagebrush habitats with access to seasonal use areas. Nesting and early brood rearing habitat is characterized by 10-25% sagebrush cover with a variety of forb and native bunch grasses for food and nesting residual cover. Breeding (lekking) occurs in suitable open spaces adjacent to nesting habitat. Late summer brood-rearing requires upland sagebrush habitat for roosting and riparian areas to provide succulent grass and forb forage species. Winter habitat is driven by access to suitable sagebrush canopy cover above the snow (10-30% canopy cover). During winter sagebrush provides the primary food source and cover from harsh conditions.

Seasonal use habitats within the assessment area include nesting, early brood rearing and winter concentration habitat (Table 2). To date there have been a total of 14 documented signs of sage-grouse nesting evidence within the allotment. Nesting grouse will typically remain on the upland sagebrush areas until forbs dry up and then move to key late brood rearing habitats along Horse Creek. Portions of the allotment directly adjacent to Horse Creek may function as upland summer roost habitat. Currently, there are seventeen documented leks (all occupied) within the Ryegrass complex. There are however no occupied leks within the assessment area.

The inventory and delineation of sage-grouse winter concentration, winter use, and lekking habitats has been an ongoing effort in the PFO. Aerial surveys performed during the spring and winter months of

2009-2012 have been used to locate groups of strutting (breeding) and wintering sage-grouse respectively. Through collaboration with local WGFD specialists winter concentration habitat areas were delineated by buffering each observation point of a certain flock size with a predetermined radius. Winter use areas have not been delineated in the assessment area. Typically winter use areas fall along the perimeter of winter concentration polygons. Within the eastern half of the assessment area, a single 463 acre winter concentration area has been delineated (Appendix 9 Map 5). Continued monitoring will further refine the location of winter concentration habitat.

On March 23, 2010 the USFWS published its finding that the greater sage-grouse warrants protection under the Endangered Species Act (ESA) (75 FR 13910 (2010-3-23)). Proposing the species for protection was deemed to be precluded by the necessity to focus efforts on higher priority species. The sage-grouse is therefore considered a Candidate on the list of species that will be considered for protection under the Endangered Species Act and all management of the species should be oriented to prevent further impacts to the species that may result in its listing.

In response to the Warranted but Precluded determination the state of Wyoming Governor's Sage-Grouse Implementation Team developed a Core Population Area Strategy for the conservation of Sage-Grouse in Wyoming (Wyoming Governor's Executive Order 2011-5). Through this effort, management priority areas and management controls were identified and implemented in an effort to conserve sage-grouse and avoid potential significant adverse impact on the state economy associated with a listing under ESA. On February 10, 2012 the BLM Wyoming implemented a Greater Sage-Grouse Habitat Management Policy consistent with the guidelines and recommendations provided for in the Core Population Area Strategy (BLM IM No.WY-2012-019). This guidance effectively adopted the State's Sage-Grouse Core Protection Area Strategy standards and practices for habitat conservation, restoration and reclamation practices in designated core habitat in Wyoming. The BLM Wyoming IM meets the intent of the National Policy set forth in WO IM-No.2012-044 and therefore represents the official management policy for BLM land in the State of Wyoming.

Core areas were delineated primarily by buffering known occupied sage-grouse leks by four miles. Various studies have shown that a majority of collared sage-grouse anywhere from 74.4% (Holloran and Anderson 2005) to 96.8 % (Graham and McConnell 2004, Graham and Jones 2005) nest within four miles of an occupied lek. The entire assessment area (approximately 3578 acres) is considered part of the Daniel sage-grouse core area (Table 1).

Pygmy Rabbit

Pygmy rabbits are typically associated with tall dense stands of sagebrush in loose, deep soils. They are the only lagomorph native to North America that digs its own burrows most often at the base of tall sagebrush plants. Sagebrush provides cover from predators and comprises the majority of the pygmy rabbit diet. Portions of the assessment area provide necessary habitat conditions for pygmy rabbits. However repeated survey efforts have not detected evidence or sign of pygmy rabbit occupancy within the assessment area or other Ryegrass allotments.

SENSITIVE AND SPECIAL STATUS PLANTS

Based on species requirements there is no habitat for federally listed Threatened or Endangered plant species within the assessment. The area is too high in elevation for the threatened Ute ladies'-tresses (*Spiranthes diluvialis*) and there are no sandy areas with blowouts necessary for the endangered blowout penstemon (*Penstemon haydenii*) to occur.

Eleven Wyoming BLM sensitive plant species are either known to occur within nearby allotments or suitable habitat exists within the Ryegrass landscape. Several of these species are associated with moist or riparian habitats including sageleaf willow (*Salix candida*), meadow pussytoes (*Antennaria arcuata*), pygmy bulrush (*Trichophorum pumilum*), false uncina sedge (*Carex microglochin*), and simple kobresia (*Kobresia simpliciuscula*). Livestock are known to congregate in moist riparian areas and can potentially impact species that inhabit these areas. Four species are associated with barren alkaline or rocky slopes

Swallen’s ricegrass (*Achnatherum swallenii*), large-fruited bladderpod (*Lesquerella macrocarpa*), Big Piney milkvetch (*Astragalus drabelliformis*), and compact ipomopsis (*Ipomopsis crebrifolia*). This habitat is typically not associated with a heavy grazing regime but these are areas characterized by soils that limit productivity. Limber pine (*Pinus flexilis*) inhabits a broad range of habitats from near timber line through the sage steppe. Within the assessment area conifers would likely be restricted to areas that act as a snow catchment on northern or leeward slopes. Limber pine is not considered a palatable species so impact from grazing would be limited. There are no mapped element occurrences within the assessment area for any of the previously discussed species (WYNDD 2012).

WYOMING GAME AND FISH DEPARTMENT JOB COMPLETION REPORTS

WGFD completes annual Job Completion Reports (JCR) for all managed game species. These reports provide annual updates on population and other demographic information including number of individuals, sex ratios and objectives. A detailed summary of harvest numbers, success rates and license numbers is also provided. The data is summarized in relation to current objectives and past numbers in order to provided population and harvest trends.

Greater sage-grouse

The Pinedale Field Office and the assessment area are encompassed in the Upper Green River Basin Working Group Area (UGRBWGA) and the associated JCR (WGFD 2011a). The UGRBWGA covers Upland Game Bird Management Area (UGBMA) 3 and the north portion of UGBMA 7 that lies within Sublette County. WYGF 2011 JCR for sage-grouse identified that 133 leks are currently documented in the UGRBWGA. During the 2011 season leks were classified as follows; 104 active, 6 unknown, and 23 inactive. A total of 127 leks (95.5%) were checked in 2011 with 102 (76.6%) being counted (≥ 3 visits at least 7 days apart) and 26 (19.5%) surveyed (1-2 visits). Counts are generally preferred to surveys as they capture more of the variability in attendance over the strutting season and therefore provide more accurate population estimates. The average number of males/lek for all active leks declined from 31.9 in 2010 to 29.8 in 2011. The number of males/lek has been decreasing every year from a recent peak value of 58.0 in 2007 (Figure 1).

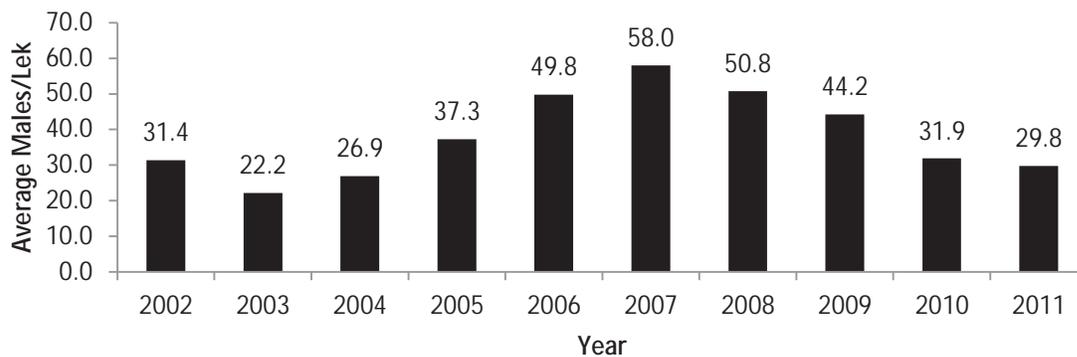


Figure 1: Average number of males per lek from all lek observations for the Upper Green River Basin Working Group Area.

Big Game

Big game populations in the assessment are part of larger herd units within the Green River Basin. Data from the following table is summarized from the Pinedale Region Annual Big Game Herd Unit Reports 2011 JCR (WGFD 2011b). These population status reports identify both population estimates and general trends relative to management objectives.

Table 3: Pinedale Region big game population statistics

Species	Herd Unit	06-'10 avg.	2011 estimate	Objective	% difference	# years above /below obj.	Trend
Mule							
Deer	Sublette	27720	20825	32000	-34.9	8	Decreasing
Pronghorn	Sublette	59440	37800	48000	-21.2	1	Decreasing
Moose	Sublette	4585	5000	5500	-9.1	8	Stable
Elk	Piney	3474	3123	2400	30	13	Stable

SAGE-GROUSE HABITAT ASSESSMENT FRAMEWORK

Habitat data collected within the assessment during 2010 and 2012 was analyzed using tools found in the Sage-Grouse Habitat Assessment Framework *Multi-scale Habitat Assessment Tool* in order to evaluate habitat conditions in the area [Appendix 10 through 15]. Third order and fourth order habitat descriptions worksheets were used to assess habitat conditions for Breeding (nesting, early brood rearing), Summer (upland) and Winter (winter concentration and winter use) habitats at ESD reference sites within the assessment area. Summary results of the assessment are presented below.

Seasonal grouse habitats within the assessment area were rated as either suitable or marginal based on the habitat framework (Table 4). The two habitats rated as marginal were due to the high values of sagebrush canopy cover >25% and the reduced number of preferred forb species present. Data was collected in the Ly 10-14" ecological site which makes up the majority of the assessment area (35%). The other primary ESD is SwCy10-14" which comprises 17% of the area. These clayey soils are dominated by early sage which has limited habitat value given its low stature. Based on the reference plant community SwCy10-14" does not have the potential to provide adequate cover for nesting and above snow forage in winter.

Table 4: James Ryegrass Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
James Ryegrass #1 Ly 10-14"*	2010	Big Sage/Rhizomatous/Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Winter	Suitable
James Ryegrass #2 Ly 10-14"*	2010	Big Sage/Rhizomatous/Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Winter	Suitable
James Ryegrass #3 Ly 10-14"*	2012	Big Sage/Rhizomatous/Bunchgrass	Nesting/Early Brood Rearing	Marginal
			Upland Summer/Late Brood Rearing	Marginal
			Winter	Suitable

* The LY 10-14" ESD represents 1247 acres (35%) of the allotment. The other major ESD SwCy 10-14" makes up 613 acres (17%) of the allotment.

III. Summary of Studies**Rangeland Health Indicators**

Members of an interdisciplinary team visited the allotment on August 27, 2012 and completed the 17 Indicators of Rangeland Health in each pasture of the assessment area, for a total of 3 sites assessed. All of the sites were in the Loamy 10-14 ecological sites and evaluations were

coordinated with past studies (North Wind baseline habitat sampling had two Loamy 10-14 W sites in the assessment area) along with information collected during site visits. Appendix 6 contains tables depicting results of the 2012 James Ryegrass evaluation. For the evaluations we used Loamy 10-14 W ecological site for the assessment area. This was the dominant ESD within the allotment.

Allotment Summary

James Ryegrass Individual Allotment (12102)

The James Ryegrass Individual Allotment contains 3,585 acres of BLM Land. It is evident that great numbers of cattle and sheep once dispersed over the then free and open range. The reported practice of ranchers was to drive their cattle to the mountains for summer and permit them to scatter over the public lands at the lower elevations during the spring, fall, and winter until snow, when they were gathered and fed. Grazing was uncontrolled and unlimited on the public domain, with reduction of natural vegetation and increased soil erosion until the enactment of the Taylor Grazing Act in 1934. The current grazing schedule is a deferred rotation within 3 pastures. Few written records of the grazing history exist for the allotment pre-1982. See Table 5 for permitted use in the assessment area. See Table 6 for actual billed use 2003-2012.

Table 5. James Ryegrass Permitted Grazing Use

Allotment Name	WY #	Category*	Livestock # and Type**	Dates of Use	BLM Acres	Public Land %	BLM AUMs
James Ryegrass Individual	12102	I	363 C	6/1 – 7/31	3585	100	728

*Category M=Maintain C=Custodial I=Improve **Type C=Cattle

Table 6. James Ryegrass 2005-2012 Actual Grazing Use

Year	West Pasture			Middle Pasture			East Pasture			Total AUMS
	From	To	AUMs	From	To	AUMs	From	To	AUMs	
2012	6/3	6/18	150	6/27	7/5	30	6/18	7/5	169	349
2011	6/27	7/6	99	6/2	6/12	108	6/12	6/26	148	-
2011	7/8	7/15	79	7/6	7/8	30	-	-	-	464
2010	6/2	6/20	187	6/20	6/23	39	6/24	7/10	168	394
2009	*	*	*	*	*	*	*	*	*	*406
2008	*	*	*	*	*	*	*	*	*	*375
2007	6/1	6/22	217	Rested			6/22	7/8	168	385
2006	7/14	7/1	161	Rested			7/1	7/14	322	483
2005	*	*	*	*	*	*	*	*	*	*431

Note: * No Actual Use Report on file but the AUMs used for the years are correct from the permittees records.

Site 1 was selected to represent the west pasture of the assessment. 15 of the 17 indicators showed a None to Slight departure from the reference sheet. There were 2 indicators that showed a moderate departure from the reference sheet with these being functional structural groups and plant mortality/decadence. Functional/structural groups were departed from what was expected due to increased shrubs and decreased desirable grasses and forbs. The shrubs on this site showed that they were old and showed no diversity in age class.

Site 2 was selected to represent the middle pasture of the assessment. 15 indicators showed a None to Slight departure from the reference sheet. 2 indicators showed a moderate departure from the reference sheet with these being functional structural groups and plant mortality/decadence. Functional/structural groups were departed from what was expected due to increased shrubs and decreased desirable grasses and forbs. The shrubs on this site showed that they were old and showed no diversity in age class.

Site 3 was selected to represent the east pasture of the assessment. 15 indicators showed a None to Slight departure from the reference sheet. 2 indicators showed a moderate departure from the reference sheet. Functional/structural groups were departed from what was expected due to increased shrubs and decreased desirable grasses and forbs. The shrubs on this site also showed that they were really old and showed no diversity in age class.

IV. Wyoming Rangeland Health Standards Evaluation

A rangeland health assessment provides information on the functioning of ecological processes relative to the reference state for the ecological site or other functionally similar unit for that land area (Technical Reference 1734-6). It gives an indication of the status of the three attributes of an evaluation area: Soil & Site Stability, Hydrologic Function, and Biotic Integrity. The rangeland health assessment protocol includes five steps:

1. Determine soil and ecological site at the evaluation area (Required).
2. Obtain or develop reference sheet (Required).
3. Collect supplementary information (Strongly Recommended).
4. Rate the 17 indicators on Evaluation sheet and justify ratings with written comments (Required).
5. Evaluate the three Rangeland Health Attributes based on the ratings of the 17 indicators and justify ratings with written comments (Required).

Standard 1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Rational

The 2012 evaluation of the 17 Indicators of Rangeland Health indicated the assessment area has naturally stable soils, within the potential of the Loamy 10-14 ecological site. Rills, water flow patterns, or pedestalling and/or terracettes were not observed. Soil surface resistance to erosion was tested and shows what is expected for the ecological site. Wind scour, blowouts, and/or deposition areas were not observed and compaction layers were not detected. Active gullies were not apparent on the rangeland but do occasionally occur in some draws. Litter movement is consistent with expected values for the ecological sites.

Much of the assessment area falls within the Wyoming Big Sage/Rhizomatous Grass-Bluegrass State. This state contains a sagebrush canopy with an herbaceous plant community dominated by rhizomatous grasses and bluegrasses (Cagney 2010). Rhizomatous grasses and bluegrasses are more resistant to grazing than are larger stature bunchgrasses, and also produce less forage and cover. Wyoming big sagebrush eventually dominates this plant community. Forbs such as phlox, larkspur, buckwheat, and pussytoes increase. Grasses such as Sandberg and mutton

bluegrass, Letterman needlegrass, and rhizomatous wheatgrass increase in proportion to other grasses such as bluebunch wheatgrass, Indian ricegrass, and needleandthread. It is important to recognize that the larger stature bunchgrasses can be found on many of these sites in the assessment area; however the production of these species is not proportionate to that of its “potential” (USDA ESIS), as evidenced by the team’s assessment that the functional/structural groups exhibit a moderate departure from the expected condition. Where the site potential is for mid-stature bunchgrasses to be the most dominant plant community, on these sites both shrubs and rhizomatous grasses were more dominant. Though the functional/structural groups and plant mortality/decadence may have as much as a moderate degree of departure from what is expected for the ecological site, there is negligible sign that biotic integrity is being negatively impacted from that departure. Current grazing practices in the assessment area provide for critical growing season rest of larger stature bunchgrasses due to the deferred grazing system. Because of this there is adequate vegetative cover to allow for water infiltration and minimal surface runoff.

Standard was met

Standard 2 - Riparian/Wetland Health

Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel success and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Rational

Riparian or wetland areas do not exist within the assessment area. Therefore, the standard is not applicable

Standard 3 – Upland Vegetation Health

Upland vegetation on each ecological site consists of plant communities appropriate to the site, which are resilient, diverse, and able to recover from natural and human disturbance.

Rational

Overall, vegetation in the assessment area can be considered to be in good condition. Desirable species (including herbaceous and browse species important for livestock and wildlife forage, as well as those important for ground cover) are present. They are usually found in locations where they are less available or vulnerable to grazing animals and interspersed throughout the various plant communities with high vigor and density.

At present, the review of upland vegetation conditions in the James Ryegrass assessment area reveals generally good overall community health. For the entire area, the 17 indicators of rangeland health do not show a degree of departure from the reference site of more than Moderate (Appendix 7). This site plant community is considered in the sagebrush/rhizomatous grass-bluegrass state and can be attributed to continuous season-long grazing (Cagney 2010), typical of past grazing practices in the assessment area. Natural ecological and biological processes appear to be functioning adequately overall, although concerns about near-future functionality of certain community types remain (i.e. viability of larger stature bunchgrasses). Bunchgrasses have been reduced compared to the reference state and grazing resistant grasses and sagebrush has increased. The deferred rotation grazing system that is in place for the

assessment area provides for plant health reducing the potential for further transition from the reference state. The diversity, vigor, and overall stability of upland vegetation communities within the area are suitable. The overall composition by weight of upland vegetation shows disproportionate values with shrub production higher than desired and herbaceous production lower than desired.

Standard was met

STANDARD 4 – WILDLIFE/THREATENED AND ENDANGERED SPECIES HABITAT HEALTH

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Rational

While several wildlife species are present or have the potential to utilize habitat within the assessment area, the dominant species are big game and sage-grouse. Their respective habitat requirements fulfill the needs of many of the secondary species. Therefore focusing on big game and sage-grouse as primary indicator species will provide an adequate assessment for the condition of wildlife habitat within the assessment.

The majority of pronghorn and mule deer habitats in the assessment area are dominated by sagebrush species. Sagebrush species are generally above the expected percent composition by weight found in ESD reference plant communities. Other native shrub species (i.e. rabbitbrush) commonly used by big game species for browse are generally below production numbers in the ESD reference plant community. These other shrub species are likely declining based on the moderate departure from the ESD reference state and the corresponding increase in sagebrush. Shrub communities are primarily classified as mature to decadent with few young plants observed. Desired bunch grass and forb production is generally below that of the reference state.

The majority of big game species populations appear to be stable or increasing. Elk represent the only big game species currently above objective for their respective herd unit (WGFD 2011b). Pronghorn were above objective until the 2011 season (WGFD 2011b). Prior to this decline the population had remained above objective for several years and was considered stable. Moose population estimates are below objective but are considered to be stable (WGFD 2011b). Mule deer represent the only big game species that exhibits a declining population trend (WGFD 2011b). The declining mule deer populations are of great concern and have received significant management attention. The Mesa winter complex located east of the assessment area is the most thoroughly monitored portion of the Sublette Herd Unit and has shown the sharpest population decline.

In general, upland sage-brush habitats found in the assessment area are in suitable condition for sage-grouse nesting, upland summer and winter seasonal use based on the assessment framework. The majority of upland habitats provide limited value for late brood rearing, as most hens utilize riparian corridors and agricultural fields along the Horse Creek drainage. Upland sagebrush habitat adjacent to the riparian/agricultural corridor may provide early morning and evening roosting areas during the late brood rearing period.

The percent composition by weight of various large stature desirable bunch grasses (screening cover for nests and foraging broods) throughout the area are typically below expected ESD

reference state values. The percent composition by weight of sagebrush across the assessment area exceeds the reference state and forbs are at or slightly below ESD reference state values.

Portions of the assessment area dominated by early sage are likely limited in habitat suitability due to inadequate sage-brush height. Early sage is a low stature sage and based on reference plant community potential will not provide adequate cover for nesting and above snow forage in winter. Depending on spatial location and size, early sage patches can provide value as optimal roosting habitat and are used by hens with young broods for foraging (within smaller patches or the edge of large patches) in the early to mid-summer prior to forb dry up and subsequent transition to riparian habitats.

Species diversity in the assessment area appears to be suitable for associated habitat types. The assessment area supports a wide variety of animal species, including Special Status Species. Desired conditions may not be fully realized for certain wildlife habitats however the capability to sustain or enhance current wildlife populations and habitats does exist.

Standard was met

Standard 5 – Water Quality

Water quality meets State standards.

There are no areas of standing or flowing water bodies within the assessment area, therefore this standard does not apply.

Standard 6 – Air Quality

Air quality meets State standards.

Air quality issues in the assessment area center mainly around elevated ozone levels in the UGRB. Elevated ozone episodes have been observed at air monitoring stations during winter and early spring in the UGRB since 2005. Concentrations of ambient ozone exceeding the National Ambient Air Quality Standard, currently 75 ppb daily maximum eight-hour average, were recorded in 2005, 2006, and 2008. Refer to Section II. Background for detailed information.

The standard was not met; however, livestock grazing was not a causal factor.

Conclusion: All of the Standards for Rangeland Health were met except for Standard 6. However, the non-attainment of Standard 6 was not due to livestock grazing.

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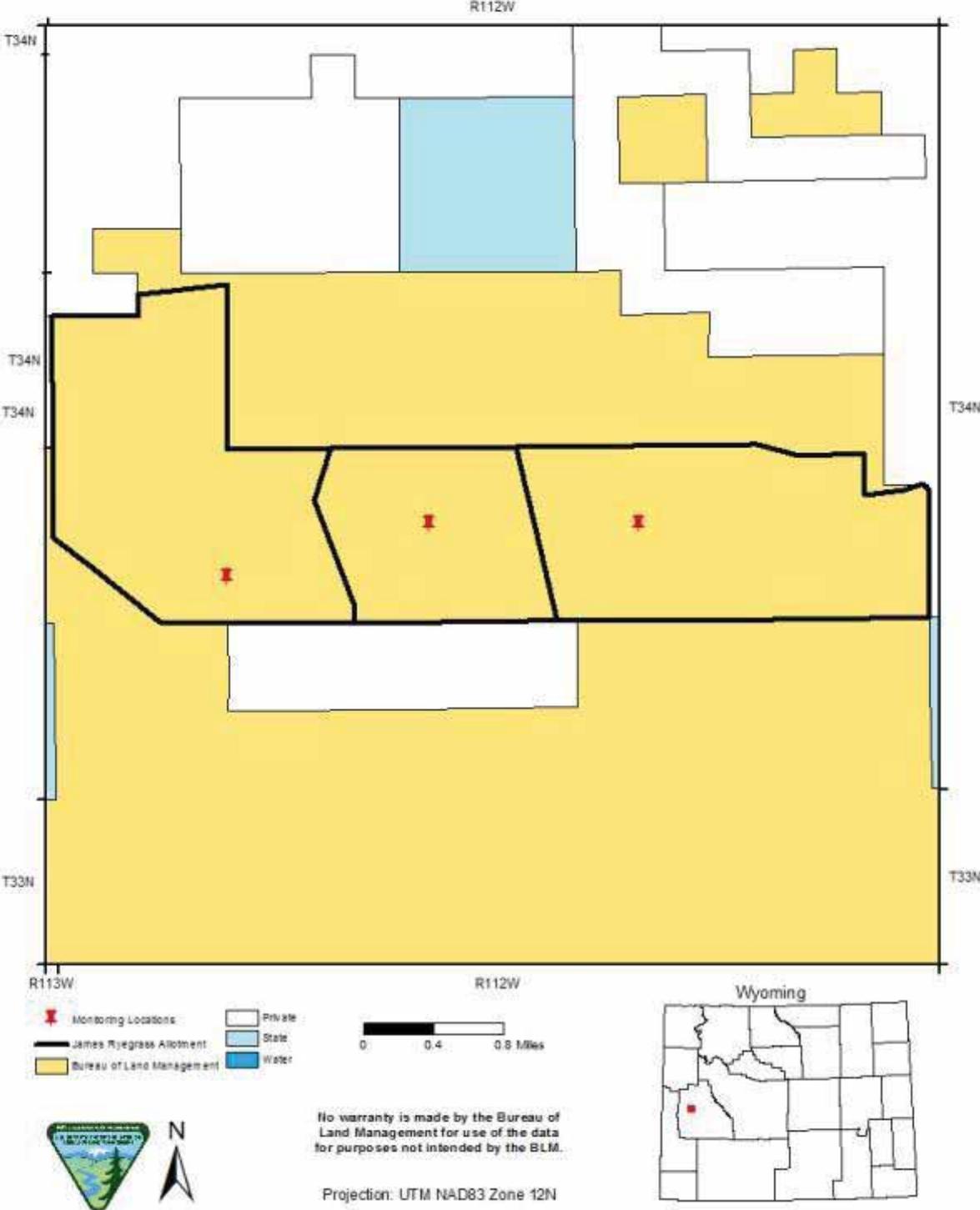
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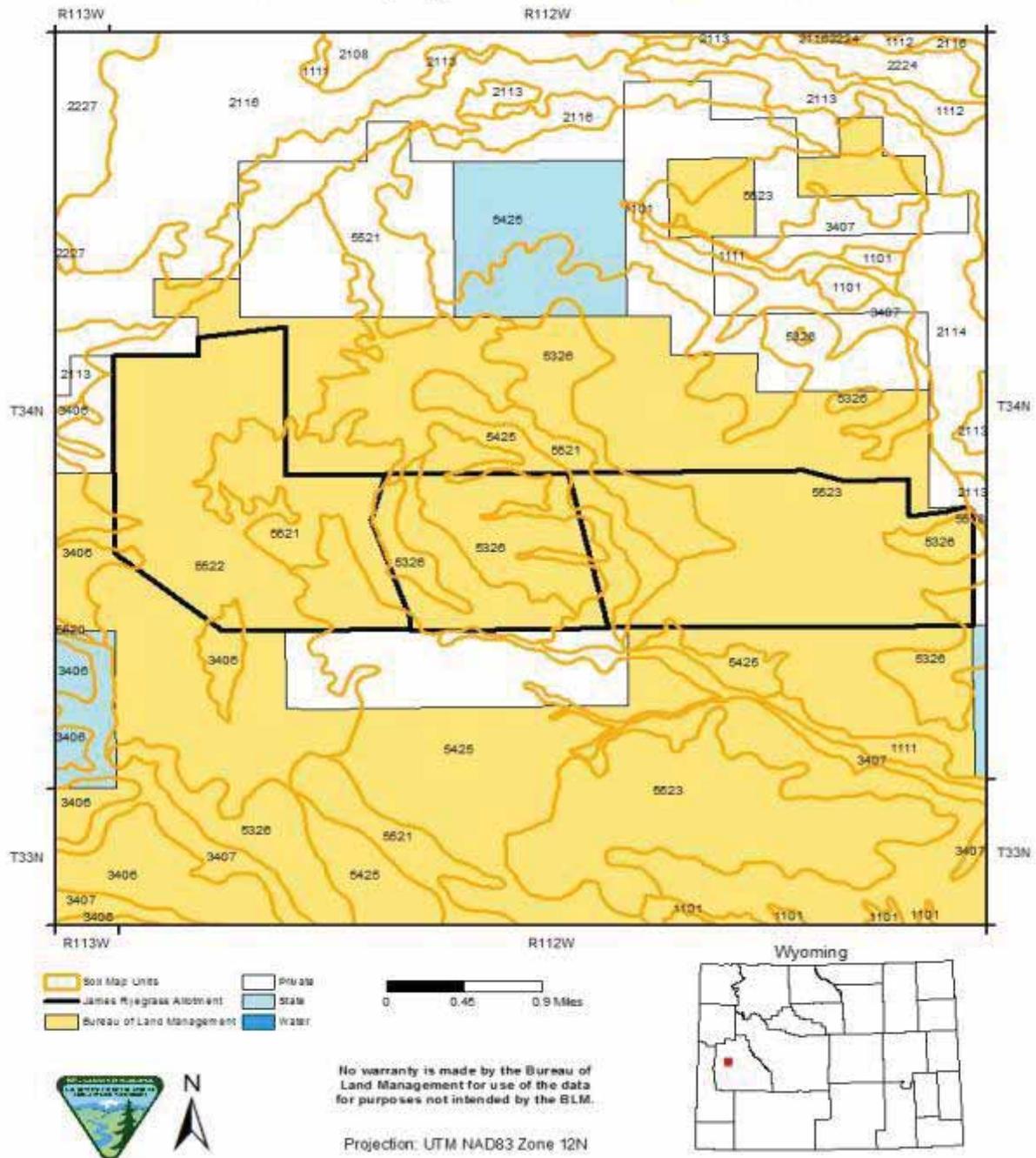
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Appendices

James Ryegrass Individual Allotment



James Ryegrass Allotment Soils



Soil Map Unit Key:

- 1111—Typic Cryohemists, 0 to 2 percent slopes
- 3406—Onionspring-Brodie complex, 2 to 15 percent slopes
- 5326—Cortyzack-Ryedraw complex, 2 to 15 percent slopes
- 5521—Golphco-Pinehill complex, 6-25 percent slopes
- 5425—Cheeseman-Pagoda complexes, 2 to 15 percent slopes
- 5522—Millerlake-Brodie-Conwaycreek complex, 6 to 25 percent slopes
- 5518—Golphco-Broback complex, 4 to 25 percent slopes
- 5523—Cortyzack-Ryedraw complex, 4 to 25 percent slopes

Appendix 3. James Ryegrass Allotment Plant Species

List Symbol	Scientific Name	Common Name	Nativity, Duration, and Growth Habit
ACLE9	<i>Achnatherum lettermanii</i>	Letterman's needlegrass	Native perennial grass
ACNE9	<i>Achnatherum nelsonii</i>	Columbia needlegrass	Native perennial grass
ANRO2	<i>Antennaria rosea</i>	Rosy pussytoes	Native perennial forb
ARABI2	<i>Arabis</i> spp.	Rockcress	Native perennial forb
ANSE4	<i>Androsce septentrionalis</i>	Pygmyflower rockjasmine	Native perennial forb
ARPE	<i>Arabis pendulina</i>	Nodding rockcress	Native perennial forb
ARTRW8	<i>Atrémisia tridentate</i> ssp. <i>wyomingensis</i>	Wyoming big sagebrush	Native perennial shrub
ASCO12	<i>Astragalus convallarius</i>	Lesser rushy milkvetch	Native perennial forb
ASSE5	<i>Astragalus sericoleucus</i>	Silky milkvetch	Native perennial forb
BRIN2	<i>Bromus inermis</i>	Smooth brome	Native perennial forb
CADO2	<i>Carex douglasii</i>	Douglas' sedge	Native perennial graminoid
CAFI	<i>Carex filifolia</i>	Threadleaf sedge	Native perennial graminoid
CORA5	<i>Cordylanthus ramosus</i>	Bushy bird's beak	Native annual forb
COUM	<i>Comandra umbellate</i>	Bastard toadflax	Native perennial forb
CHVI8	<i>Chrysothamnus viscidiflorus</i>	Yellow rabbitbrush	Native perennial shrub
CRFL6	<i>Cryptanthus flavoculata</i>	Roughseed cryptantha	Native perennial forb
ELEL5	<i>Elymus elymoides</i>	Squirreltail	Native perennial grass
ELLA3	<i>Elymus lanceolatus</i>	Thickspike wheatgrass	Native perennial grass
ERIGE2	<i>Erigeron</i> spp.	Fleabane	Native perennial forb
ERUM	<i>Eriogonum umbellatum</i>	Sulpher-flower buckwheat	Native perennial forb
GAULT	<i>Gaultheria</i>	Snowberry	Native perennial shrub
GETR	<i>Geum triflorum</i>	Old man's whiskers	Native perennial forb
HECO26	<i>Hesperostipa comate</i>	Needle and thread	Native perennial grass
LIPU11	<i>Linanthus pungens</i>	Granite prickly phlox	Native perennial subshrub
LUAR3	<i>Lupinus argenteus</i>	Silvery lupine	Native perennial forb
MAGR2	<i>Machaeranthe grindelioides</i>	Rayless tansyaster	Native perennial forb
OXLA2	<i>Oxytropis lagopus</i>	Haresfoot locoweed	Native perennial forb
PASM	<i>Pascopyrum smithii</i>	Western wheatgrass	Native perennial grass
PENST	<i>Penstemon</i> spp.	Beardtongue	Native perennial forb
PHHO	<i>Phlox hodii</i>	Spiny phlox	Native perennial forb
POFE	<i>Poa fendleriana</i>	Muttongrass	Native perennial grass
POSE	<i>Poa secunda</i>	Sandberg bluegrass	Native perennial grass
POGR9	<i>Potentilla gracilis</i>	Slender cinquefoil	Native perennial forb
PUTR2	<i>Purshia tridentate</i>	Antelope bitterbrush	Native perennial shrub
SYMPH4	<i>Symphyotrichum</i> spp.	Aster	Native perennial forb
TECA2	<i>Tetradymia canescens</i>	Spineless horsbrush	Native perennial shrub

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

Wyoming Chapter of the Wildlife Society

Report on

Standardized Definitions for Seasonal Wildlife Ranges

The Wyoming Chapter of The Wildlife Society (TWS) formed a committee to review, discuss and address the current Standardized Definitions for Seasonal Wildlife Ranges developed by the Chapter between 1984 and 1986 and subsequently adopted for Wyoming by the Soil Conservation Service (SCS), Bureau of Land Management (BLM), Forest Service (FS), United States Fish and Wildlife Service (USFWS) and the Wyoming Game and Fish Department (WGFD). The request, received from the WGFD and BLM, was to review the current standards, address criteria for quantifying the seasonal range definitions, develop necessary modifications and make recommendations.

Criteria for quantifying the seasonal ranges were discussed at great length. Among the criteria discussed were animal densities, percentage of a population occupying a designated seasonal range, frequency of observations, and indices of use among others. Attention was also directed at improving communication, cooperation, and data sharing among and between agency biologists, agency administrators, and interested publics.

Based upon our discussions and review along with input from TWS members, the committee finds and recommends the following:

1. The standardized definitions developed by TWS between 1984 and 1986 are still applicable and with, minor refinement, their use should be continued.
2. Two new seasonal wildlife range definitions have been included in Appendix A.
3. Additional quantification of these definitions, while an admirable goal, seems impractical on a statewide basis due to inherent variability among herd units in terms of habitat type and condition, population structure, habituation to existing disturbance, climate, land ownership, and inherent differences between big game species when coupled with existing wildlife staff levels and budgets.
4. Seasonal wildlife ranges should be quantified based on documented frequency of animal use over time. Documentation, in most instances, would be recorded observation of animals, however indications of animal use or potential use such as vegetation use, animal droppings, tracks, forage type, forage availability, and forage distribution in relation to cover should also be considered particularly for herds expanding their range or for transplanted animals.
5. The primary problem did not appear to be the current definitions or criteria, but the application of the information and communication among and between agency biologists, agency administrators and interested publics.
6. Each agency should agree to cooperate in data collection, data sharing and data transmission, in establishing and/or refining seasonal range boundaries and sharing in the collection of

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

information. Agency biologists/conservationists having responsibility within a given herd unit or population of animals should jointly develop seasonal ranges with sign-off provisions for concurrence with the final boundary delineations and any refinements made thereafter. Said concurrence must be developed at the field level with concurrence at the regional and state level as necessary.

7. Final seasonal wildlife range maps should be reviewed and approved by each agency before it is made available to other interested parties; and
8. Seasonal range maps should be reviewed at least annually. Proposed revisions based on new data or knowledge should be documented and agreed upon. Revisions should probably not be formalized until sufficient data is available to establish a trend differing from historical baseline information. This may require 3 to 5 years.

Recommended changes to the current Standardized Definitions for Seasonal Wildlife Ranges are included in Appendix A and a discussion of the Application and Use of Standardized Wildlife Range Designators is included in Appendix B for your review and consideration. We have also included an informational summary for big game species relative to species behavioral habits, habituation to disturbance, geographic variability in terms of habitat types, land ownership patterns, climatic conditions, migratory patterns, etc.

It is our recommendation that each agency review the attached changes and committee recommendations, adopt them following review and input, and develop appropriate agreements and procedures to cooperatively establish seasonal wildlife range boundaries and share in the collection of information.

Note: In early 2004, WGFD adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions in Appendix A.

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

Recommended Changes to the Current Standardized Definitions for Seasonal Wildlife Ranges

These recommended changes to the current standardized definitions for seasonal wildlife ranges are directed primarily at big game and threatened and endangered species. The term 'documented' is construed as generally referring to recorded observation of animals, however evidence of their use based on such factors as forage utilization and fecal excretion in relation to forage type; forage availability and the spatial relationships of forage to cover among others may also be used to refine seasonal distribution boundaries or to delineate seasonal ranges for transplanted species or herds expanding their range.

Note: In early 2004, WGFD adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions below.

<u>Symbol</u>	<u>Term</u>	<u>Definition</u>
CRU	Crucial	Crucial range can describe any particular seasonal range or habitat component (often winter or winter/yearlong range in Wyoming) but describes that component which has been documented as the determining factor in a population's ability to maintain itself at a certain level (theoretically at or above the WGFD population objective) over the long term.

Example: The total crucial winter

range for an elk herd unit should be available, relatively intact and allow a population at the objective to the objective to survive the winter in adequate body condition to maintain average reproductive rates 8 out of 10 years.

CRT	Critical Habitat*	Those areas designated as critical by the Secretary of the Interior or Commerce, for the survival and recovery of listed Threatened and Endangered Species (50 CFR, Parts 17 and 226). Because use of the term has legal implications, its use is limited to only those habitats officially determined as critical by the Secretary.
ESS	Essential Habitat*	Those areas possessing the same characteristics as critical habitat for Threatened and Endangered but not species

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

declared critical habitat by the Secretary of the Interior or Commerce.

PAR	Parturition Areas (calving areas, fawning areas, lambing grounds)	Documented birthing areas commonly used between 5/15 and 6/30 by the female segment members of a population. These areas may also be used as "nursery areas" by some species.
	*	Pertain to threatened and endangered species only.
SSF	Summer or Spring-Summer-Fall	A population or portion of a population of animals use the documented habitats within this range annually only (from the previous winter) to the onset of persistent winter conditions (variable, but commonly this period is between 5/1 and 11/30 or shorter in Wyoming). (5/1 - 11/14, adopted by WGFD in 2004)
SWR	Severe Winter Relief	A documented survival range which may or may not be considered a crucial range area as defined above. It is used to a great extent, only in occasionally extremely severe winters (e.g., 2 years out of 10). It may lack habitat characteristics which would make it attractive or capable of supporting major portions of the population during normal years but is used by and allows at least a significant portion of the population to survive the occasional extremely severe winter.
WIN	Winter	A population or portion of a population of animals use the documented suitable habitat within this range annually, in substantial numbers only during the winter (variable, but commonly between 12/1 and 4/30). (11/15 - 4/30, adopted by WGFD in 2004)
WYL	Winter/Yearlong	A population or a portion of a population of animals makes general use of the documented suitable habitat within this range on a year-round basis. But during the winter months (commonly between 12/1 and 4/30), there is a significant influx of additional animals into the area from other seasonal ranges. (11/15 - 4/30, adopted by WGFD in 2004)
YRL	Yearlong	A population or portion of a population

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

of animals makes general use of the suitable documented habitat within the range on a year-round basis. Exception - occasionally, under severe conditions (extremely severe winters, drought) animals may leave the area.

Proposed new seasonal range definition follows:

UND	Undetermined/ Undocumented	Areas or habitats, which are expected to or do support a population or portion of a population of animals. The distribution and importance of the area to the population has not been sufficiently documented to designate seasonal range occupancy. The term is applicable to areas where animals have recently been or will be reintroduced; where animals have migrated into and are establishing a population; where a population is expanding its range; or where management actions or activities have been implemented which will accommodate a population to expand their range.
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HIS Habitat	Historical supported a population or portion of a population of animals.	Areas or habitats which historically supported a population or portion of a population of animals. These areas may indicate potential reintroduction sites.
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Other seasonal range designations commonly used by the WGFD and the BLM but not specifically addressed by this committee are included for your information. These appear to meet the criteria desired and should be retained and adopted as part of the standardized definitions for seasonal wildlife ranges.

Symbol	Term	Definition
OUT	Out	Areas which do not contain enough animals to be important habitat, or habitats of limited importance to a species.
MR	Migration Routes	Definable routes followed during seasonal movements year after year.

→ → General area of movements
 → → → Specific movement corridors

Varies	Raptor Nests	Nesting areas for hawks, owls, and eagles. Examples Include: ○ prairie falcon, ○ merlin, □ goshawk, ○ ○ +
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Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

and great horned owl.



Concentrated Wetland Area



Areas of scattered wetlands important to wildlife because of numerous playas, flooded meadows, beaver ponds, or impoundments.

POT Potential Habitats identified for reintroduction of Threatened, Endangered, and Priority species (e.g., potential habitats for trumpeter swans and peregrine falcons).

BRE Breeding Area Documented courtship, nesting, and/or brood rearing areas, e.g.:



Censused lek, strutting or dancing ground



Uncounted lek, strutting or dancing ground



Abandoned lek, strutting or dancing ground

STA Staging Area Documented migration or pre/post-migration concentration are

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Common Name	Special Status	General Habitat	Presence in James Ryegrass
MAMMALS			
Black-Footed Ferret	Federally Listed Endangered Species - BLM Sensitive	Closely associated with prairie dog towns of 12.5 acres or larger (burrows used for denning and shelter) and rely almost entirely on these rodents as prey.	NOT PRESENT - There are some prairie dog towns in the Ryegrass landscape but none have been documented in the James Ryegrass. The entire Ryegrass landscape has been block cleared from survey by the USFWS.
Canada Lynx	Federally Listed Endangered Species - BLM Sensitive	High-elevation forested areas that support ample populations of snowshoe hares and other preferred prey species.	NOT PRESENT – There is no suitable habitat within or adjacent to the James Ryegrass area.
Grizzly Bear	Federally Listed Endangered Species - BLM Sensitive	Montane forests	UNLIKELY - Grizzly Bears are known to occur in the Upper Green River Basin, primarily on USDA Forest Service lands but occasionally have roamed onto BLM administered lands in the past. Grizzly Bears are unlikely to occur on BLM administered lands within the James Ryegrass.
Gray Wolf	Federally Listed Endangered Species - BLM Sensitive	Greater Yellowstone Ecosystem	UNLIKELY – To date there has been no evidence of wolf activity in the James Ryegrass or surrounding area. Wolves have been observed in the Wyoming range and associated foothills to the west of the project area.
White-tailed Prairie Dog	BLM Sensitive	Basin-prairie shrub, grasslands	NOT PRESENT - There are no know white – tailed prairie dog towns within the James Ryegrass. There are currently only a handful of known white-tailed prairie dog towns in the eastern portion of the Ryegrass landscape but the entire area has not been thoroughly surveyed
Pygmy Rabbit	BLM Sensitive	Pygmy rabbits are typically associated with tall dense stands of sagebrush in loose, deep soils. They are the only lagomorph native to North America that digs its own burrows which are most often found at the base of tall sagebrush plants. Sagebrush not only provides cover from predators but comprises the majority of the pygmy rabbit diet.	UNLIKELY – To date pygmy rabbit sign has not been document in the James Ryegrass or other adjacent Ryegrass landscape allotments.
Long-Eared Myotis	BLM Sensitive	Frequently found roosting under the bark or within cavities of ponderosa pine trees during the daytime, although it can also be found at much higher and lower elevations in deciduous forests and in caves.	UNLIKELY - The long-eared myotis has been reported throughout the PFO (Orobana et.al 2012). There is little to none suitable roosting habitat with in the James Ryegrass and surrounding areas.

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Idaho Pocket Gopher	BLM Sensitive	Can be found in subalpine mountain meadows, shrub steppes, and various grasslands, but appears to favor rocky, shallow soils.	UNLIKELY - Documented within the PFO unlikely adequate amount of suitable habitat exists within the James Ryegrass (WYNDD 2012)
BIRDS			
Western Yellow-Billed Cuckoo	Federally Listed Candidate Species - BLM Sensitive	Large tracts of deciduous riparian woodlands with dense, scrubby undergrowth. Cuckoos frequently use willow thickets for nesting and they forage among large cottonwoods (Bennett and Keinath 2001).	UNLIKELY – Given the lack of suitable habitat It is unlikely that the Western Yellow Billed Cuckoo exists in the James Ryegrass. The surrounding area along Horse Creek does support suitable habitat but there are no recorded observations.
Northern Goshawk	BLM Sensitive	Conifer and deciduous forests	UNLIKELY - The nearest goshawk observations have been made in the Wyoming Range west of the project area.
Ferruginous Hawk	BLM Sensitive	Basin prairie shrub, grassland, rock outcrops	UNKNOWN - There are currently no known nesting areas within the James Ryegrass. Suitable nesting and foraging habitat exists within the area but extensive survey efforts are lacking.
Bald Eagle	BLM Sensitive	Primarily along rivers, streams, lakes and waterways	POSSIBLE – No suitable habitat exists within the James Ryegrass. Bald Eagle nests and observation locations exist along Horse Creek and use of the project area during soaring and foraging activities is possible.
Burrowing Owl	BLM Sensitive	Burrowing owls nest in grassland, scrub, and steppe areas, usually using burrows excavated by other animals such as the prairie dog (Martin 1973).	NOT PRESENT – Nesting has been documented in other parts of the Ryegrass landscape but no documented nesting has occurred in the James Ryegrass.
Sage Thrasher	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	PRESENT - Sage thrashers have been documented within the PFO (WYNDD 2012) and the James Ryegrass does provide suitable sagebrush habitat.
Sage Sparrow	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	PRESENT - Sage Sparrows have been documented within the PFO (WYNDD 2012) and are known to occur in the Ryegrass Landscape
Brewer's Sparrow	BLM Sensitive	Basin-prairie shrub	PRESENT - Brewer's Sparrows have been documented within the PFO (WYNDD 2012) and the James Ryegrass does provide suitable habitat

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Loggerhead Shrike	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	PRESENT - The Loggerhead Shrike has been documented within the PFO (WYNDD 2012) and the James Ryegrass does provide suitable habitat
Mountain plover	BLM Sensitive	Short grass prairie/ sparse vegetation.	NOT PRESENT - Potential habitat does not exist in the James Ryegrass and there are no documented sightings.
White-Faced Ibis	BLM Sensitive	Marshes and wet meadows	UNLIKELY - Confirmed as nesting in the PFO (Orobana et.al. 2012) but no documentation of the species in the James Ryegrass. These birds may stop over at local stock reservoirs but are likely not found nesting in the assessment area.
Trumpeter Swan	BLM Sensitive	Lakes, ponds, marshes, and other wetlands areas	UNLIKELY - Trumpeter swans have been observed in the PFO. Trumpeter swans have been periodically released on public land in the New Fork Potholes area however no suitable habitat exists within the James Ryegrass. The nearest potential habitat is along the Horse Creek riparian corridor.
American Peregrine Falcon	BLM Sensitive	Peregrine falcons nest on high cliffs, trees, high riverbanks, towers, and tall buildings (Savage 1992).	UNLIKELY - This species is considered uncommon in the PFO, but some nesting has occurred (Orobana et.al. 2012). Peregrine falcons have been released on public lands near the Upper Green River. Very limited habitat suitability in the James Ryegrass
Long-Billed Curlew	BLM Sensitive	Long-billed curlews usually nest in prairie and grassy meadows near water but occasionally choose dry upland sites.	UNLIKELY - Nesting and breeding has been documented in the PFO (WYNDD 2012) (Orobana et.al. 2012). There is no suitable habitat within the James Ryegrass however the species may occur along the agricultural lands associated with the nearby Horse Creek riparian corridor.
Special Status Fish Species			
Colorado pikeminnow	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Razorback sucker	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Bonytail	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Humpback chub	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Colorado River cutthroat trout	Federally Listed Endangered Species - BLM Sensitive	Upper Green River and Colorado River watersheds	NOT PRESENT - No habitat within assessment area
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James Ryegrass Pasture and Plot Location Information

Pasture	Site ID	Location	Ecological Site
West Pasture	Plot 1	Easting: 560926 Northing: 4748222	Loamy 10-14
Middle Pasture	Plot 2	Easting: 562788 Northing: 4748687	Loamy 10-14

Appendix 6. James Ryegrass 17 Indicators of Rangeland Health and Assessment Data

East Psture	Plot 3	Easting: 564696 Northing: 4748698	Loamy 10-14
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Plot 1: Cover by Species in West Pasture from Line Point Intercept

Species	Scientific	Common	Year	Average Annual Foliar Cover %	Average Annual Basal Cover %
ACLE9	Achnatherum lettermanii	Letterman's needlegrass	2012	10.0	0.0
ANRO2	Antennaria rosea Greene	rosy pussytoes	2012	12.0	2.0
ARTRW8	Artemisia tridentata Nutt. ssp. wyomingensis Beetle & Young	Wyoming big sagebrush	2012	43.0	1.0
CAREX			2012	18.0	0.0
CHV18	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	2012	5.0	0.0
COMAN	Comandra umbellata	bastard toadflax	2012	2.0	0.0
ELEL5	Elymus elymoides	squirrel tail	2012	1.0	0.0
ERIOG	Eriogonum	buckwheat	2012	15.0	3.0
HECO26	Hesperostipa comata	Needle and thread	2012	1.0	0.0
KOMA	Koeleria macrantha	prarie Junegrass	2012	1.0	0.0
PHLOX	Phlox		2012	2.0	0.0
POPR	Poa pratensis	Kentucky bluegrass	2012	4.0	0.0
POSE	Poa secunda	Sandberg bluegrass	2012	3.0	0.0
SYALA	Symphoricarpos albus (L.) S.F. Blake var. albus	common snowberry	2012	12.0	0.0

Plot 2: Cover by Species in Middle Pasture from Line Point Intercept

Species	Scientific	Common	Year	Average Annual Foliar Cover %	Average Annual Basal Cover %
ACLE9	Achnatherum lettermanii	Letterman's needlegrass	2012	7.0	0.0
ANRO2	Antennaria rosea Greene	rosy pussytoes	2012	7.0	4.0
ARTRW8	Artemisia tridentata Nutt. ssp. wyomingensis Beetle & Young	Wyoming big sagebrush	2012	27.0	0.0
CAREX			2012	1.0	0.0
CHV18	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	2012	1.0	0.0
COUM	Comandra umbellata	bastard toadflax	2012	1.0	0.0
ELEL5	Elymus elymoides	squirrel tail	2012	2.0	0.0
ERIOG	Eriogonum	buckwheat	2012	2.0	1.0
PHHO	Phlox hoodii	spiny phlox	2012	2.0	0.0
PHPU5	Phlox pulvinata	cushion phlox	2012	2.0	3.0
POFE	Poa fendleriana	muttongrass	2012	5.0	1.0
POSE	Poa secunda	Sandberg bluegrass	2012	8.0	0.0

Plot 3: Cover by Species in East Pasture from Line Point Intercept

Species	Scientific	Common	Year	Average Annual Foliar Cover %	Average Annual Basal Cover %
ACLE9	Achnatherum lettermanii	Letterman's needlegrass	2012	13.0	0.0
ANRO2	Antennaria rosea Greene	rosy pussytoes	2012	7.0	0.0
ARTRW8	Artemisia tridentata Nutt. ssp. wyomingensis Beetle & Young	Wyoming big sagebrush	2012	39.0	1.0
CAREX			2012	9.0	0.0
CHV18	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	2012	3.0	0.0
ERIOG	Eriogonum	buckwheat	2012	3.0	1.0
LEKI2	Leucopoa kingii	spike fescue	2012	1.0	0.0
PHHO	Phlox hoodii	spiny phlox	2012	7.0	0.0
POSE	Poa secunda	Sandberg bluegrass	2012	9.0	0.0

Appendix 6. James Ryegrass 17 Indicators of Rangeland Health and Assessment Data

Cover/Litter Report Plot 1		
	Total	Avg
Summary Category	Points	Percent
Foliar Cover	78	78.8
Bare Ground	7	7.1
Basal Cover	6	6.1
Total Ground Cover	91	91.9
Ground Cover Between-Plant Cover	14	14.1
Ground Cover Under-Plant Cover	77	77.8
Total Litter	83	83.8
Litter Between-Plant Cover	10	10.1
Litter Under-Plant Cover	73	73.7
Cover/Litter Report Plot 2		
	Total	Avg
Summary Category	Points	Percent
Foliar Cover	49	49.0
Bare Ground	9	9.0
Basal Cover	9	9.0
Total Ground Cover	80	80.0
Ground Cover Between-Plant Cover	42	42.0
Ground Cover Under-Plant Cover	38	38.0
Total Litter	68	68.0
Litter Between-Plant Cover	39	39.0
Litter Under-Plant Cover	29	29.0
Cover/Litter Report Plot 3		
	Total	Avg
Summary Category	Points	Percent
Foliar Cover	70	70.0
Bare Ground	3	3.0
Basal Cover	2	2.0
Total Ground Cover	93	93.0
Ground Cover Between-Plant Cover	27	27.0
Ground Cover Under-Plant Cover	66	66.0
Total Litter	91	91.0
Litter Between-Plant Cover	27	27.0
Litter Under-Plant Cover	64	64.0

Appendix 6. James Ryegrass 17 Indicators of Rangeland Health and Assessment Data

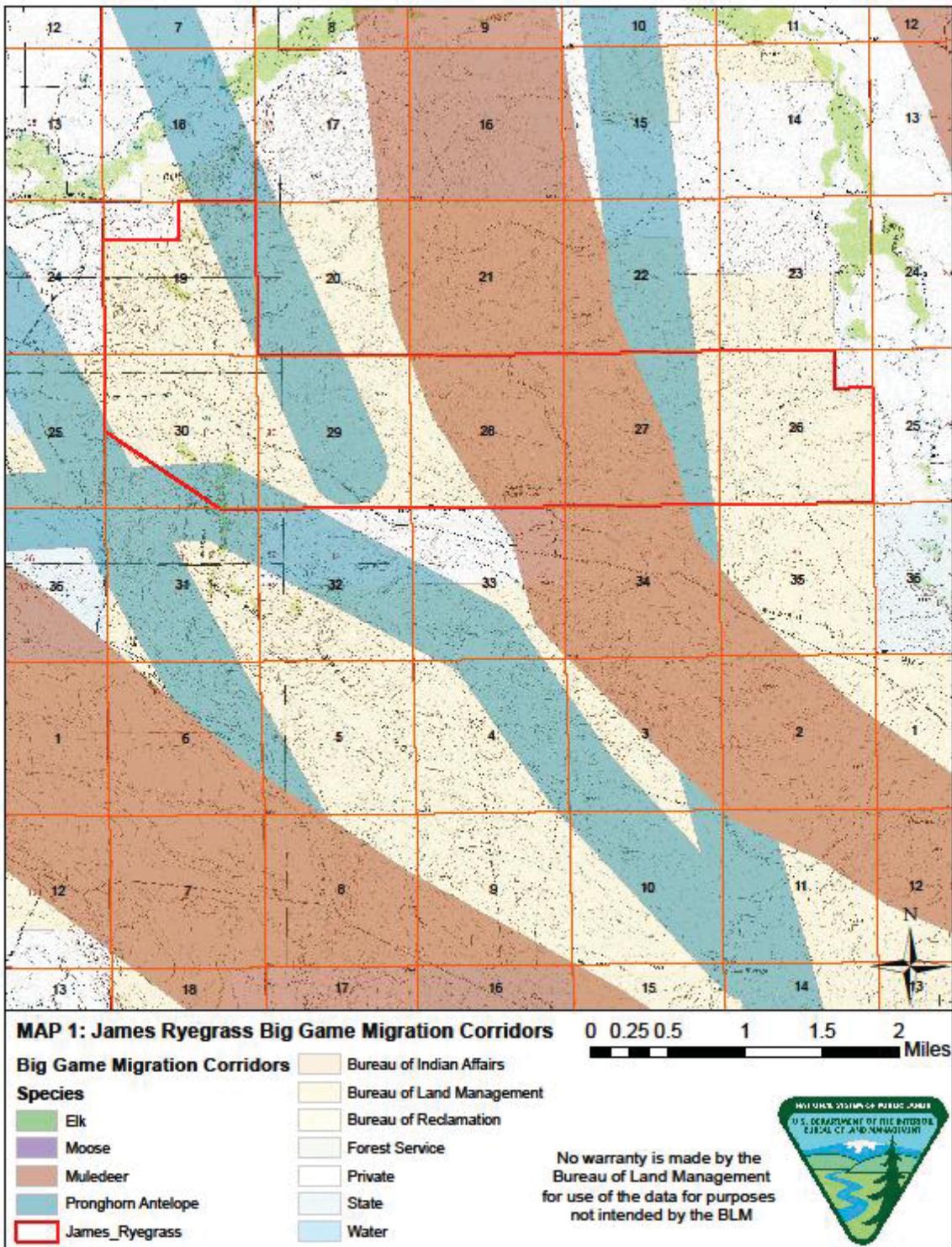
<i>Allotment</i>		James Ryegrass Ind. 12102 Site 1	James Ryegrass Ind. 12102 Site 2	James Ryegrass Ind. 12102 Site 3				
<i>Ecological Site</i>		LY 10-14 W	LY 10-14 W	LY 10-14 W				
<i>Indicator</i>	<i>Attribute</i>	<i>Departure from Expected</i>						
1. Rills	SH	N-S	N-S	N-S				
2. Water Flow Patterns	SH	N-S	N-S	N-S				
3. Pedestals/Terracettes	SH	N-S	N-S	N-S				
4. Bare Ground	SH	N-S	N-S	N-S				
5. Gullies	SH	N-S	N-S	N-S				
6. Wind Scoured, Blowouts and/or Depositions	S	N-S	N-S	N-S				
7. Litter Movement	S	N-S	N-S	N-S				
8. Soil Surface Resistance to Erosion	SHB	N-S	N-S	N-S				
9. Soil Surface Loss or Degradation	SHB	N-S	N-S	N-S				
10. Plant Community Composition & Distribution Relative to Infiltration & Runoff	H	N-S	N-S	N-S				
11. Compaction Layer	SHB	N-S	N-S	N-S				
12. Functional/Structural Groups	B	M	M	M				
13. Plant Mortality/Decadence	B	M	M	M				
14. Litter Amount	HB	N-S	N-S	N-S				
15. Annual Production	B	N-S	N-S	N-S				
16. Invasive Plants	B	N-S	N-S	N-S				
17. Reproductive Capability of Perennial Plants	B	N-S	N-S	N-S				

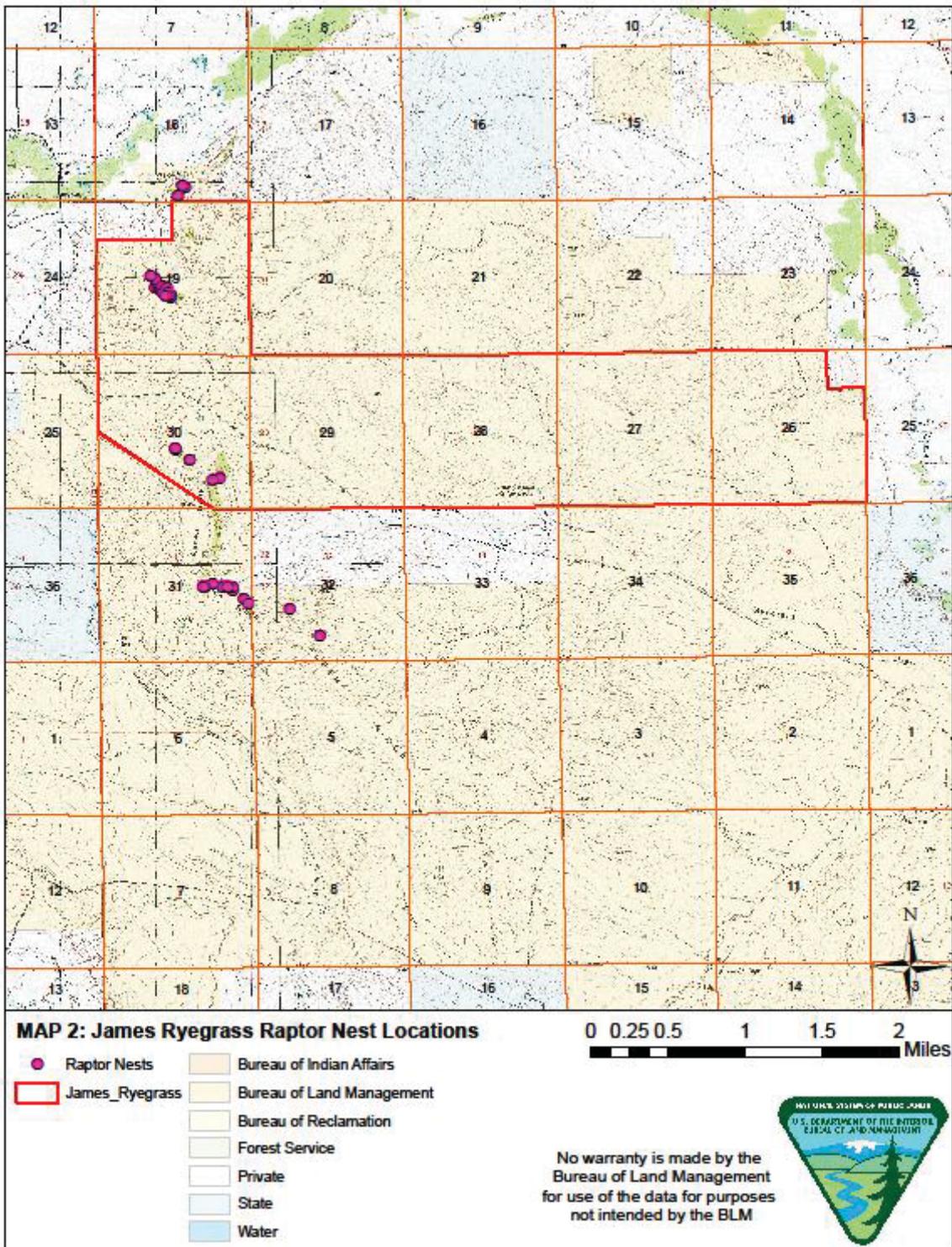
Attribute
 S Soil & Site Stability
 H Hydrologic Function
 B Biotic Integrity

Departure from Expected
 N-S None-Slight
 S-M Slight-Moderate
 M Moderate

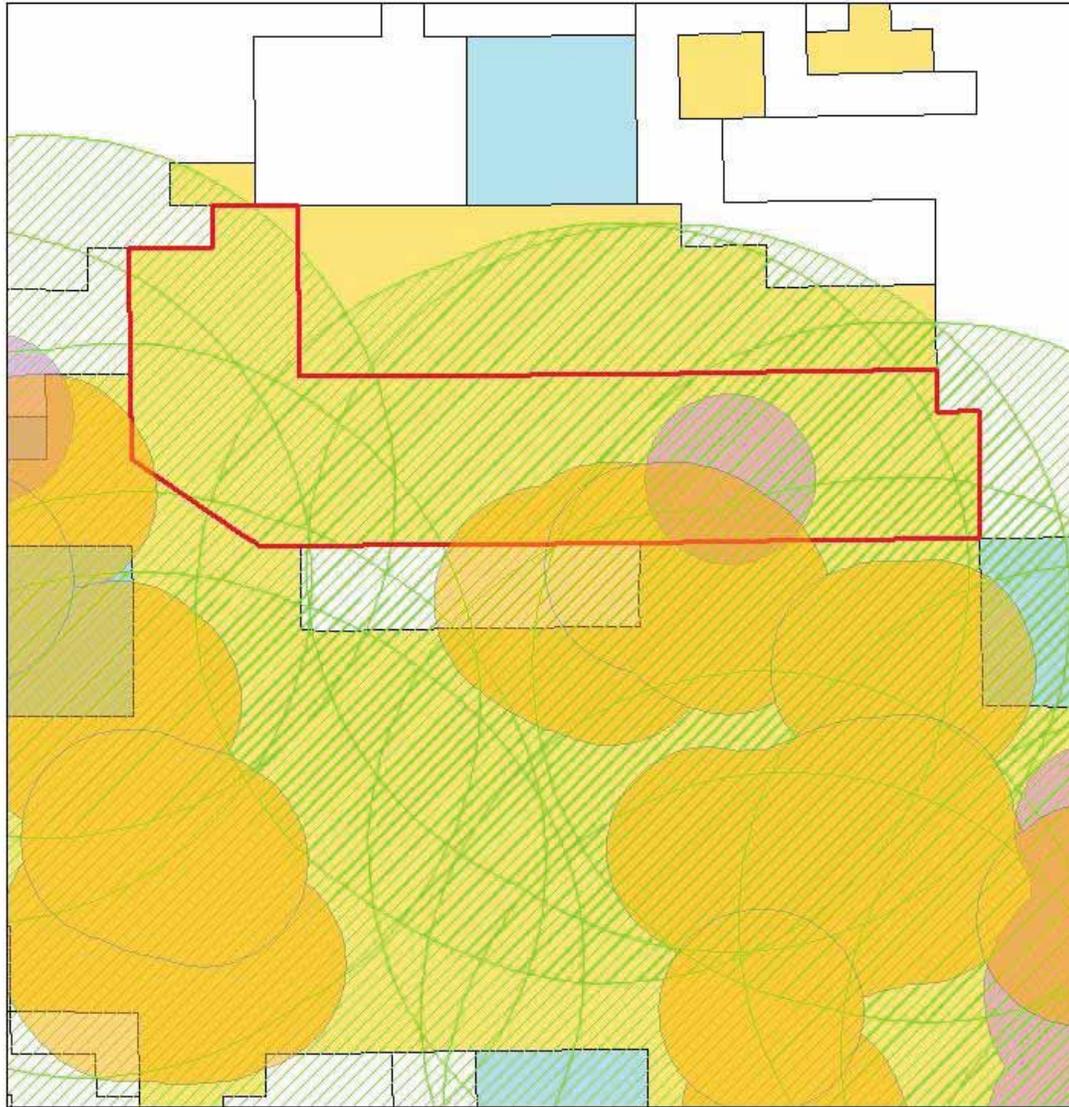
M-E Moderate-Extreme
 E-T Extreme-Total

Allotment Name (Site #)	WY #	Category	Ecological Site	Plant Association	Degree of Departure		
					Soil Site Stability	Hydrologic Function	Biotic Integrity
James Ryegrass Individual Site 1	12102	I	Ly 10-14 W	Big Sage/Rhizomatous/Bunch grass	N-S	N-S	S-M
James Ryegrass Individual Site 2	12102	I	Ly 10-14 W	Big Sage/Rhizomatous/Bunch grass	N-S	N-S	S-M
James Ryegrass Individual Site 3	12102	I	Ly 10-14 W	Big Sage/Rhizomatous/Bunch grass	N-S	N-S	S-M



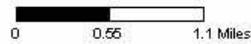


James Ryegrass Greater Sage-grouse Habitats



-  1-kilometer 0.6-mile buffer
-  James Ryegrass
-  Sage-grouse Nesting
-  Sage-grouse Winter Concentration
-  Buffer of Land Management

-  Private
-  State
-  Water



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N

APPENDIX D. Webb Draw Pasture **Health Assessment**

Webb Draw Pasture

Rangeland Health Assessment

Pinedale Field Office

High Desert District

Bureau of Land Management



I. Introduction

In accordance with 43 CFR 4180.2(b), the Standards for Healthy Rangelands and Guidelines for Livestock Grazing management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming were approved by the Wyoming State Director in August 1997. The objectives of the rangeland health regulations are to “promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions... and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.”

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Initially, the standards focused on livestock grazing on BLM-administered lands, but the standards were developed to apply to all users and resources. BLM collected the indicators for rangeland health and did a rangeland health assessment on the Webb Draw Pasture Allotment on July 24, 2013. Site selection was based on the dominant ecological sites within the allotment.

II. Background

Wyoming Standards for Rangeland Health

The standards are the basis for assessing and monitoring rangeland conditions and trend. The assessments evaluate the standards and are conducted by an interdisciplinary team. The six standards are as follows:

Standard #1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

This Means That:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly variable within Wyoming.

Indicators May Include But Are Not Limited To:

- Water infiltration rates
- Soil compaction
- Erosion (rills, gullies, pedestals, capping)
- Soil micro-organisms
- Vegetative cover (gully bottoms and slopes)
 - Bare ground and litter

Standard #2 Riparian

Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.

This Means That:

Wyoming had highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

Indicators May Include But Are Not Limited To:

Erosion and deposition rate
Channel morphology and floodplain function
Channel succession and erosion cycle
Vegetative cover
Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
Bank stability
Woody debris and instream cover
Bare ground and litter

Standard #3 Upland Vegetation

Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

This Means That:

Plant communities must have the components present to support the nutrient cycle and adequate energy flow to maintain desirable conditions and/or recover from disturbance within acceptable timeframes. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and the soil are fundamental components of rangeland health. The amount, timing and distribution on energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

Indicators May Include But Are Limited To:

Vegetative cover
Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
Bare ground and litter
Erosion (rills, gullies, pedestals, capping)
Water infiltration rates

Standard #4 Wildlife

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened, endangered, species of special concern, or sensitive species will be maintained or enhanced.

This Means That:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species to recover and be delisted.

Indicators may Include But Are Not Limited To:

Noxious weeds
Species diversity
Age class distribution
All indicators associated with the upland and riparian standards
Population trends
Habitat fragmentation

Standard #5 Water Quality

Water Quality meets State standards.

This Means That:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming's Water Quality rules and Regulations. The latter regulations contain Quality Standards for Wyoming Surface Waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

Indicators may Include But Are Not Limited To:

Chemical characteristics (e.g., pH, conductivity, dissolved oxygen)

Physical characteristics (e.g., sediment, temperature, color)

Biological characteristics (e.g., macro- and micro- invertebrates, fecal coliform, and plant and animal species)

Standard #6 Air Quality

Air quality meets State standards

This Means That:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming Air Quality Standards and Regulations.

Indicators may Include But Are Not Limited To:

Particulate matter

Sulfur dioxide

Photochemical oxidants (ozone)

Volatile organic compounds (hydrocarbons)

Nitrogen oxides

Carbon monoxide

Odors

Visibility

Standards Not Met

If an assessment shows that the standard(s) is/are not being met, factors contributing to the non-attainment are identified and management recommendations developed so the standards may be attained. A determination will be made whether livestock grazing is contributing to non-attainment of the standard(s). If livestock are contributing to the nonattainment of a standard, management practices will be implemented to ensure that progress is being made toward attainment of the standard(s). These practices must be implemented as soon as practical but no later than the start of next grazing season, The rangeland standards established a threshold; however, the desired resource condition will usually be at a higher level than the threshold.

General Information

The Webb Draw Pasture Allotment is located approximately 21 miles northwest of Pinedale, Wyoming in Township 35 North, Range 112 West, Sections 20, 21, 22, 27, 28, 29 and 34. The allotment includes 794 acres of private lands, and 1,550 acres of public lands administered by the Bureau of Land Management, for a total of 2,344 acres (Appendix 1. Map 1). The allotment ranges in elevation between 7,400 and 7,852 feet with annual precipitation from 15 to 19 inches per year. Daytime winds are generally out of the southwest with occasional wind gusts of 50 mph or greater.

Soils

The soils in the Webb Draw Pasture Allotment are moderately to very deep with a Typic Ustic soil moisture regime and frigid soil temperature regime (USDA NRCS Soil Survey). Family soil particle size classes are fine loamy, loamy skeletal, coarse loamy, fine, and sandy. Depending on slope and cover the susceptibility for water erosion ranges from slight to severe. In general, soils within the Webb Draw Pasture Allotment are stable with little to no erosion and tolerable soil loss is 3 to 5 tons per acre per year. Soil map units can be seen in (Appendix 2).

Riparian

Riparian-wetland habitats exist within the assessment area and support riparian vegetation. The primary method used in evaluating the riparian standard is through a qualitative assessment procedure called Proper Functioning Condition (PFC). This process evaluates physical functioning of riparian/wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. A properly functioning riparian/wetland area will provide the elements contained in the definition:

- dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality
- filter sediment, capture bed load and aid floodplain development
- improve flood-water retention and ground water recharge
- develop root masses that stabilize stream banks against cutting action

It is important to note that the PFC assessment provides information on whether an area is physically functioning in a manner that allows maintenance or recovery of desired values (e.g., fish habitat, neotropical birds, or forage) over time. PFC is not desired or future condition (TR 1737-15 1998).

Lentic (standing water) systems within the assessment area primarily consist of natural spring and/or seep sites either perched within mostly upland portions of drainages or within water courses either below the upland vegetation line or immediately above it. Regardless of location, these sites are generally relatively small (less than an acre to an acre or two) and, during a normal year, flow water only a short distance down slope or stream, sometimes drying completely by late summer prior to fall moisture.

Lotic (flowing water) systems consist of small forks of Webb Draw in sections 27, 28, 32, and 34. Not all these segments have been assessed; however, not all of them actually flow water or support riparian vegetation. The North Fork of Webb Draw, in the southeast corner of the allotment (sections 27 and 34) was rated on August 27, 2013. It appears likely that flow in this system is augmented by irrigation activities on adjacent private lands. However, this segment was found to be heavily grazed, with low plant vigor and relatively high levels of bank breakage. The soils in this area appeared to be compacted, and accelerated hummocking was present along this reach but appear to be historic and not active. The site is not expected to support a willow community; however, the presence of both beaked and Nebraska sedge indicates a high potential for improvement of condition in this system.

Noxious Weeds

There are 25 designated weeds as noxious in the State of Wyoming. Sublette County has 5 additional species on its declared list of weeds. The 5 Noxious weeds in Sublette County are Black Henbane (*Hyoscyamus niger*), Scentless Chamomile (*Matricaria perforata* Merat), Western Water Hemlock (*Cicuta*

douglasii), Field Scabious (*Knautia arvensis*), Austrian Fieldcress (*Rorippa austriaca*). The only known noxious weed in the assessment area is Canada thistle.

Ecological Sites

The Natural Resources Conservation Service (NRCS) has divided up the United States into Major Land Resource Areas (MLRAs). MLRAs are geographic areas with similar elevation, topography, soils, geology, climate, water, soils, biological resources, and land use (Cagney 2010). The James Ryegrass Grazing Association Allotments encompass two MLRAs (MLRA 34A Cool Central Desertic Basins and Plateaus; MLRA 43B Central Rocky Mountains). The NRCS has made revisions to the MLRAs based on soil, precipitation zones and divided them up into Ecological Site Descriptions (ESDs). The dominant Ecological Sites within the allotments are as follows:

Webb Draw Pasture Ecological Sites

Ecological Site	BLM Acres	Percent of Allotment
Loamy 15-19	504	33
Sandy 15-19	240	15
Coarse Upland 15-19	153	10
Dense Clay 15-19	253	16
Sub Irrigated 15-19	53	3
Shallow Loamy 15-19	95	6
Minor Components	252	16
Total:	1550	99

Ecological sites are based on the historic reference plant community (HRPC). The HRPC for a site in North America is the plant community that existed at the time of European immigration and settlement. It is the plant community that’s best adapted to the unique combination of environmental factors associated with the ecological site (National Range and Pasture Handbook).

Most ecological sites can support several different vegetation communities and can exhibit change between plant communities due to various management interactions. These different vegetation communities are called states. State-and-transition models describe the various states for an ecological site and how the states can change from one to another. There are two important elements of a state and transition model, which are resistance and resilience. Resistance refers to the capability of the state to absorb disturbance and stress and retain its ecological structure. Resilience is the amount of disturbance or stress a state can endure and still function after the stress and disturbance is removed (Nation Range and Pasture Handbook). Once a threshold has been crossed in a state it can’t be changed back to its natural state by a simple change in management or naturally occurring events. Disturbances such as fire, mowing, or plantings are required to return vegetation communities to their natural state. A new state is formed when the system reestablishes stability among the ecological processes with a different plant community.

Upland Vegetation

The assessment area falls within the Bigsage/ Bunchgrass State. This plant community offers the most biological diversity of shrubs, grasses, and forbs (Cagney 2010). It also provides ample forage for livestock and wildlife. This state was formed when sagebrush advanced on the transitional bunchgrass community. This is a stable state and is protected from erosion and the watershed is functioning (USDA).

The Sagebrush/Bunchgrass Plant Community is considered a dominant state or the “potential” within the assessment area. This HRPC provides a mix of sagebrush and herbaceous understory for ample cover and forage for livestock and wildlife. Potential vegetation is estimated at 75% grasses or grass-like plants, 10% forbs, and 15% woody plants (USDA). The major grasses include rhizomatous wheatgrass, bluebunch wheatgrass, Letterman needlegrass, Canby bluegrass, and needleandthread. Other grasses may include Indian ricegrass, prairie junegrass, and bottlebrush squirreltail, Sandberg and mutton bluegrass,

threadleaf and needleleaf sedge. Wyoming big sagebrush is the dominant woody plant. Other woody species include rabbitbrush and winterfat (USDA). For further description of the plant communities associated with the Home Individual Assessment ecological site, refer to the USDA NRCS Technical Guide, Section III. See Appendix 3 and for a list of plant species that occur within the assessment area.

The health of vegetation communities includes the stage of succession within the ecological site and other factors, such as grazing or browsing, insects, disease, fire, chemical and mechanical treatments, and climate. Typical elements used in describing health include: species and cover composition, vertical structure, and age class and contains appropriate plant communities that are resilient, diverse, and able to recover from natural and human disturbance.

The reference states for the Loamy 15-19 is described by the relative dominance of sage brush vs. bunchgrass. Several states outside of the reference are also described and often are attributed to disturbance such as grazing or lack of natural disturbance like fire. The plant communities that are most common for the Loamy ESD in the assessment area include Bunchgrass/WY Big Sagebrush or WY Big Sagebrush/Bunchgrass (reference state) and WY Big Sagebrush/Rhizomatous/Sandberg bluegrass (grazing resistant).

The reference state provides diverse plant communities that support hydrologic and biological function. It's thought that historic continuous spring grazing and lack of fire (disturbance) has led to the transition to the WY Bigsage/Sandberg bluegrass state. In this state, mid-size bunchgrasses are less abundant or absent and have been replaced by smaller bunchgrasses (Sandberg) and rhizomatous wheatgrasses that are more grazing resilient. This plant community is stable under light to moderate grazing. Inputs such as mechanical sagebrush removal and seeding with desired perennial grasses, along with grazing management (rest or deferment), would be needed to transition back to the reference state. Increased intensity and/or frequency of disturbance (grazing/treatments) may push this state to the WY Big Sagebrush/Bare ground or WY Big Sagebrush/Rabbitbrush.

Wildlife

The plant communities associated with different habitat types that occur within the assessment area are described earlier in this document. While some wildlife species use several to many habitat types, other species are specific in their habitat needs. This section presents the current known status, distribution and habitat needs of wildlife within and specific to the Webb Draw Individual assessment area as well as important topics related to those species.

Threatened and Endangered Species

There are no Threatened or Endangered species or critical habitats documented within the assessment area.

SENSITIVE AND SPECIAL STATUS WILDLIFE

Further discussion of BLM Sensitive Species that have potential to occur in the assessment area but are not addressed below can be found in Appendix 5.

Greater Sage-grouse

Greater sage-grouse, heretofore referred as sage-grouse, are an obligate species dependent upon sagebrush for nearly all components of its lifecycle. In general sage-grouse require a mosaic of sagebrush habitats with access to seasonal use areas. Nesting and early brood rearing habitat is characterized by 10-25% sagebrush cover with a variety of forb and native bunch grasses for food and nesting residual cover. Breeding (lekking) occurs in suitable open spaces adjacent to nesting habitat. Late summer brood-rearing requires upland sagebrush habitat for roosting and riparian areas to provide succulent grass and forb forage species. Winter habitat is driven by access to suitable sagebrush canopy cover above the snow (10-30% canopy cover). During winter sagebrush provides the primary food source and cover from harsh conditions.

Seasonal use habitats within the assessment area include nesting and both early and late brood rearing (Table 1). Nesting grouse will typically remain on the upland sagebrush areas until forbs dry up and then move to key late brood rearing habitats along Horse Creek. The presence of springs and ephemeral wet areas has the potential to provide areas of late brood rearing within the allotment as well. Portions of the allotment directly adjacent to riparian areas may function as upland summer roost habitat. There is one occupied lek within the assessment area located on the boundary between private and BLM administered land (Appendix 7. Map 1).

The inventory and delineation of sage-grouse winter concentration, winter use, and lekking habitats has been an ongoing effort in the PFO. Aerial surveys performed during the spring and winter months of 2009-2013 have been used to locate groups of strutting (breeding) and wintering sage-grouse respectively. Through collaboration with local WGFD specialists winter concentration habitat areas were delineated by buffering each observation point of a certain flock size with a predetermined radius. Winter use areas have not been delineated in the assessment area. Typically winter use areas fall along the perimeter of winter concentration polygons. Currently, no winter concentration habitat has been delineated within the assessment area (Appendix 7. Map 1). Continued monitoring will further refine the location of winter concentration habitats.

On March 23, 2010 the USFWS published its finding that the greater sage-grouse warrants protection under the Endangered Species Act (ESA) (75 FR 13910 (2010-3-23)). Proposing the species for protection was deemed to be precluded by the necessity to focus efforts on higher priority species. The sage-grouse is therefore considered a Candidate on the list of species that will be considered for protection under the Endangered Species Act and all management of the species should be oriented to prevent further impacts to the species that may result in its listing.

In response to the Warranted but Precluded determination the state of Wyoming Governor’s Sage-Grouse Implementation Team developed a Core Population Area Strategy for the Conservation of Sage-Grouse in Wyoming (Wyoming Governor’s Executive Order 2011-5). Through this effort, management priority areas and management controls were identified and implemented in an effort to conserve sage-grouse and avoid potential significant adverse impact on the state economy associated with a listing under ESA. On February 10, 2012 the BLM Wyoming implemented a Greater Sage-Grouse Habitat Management Policy consistent with the guidelines and recommendations provided for in the Core Population Area Strategy (BLM IM No.WY-2012-019). This guidance effectively adopted the State’s Sage-Grouse Core Protection Area Strategy standards and practices for habitat conservation, restoration and reclamation practices in designated core habitat in Wyoming. The BLM Wyoming IM meets the intent of the National Policy set forth in WO IM-No.2012-044 and therefore represents the official management policy for BLM land in the State of Wyoming. The entire assessment area (approximately 2448 acres) is considered part of the Daniel sage-grouse core area (Table 1).

Table 1: Designated habitats total acres and percent of the allotment for big game and Greater Sage-grouse within the Webb Draw Individual allotment.

	Mule Deer <i>acres(% allotment)</i>	Pronghorn <i>acres(% allotment)</i>	Moose <i>acres(% allotment)</i>	Elk <i>acres(% allotment)</i>	Greater Sage- Grouse <i>acres(% allotment)</i>
Crucial Winter Range	0	0	842 (34%)	0	-
Winter/Yearlong	0	0	50 (2%)	892 (36%)	-
Spring/Summer/Fall	2448 (100%)	2448 (100%)	1554 (63%)	1555 (63%)	-
Parturition	0	0	0	0	-
Nesting	-	-	-	-	2448 (100%)
Winter	-	-	-	-	0

Concentration					
Core Area	-	-	-	-	2448 (100%)
Core Area NSO	-	-	-	-	713 (29%)
RMP NSO	-	-	-	-	125 (5%)

	Mule Deer	Pronghorn	Moose	Elk	Greater Sage-Grouse
Number of Leks	-	-	-	-	1

	Mule Deer (miles)	Pronghorn (miles)	Moose (miles)	Elk (miles)	Greater Sage-Grouse (miles)
Migration Corridors	4	3	0	0	-

SAGE-GROUSE HABITAT ASSESSMENT FRAMEWORK

Habitat data collected within the assessment area during the summer of 2013 was analyzed using tools found in the Sage-Grouse Habitat Assessment Framework *Multi-scale Habitat Assessment Tool* in order to evaluate habitat conditions for grouse in the area. Third order and fourth order habitat descriptions worksheets were used to assess habitat conditions for Breeding (nesting, early brood rearing), Summer (upland) and Winter (winter concentration and winter use) habitats at ESD reference sites within the assessment area. Summary results of the assessment are presented below.

Seasonal grouse habitats within the assessment area were rated as either suitable or marginal based on the habitat framework (Table 2). Sagebrush canopy cover values of 23.5% place it within the suitable range of 15-25% canopy cover. Both grass (30%) and forb (22%) exceeded the suitable percent cover values. The average sagebrush height was 64cm which is within the 30-80cm suitable range for nesting and early brood rearing habitat. Preferred forbs were determined to be common with only a few species present. The wetland and riparian areas within the allotment were classified as Functioning at Risk this combined with lower forb diversity suggests these areas currently provide marginal riparian summer habitat. The majority of grouse likely utilize the larger riparian area associated with Horse Creek during the summer season. While sage cover values are within acceptable ranges the snow load limits the areas value as winter habitat. Data was collected in the Ly 15-19” ecological site which represents the dominant upland ecological site within the assessment area.

Table 2: Webb Draw Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
Webb Draw #1 Ly 15-19”*	2013	Mtn. Big Sage/Bunchgrass	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Riparian Summer/Late Brood Rearing	Marginal
			Winter	Marginal

* Webb Draw Individual #1.

Pygmy Rabbit

Pygmy rabbits are typically associated with tall dense stands of sagebrush in loose, deep soils. They are the only lagomorph native to North America that digs its own burrows most often at the base of tall sagebrush plants. Sagebrush provides cover from predators and comprises the majority of the pygmy rabbit diet. Pygmy rabbit occupancy surveys were conducted in 2008 within allotments adjacent to the assessment area. These surveys did not locate evidence of pygmy rabbits. These data indicate that pygmy rabbits are either not present or present in low density throughout the area.

Colorado River Cutthroat Trout

Colorado River Cutthroat Trout (CRCT) is the only native Colorado River trout and one of only two native salmonids (the other being the mountain whitefish). Analysis of distribution data indicates that they currently occupy approximately 14% of its former range (Hirsch, Albeke, & Nesler 2006). CRCT exist in isolated sub-drainages in Colorado (1,359 miles), Utah (1,111 miles), and Wyoming (552 miles) (Behnke 1992, Hirsch et al. 2006, Young 1995). They have hybridized with non-native salmonids in many areas, reducing the genetic integrity (CRCT Coordination Team 2006). Pure populations of CRCT have been extirpated from much of their historical range.

The assessment area is dominated by upland sagebrush with no riparian areas or streams within the allotment. Therefore no current or historical CRCT habitat occurs within the assessment. The nearest potential habitat occurs within the adjacent Horse Creek corridor.

SENSITIVE AND SPECIAL STATUS PLANTS

Based on species requirements there is no habitat for federally listed Threatened or Endangered plant species within the assessment area. The assessment area is too high in elevation for the threatened Ute ladies'-tresses (*Spiranthes diluvialis*) and there are no sandy areas with blowouts necessary for the endangered blowout penstemon (*Penstemon haydenii*) to occur.

A population of *Antennaria arcuata* has been identified within the assessment area. This species is found in riparian habitat often associated with a hummocky soil surface. The presence of these hummocks is typically attributed to livestock utilization of riparian soils and associated soil compaction. There have been no other documented occurrences of Wyoming BLM sensitive plants or other species of concern within the assessment area (WYNDD 2012).

Big Game Species

For WGFD Habitat Designation definitions see Appendix 4.

Pronghorn

Pronghorn are selective browsers that require a variety of vegetative species on the landscape. Their diet is typically dominated by sagebrush and other low growing shrubs and forbs. Grass is only consumed when green and succulent. The availability of browse, especially sagebrush, appears to be a limiting factor on winter range. Under severe winter conditions, pronghorn are confined to lower south-southwest facing slopes that typically retain some level of exposed vegetation during adverse conditions. Desert salt shrubs can also represent an important forage species in some areas (USDI, BLM 1986a).

The assessment area is located within the 10,546 square-mile Sublette Pronghorn Herd Unit. Pronghorn in this herd unit are known for long migrations, primarily the 150 plus mile migration between summer ranges in the Jackson Hole Valley and wintering areas along the Green River near Seedskaadee National Wildlife Refuge and areas within and south of Jonah Natural Gas field (WYDOT 2002).

The sagebrush-dominated uplands within the assessment area serve as habitat for pronghorn through-out the spring summer and fall seasons (Table 1).

Mule Deer

Mule deer are primarily browsers with various forb and shrub species comprising the majority of their diet. Due to their smaller rumen mule deer diets tend to be more selective relative to other ungulates such as elk. It is therefore important to maintain a diversity of forage on the landscape allowing for a variety of browse options. Winter browse habitats are dominated by shrubs such as sagebrush, saltbush, and bitterbrush. Shrubs are typically more available in the winter and retain a higher percent of their nutritional value compared to dormant forbs and grass.

The assessment area serves as habitat for mule deer in the Sublette Herd Unit. The assessment area provides spring/summer/fall habitat (Table 2). This area represents a key transitional area utilized by deer migrating between summer range to the north and west and winter range on the Mesa southeast of the assessment area.

Elk

Elk diets consist mostly of grasses and forbs in the spring and summer, with shrubs representing an important winter forage component, respectively. The assessment area contains multiple designated seasonal habitats for elk in the Piney Herd. A total of 63% of the area is designated as spring/summer/fall habitat and 36% has been designated as winter/yearlong habitat (Table 1). These habitats are portions of a larger contiguous designation extending from the Green River in the east to the Wyoming range in the west and bound by LaBarge Creek to the south and the East Rim in the north.

Moose

The assessment area supports the Sublette moose herd unit. Moose are generalist browsers and are known to eat willow, bitterbrush, serviceberry, sedges rushes, and a number of conifer species. The area supports multiple WGFD designated seasonal habitats. Crucial winter range comprises 34% of the area, 2% is designated as winter/yearlong, and 63% as spring/summer/fall habitat (Table 1).

III. Summary of Studies

Rangeland Health Indicators

Members of an interdisciplinary team visited the assessment area on July 24, 2013 and completed the 17 Indicators of Rangeland Health on a Loamy 15-19 ecological site. Appendix 6 contains tables depicting results of the 2013 Webb Draw Pasture evaluation.

Allotment Summary

Webb Draw Pasture Allotment (02101)

The Webb Draw Pasture Allotment contains 1,550 acres of BLM Land and 794 acres of Private Land. Grazing was uncontrolled and unlimited on the public domain, with reduction of natural vegetation and increased soil erosion until the enactment of the Taylor Grazing Act in 1934. Few written records of the grazing history exist for the allotment pre-1990. See Table 3 for permitted use in the assessment area. See Table 4 for actual use 2005-2013.

Table 3. Webb Draw Permitted Grazing Use

Allotment Name	WY #	Category*	Livestock # and Type**	Dates of Use	BLM Acres	Public Land %	BLM AUMs
Webb Draw Pasture	02101	M	591 C	5-20 – 6-25	1556	66	417

*Category

M=Maintain C=Custodial I=Improve

**Type C=Cattle

Table 4. Webb Draw Pasture Actual Use 2005 through 2013

Year	Webb Draw Pasture			Total AUMs
	From	To	AUMs	
2014	6/1	6/28	299	-

2014 Trailing	8/20	8/23	43	342
2013	5/27	6/23	310	-
2013 Trailing	7/26	7/30	55	365
2012	5/30	6/24	273	-
2012 Trailing	7/22	7/28	73	346
2011	6/4	6/30	267	-
2011 Trailing	8/10	8/15	59	326
2010	6/2	6/27	283	-
2010 Trailing	8/3	8/9	74	357
2009	*	*	*	288
2008	*	*	*	272
2007	5/29	6/22	286	286
2006	5/28	6/21	286	286
2005	5/28	6/22	273	-
2005 Trailing	7/26	8-7	136	409

Note: * No Actual Use Report on file but the AUMs used for the years are correct from the permittees records.

16 of the 17 indicators showed a None to Slight departure from the reference sheet. There was one indicator that showed a Slight to Moderate departure from the reference sheet being Functional/structural groups. This showed a departure from reference based on shrub composition being too high but, all other species were present for the site.

IV. Wyoming Rangeland Health Standards Evaluation

A rangeland health assessment provides information on the functioning of ecological processes relative to the reference state for the ecological site or other functionally similar unit for that land area (Technical Reference 1734-6). It gives an indication of the status of the three attributes of an evaluation area: Soil & Site Stability, Hydrologic Function, and Biotic Integrity. The rangeland health assessment protocol includes five steps:

6. Determine soil and ecological site at the evaluation area (Required).
7. Obtain or develop reference sheet (Required).
8. Collect supplementary information (Strongly Recommended).
9. Rate the 17 indicators on Evaluation sheet and justify ratings with written comments (Required).
10. Evaluate the three Rangeland Health Attributes based on the ratings of the 17 indicators and justify ratings with written comments (Required).

Standard 1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Rational

The 2013 evaluation of the 17 Indicators of Rangeland Health indicated the assessment area has naturally stable soils, within the potential of the Loamy 15-19 ecological site. Rills, water flow patterns were not observed. Soil surface resistance to erosion was tested and shows what is expected for the ecological site. There were no compaction layers detected and active gullies were not apparent on the rangeland but do occasionally occur in some draws. Litter movement is consistent with expected values for the ecological sites.

The assessment area falls within the Big Sage/ Bunchgrass State. This state contains a sagebrush canopy with an herbaceous understory dominated by bunchgrasses (Appendix 3). This plant community offers the most biological diversity of shrubs, grasses, and forbs (Cagney 2010). It also provides ample forage for livestock and wildlife. This state was formed when sagebrush advanced on the transitional bunchgrass community. This is a stable state and is protected from erosion and the watershed is functioning (USDA ESIS). Though the functional/structural groups showed a Slight to Moderate departure from what is expected for the ecological site, there is negligible sign that hydrologic function is being negatively impacted from that departure. Though current grazing practices in the assessment area do not typically provide for critical growing season rest of larger stature bunchgrasses, there is adequate vegetative cover to allow for water infiltration and minimal surface runoff.

Standard was met

Standard 2 - Riparian/Wetland Health

Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel success and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Rational

Riparian and wetland communities are the transition zones between terrestrial and aquatic ecosystems (Gregory et al. 1991). These communities are found in moist areas along perennial or intermittent drainages, seeps, and springs. Typically, soils consist of deep, rich loams with high organic matter content. Riparian areas are highly productive; thus, are an important resource for wildlife and livestock. The lush vegetation in riparian communities provides valuable food and cover; if water is present, the importance of these areas increases even more.

Lentic (standing water) systems within the assessment area primarily consist of natural spring and/or seep sites either perched within mostly upland portions of drainages or within water courses either below the upland vegetation line or immediately above it. Regardless of location, these sites are generally relatively small (less than an acre to an acre or two) and, during a normal year, flow water only a short distance down slope or stream, sometimes drying completely by late summer prior to fall moisture. This was rated at function at risk in the fall of 2013.

Lotic (flowing water) systems consist of small forks of Webb Draw in sections 27, 28, 32, and 34. Not all these segments have been assessed; however, not all of them actually flow water or support riparian vegetation. The North Fork of Webb Draw, in the southeast corner of the allotment (sections 27 and 34) was rated on August 27, 2013. It appears likely that flow in this system is augmented by irrigation activities on adjacent private lands. However, this segment was found to be heavily grazed, with low plant vigor and relatively high levels of bank breakage. The soils in this area appeared to be compacted, and accelerated hummocking was present along this reach. The site is not expected to support a willow community; however, the presence of both beaked and Nebraska sedge indicates a high potential for improvement of condition in this system. This was rated at function at risk in the fall of 2013.

Standard was not met and livestock grazing is a significant factor. We are addressing the riparian standard in Webb Draw by changing the season of use and shortening the trailing use back through the allotment.

Standard 3 – Upland Vegetation Health

Upland vegetation on each ecological site consists of plant communities appropriate to the site, which are resilient, diverse, and able to recover from natural and human disturbance.

Rational

At present, the review of upland vegetation conditions in the Webb Draw Pasture assessment area reveals an overall healthy community. Desirable species (including herbaceous and browse species important for livestock and wildlife forage, as well as those species important for ground cover) are present. Bare ground within the assessment was relatively low and within the expected range for the ecological site. These are all indications that the upland vegetation communities are functioning. For the assessment, the 17 indicators of rangeland health do not show a degree of departure from reference of more than Slight to Moderate (Appendix 6). The diversity, vigor, and overall stability of upland vegetation communities within the assessment area are stable. The plant species are present for what is expected for the site, but shows disproportionate values with shrub production higher than desired and herbaceous production lower than desired (e.g. shrubs, grasses, and forbs). All of the expected plants for functional/structural groups for the ecological site are present, but the relative proportions of plant groups deviate from expected.

Standard was met

STANDARD 4 – WILDLIFE/THREATENED AND ENDANGERED SPECIES HABITAT HEALTH

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Rational

While several wildlife species are present or have the potential to utilize habitat within the assessment area, the dominant species are big game and greater sage-grouse. Their respective habitat requirements fulfill the needs of many of the secondary species. Therefore focusing on big game and sage-grouse as primary indicator species will provide an adequate assessment for the condition of wildlife habitat within the assessment area.

In general, upland sagebrush habitats found in the assessment area are in a suitable condition for sage-grouse nesting and upland summer habitats use based on the assessment framework. There is currently no delineated winter concentration habitat within the assessment area likely due to the areas snow load limiting winter habitat potential. There is a single active lek with within the assessment area. Riparian habitats within the assessment area were classified as Functioning at Risk following the PFC assessment. One of the primary factors for this classification was the observation of low riparian plant vigor and diversity. These habitats are therefore able to only marginally address sage-grouse late brood rearing habitat needs. The majority of upland habitats provide limited value for late brood rearing, as most hens would likely utilize riparian corridors and agricultural fields along the Horse Creek drainage. Upland sagebrush habitat adjacent to the riparian/agricultural areas may provide early morning and evening roosting areas during the late brood rearing period.

The percent composition of bunch grasses is similar to reference state communities however the community is dominated not by the more desirable large stature cool season bunch grasses but by short stature cool season bunch grasses. The screening and nest cover habitat value of these shorter species is reduced relative to the larger species. This community is considered highly stable to disturbance. Several of the more desirable bunchgrass species are present just in reduced numbers.

The majority of big game habitats in the assessment area are dominated by sagebrush. A high level of decadence was observed in the sagebrush community with few young plants observed. This presents a situation where without suitable levels of recruitment there is a risk of losing sagebrush abundance within the assessment area over time.

Elk represent the only big game species currently above objective for their respective herd unit. Pronghorn were above objective until the 2011 season. Prior to this decline the population had remained above objective for several years and was considered stable (WGFD 2011). Moose population estimates are below objective but are considered stable (WGFD 2011). Mule deer represent the only big game

species that exhibits a declining population trend across multiple years (WGFD 2011). The declining mule deer populations are of great concern and have received significant management attention on a larger scale.

Species diversity in the assessment area appears to be suitable for associated habitat types. The assessment area has the potential to support a variety of animal species, including Special Status Species. Desired conditions may not be fully realized for certain wildlife habitats however the capability to sustain or enhance current wildlife populations and habitats does exist with proper management actions.

Standard was met

Standard 5 – Water Quality

Water quality meets State standards.

Rational

There are no areas of standing or flowing water bodies within the assessment area, therefore this standard does not apply.

Standard 6 – Air Quality

Air quality meets State standards.

Rational

Air quality issues in the assessment area center mainly around elevated ozone levels in the UGRB. Elevated ozone episodes have been observed at air monitoring stations during winter and early spring in the UGRB since 2005. Concentrations of ambient ozone exceeding the National Ambient Air Quality Standard, currently 75 ppb daily maximum eight-hour average, were recorded in 2005, 2006, and 2008.

The standard was not met; however, livestock grazing was not a causal factor.

Conclusion: Standards for Rangeland Health were met except for Standard 2 and 6. Standard 2 Riparian/Wetland Health was not met; however, livestock grazing was not identified as a contributing factor. Standard 6 – Air Quality was not met due to the non-attainment but was not due to livestock grazing.

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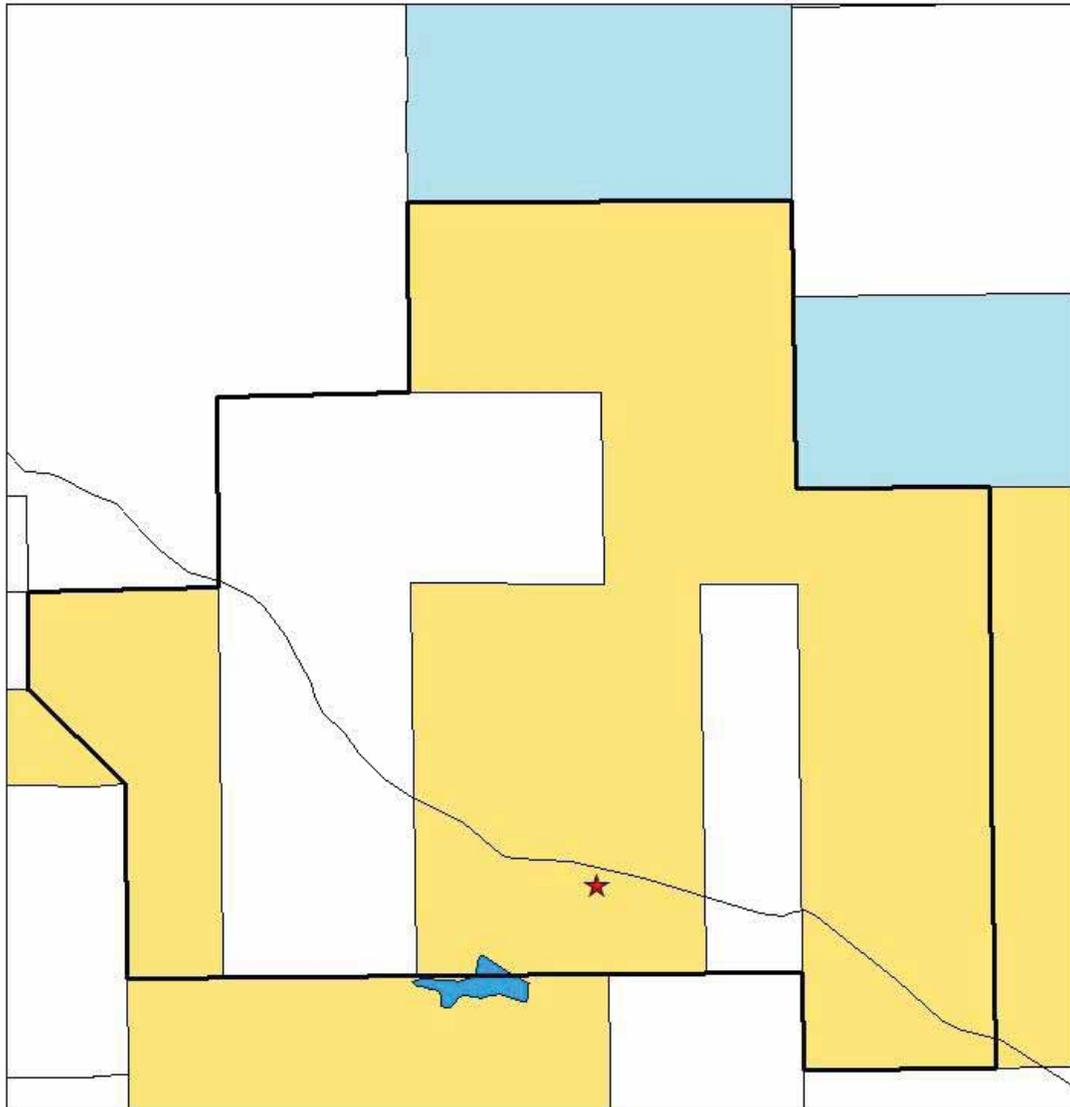
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Appendices

Webb Draw Pasture Allotment Map



- ★ Rangeland Health Site
- Webb Draw Pasture
- Bureau of Land Management
- Private
- State
- Water

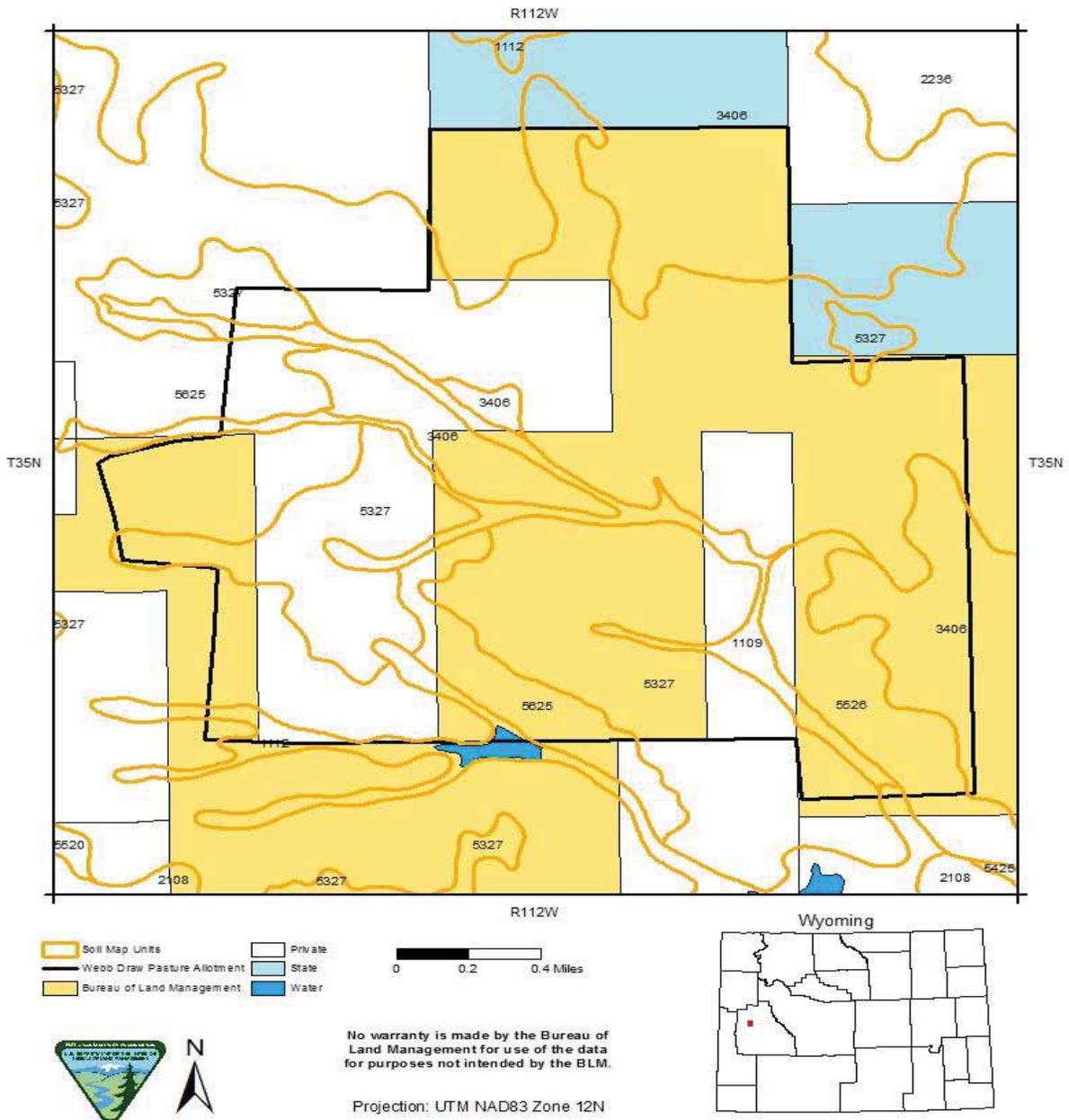


No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N



Webb Draw Pasture Allotment Soils



Soil Map Unit Key:

- 1111-- Typic Cryohemists, 0 to 2 percent slopes
- 1112—Furniss mucky peat complex, 0 to 3 percent slopes
- 5625--Sledrunner-Leavitt-Bridgimmer complex, 8 to 30 percent slopes
- 3406--Onionspring-Brodie, very stony complex, 2 to 15 percent slopes
- 5327--Webbdraw fine sandy loam, 2 to 12 percent slopes
- 5526--Coutis fine sandy loam, 4 to 25 percent slopes

Appendix 3. Webb Draw Pasture Assessment Plant Species List

List Symbol	Scientific Name	Common Name
ACLE9	<i>Achnatherum letermanii</i>	Letterman's needlegrass
ANTEN	<i>Antennaria Gaertn</i>	pussytoes
ARTRV	<i>Artemisia tridentata</i>	mountain big sagebrush
CAREX	<i>Carex</i>	sedge
CHGR6	<i>Chrysothamnus greenei</i>	Greene's rabbit brush
CHIV8	<i>Chrysothamnus viscidiflorus</i>	Yellow rabbit brush
COUMU	<i>Comandra umbellata</i>	bastard toadflax
ERIOG	<i>Eriogonum</i>	buckwheat
GILIA	<i>Gilia</i>	Gilia
HECO26	<i>Hesperostipa comata</i>	needle and thread
LEKI2	<i>Leucopoa kingii</i>	spike fescue
PHLO2	<i>Phlox longifolia</i>	longleaf phlox
POSE	<i>Poa secunda</i>	Sandberg bluegrass

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

Wyoming Chapter of the Wildlife Society

Report on

Standardized Definitions for Seasonal Wildlife Ranges

The Wyoming Chapter of The Wildlife Society (TWS) formed a committee to review, discuss and address the current Standardized Definitions for Seasonal Wildlife Ranges developed by the Chapter between 1984 and 1986 and subsequently adopted for Wyoming by the Soil Conservation Service (SCS), Bureau of Land Management (BLM), Forest Service (FS), United States Fish and Wildlife Service (USFWS) and the Wyoming Game and Fish Department (WGFD). The request, received from the WGFD and BLM, was to review the current standards, address criteria for quantifying the seasonal range definitions, develop necessary modifications and make recommendations.

Criteria for quantifying the seasonal ranges were discussed at great length. Among the criteria discussed were animal densities, percentage of a population occupying a designated seasonal range, frequency of observations, and indices of use among others. Attention was also directed at improving communication, cooperation, and data sharing among and between agency biologists, agency administrators, and interested publics.

Based upon our discussions and review along with input from TWS members, the committee finds and recommends the following:

1. The standardized definitions developed by TWS between 1984 and 1986 are still applicable and with, minor refinement, their use should be continued.
2. Two new seasonal wildlife range definitions have been included in Appendix A.
3. Additional quantification of these definitions, while an admirable goal, seems impractical on a statewide basis due to inherent variability among herd units in terms of habitat type and condition, population structure, habituation to existing disturbance, climate, land ownership, and inherent differences between big game species when coupled with existing wildlife staff levels and budgets.
4. Seasonal wildlife ranges should be quantified based on documented frequency of animal use over time. Documentation, in most instances, would be recorded observation of animals, however indications of animal use or potential use such as vegetation use, animal droppings, tracks, forage type, forage availability, and forage distribution in relation to cover should also be considered particularly for herds expanding their range or for transplanted animals.
5. The primary problem did not appear to be the current definitions or criteria, but the application of the information and communication among and between agency biologists, agency administrators and interested publics.
6. Each agency should agree to cooperate in data collection, data sharing and data transmission, in establishing and/or refining

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

seasonal range boundaries and sharing in the collection of information. Agency biologists/conservationists having responsibility within a given herd unit or population of animals should jointly develop seasonal ranges with sign-off provisions for concurrence with the final boundary delineations and any refinements made thereafter. Said concurrence must be developed at the field level with concurrence at the regional and state level as necessary.

7. Final seasonal wildlife range maps should be reviewed and approved by each agency before it is made available to other interested parties; and
8. Seasonal range maps should be reviewed at least annually. Proposed revisions based on new data or knowledge should be documented and agreed upon. Revisions should probably not be formalized until sufficient data is available to establish a trend differing from historical baseline information. This may require 3 to 5 years.

Recommended changes to the current Standardized Definitions for Seasonal Wildlife Ranges are included in Appendix A and a discussion of the Application and Use of Standardized Wildlife Range Designators is included in Appendix B for your review and consideration. We have also included an informational summary for big game species relative to species behavioral habits, habituation to disturbance, geographic variability in terms of habitat types, land ownership patterns, climatic conditions, migratory patterns, etc.

It is our recommendation that each agency review the attached changes and committee recommendations, adopt them following review and input, and develop appropriate agreements and procedures to cooperatively establish seasonal wildlife range boundaries and share in the collection of information.

Note: In early 2004, WGF D adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions in Appendix A.

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

Recommended Changes to the Current Standardized Definitions for Seasonal Wildlife Ranges

These recommended changes to the current standardized definitions for seasonal wildlife ranges are directed primarily at big game and threatened and endangered species. The term 'documented' is construed as generally referring to recorded observation of animals, however evidence of their use based on such factors as forage utilization and fecal excretion in relation to forage type; forage availability and the spatial relationships of forage to cover among others may also be used to refine seasonal distribution boundaries or to delineate seasonal ranges for transplanted species or herds expanding their range.

Note: In early 2004, WGFD adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions below.

<u>Symbol</u>	<u>Term</u>	<u>Definition</u>
CRU	Crucial	Crucial range can describe any particular seasonal range or habitat component (often winter or winter/yearlong range in Wyoming) but describes that component which has been documented as the determining factor in a population's ability to maintain itself at a certain level (theoretically at or above the WGFD population objective) over the long term.

Example: The total crucial winter

range for an elk herd unit should be available, relatively intact and allow a population at the objective to the objective to survive the winter in adequate body condition to maintain average reproductive rates 8 out of 10 years.

CRT	Critical Habitat*	Those areas designated as critical by the Secretary of the Interior or Commerce, for the survival and recovery of listed Threatened and Endangered Species (50 CFR, Parts 17 and 226). Because use of the term has legal implications, its use is limited to only those habitats officially determined as critical by the Secretary.
ESS	Essential Habitat*	Those areas possessing the same characteristics as critical habitat for Threatened and Endangered but not species

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

		declared critical habitat by the Secretary of the Interior or Commerce.
PAR	Parturition Areas (calving areas, fawning areas, lambing grounds)	Documented birthing areas commonly used between 5/15 and 6/30 by the female segment members of a population. These areas may also be used as "nursery areas" by some species.
	*	Pertain to threatened and endangered species only.
SSF	Summer or Spring-Summer-Fall	A population or portion of a population of animals use the documented habitats within this range annually only (from the previous winter) to the onset of persistent winter conditions (variable, but commonly this period is between 5/1 and 11/30 or shorter in Wyoming). (5/1 - 11/14, adopted by WGFD in 2004)
SWR	Severe Winter Relief	A documented survival range which may or may not be considered a crucial range area as defined above. It is used to a great extent, only in occasionally extremely severe winters (e.g., 2 years out of 10). It may lack habitat characteristics which would make it attractive or capable of supporting major portions of the population during normal years but is used by and allows at least a significant portion of the population to survive the occasional extremely severe winter.
WIN	Winter	A population or portion of a population of animals use the documented suitable habitat within this range annually, in substantial numbers only during the winter (variable, but commonly between 12/1 and 4/30). (11/15 - 4/30, adopted by WGFD in 2004)
WYL	Winter/Yearlong	A population or a portion of a population of animals makes general use of the documented suitable habitat within this range on a year-round basis. But during the winter months (commonly between 12/1 and 4/30), there is a significant influx of additional animals into the area from other seasonal ranges. (11/15 - 4/30, adopted by WGFD in 2004)
YRL	Yearlong	A population or portion of a population

Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

of animals makes general use of the suitable documented habitat within the range on a year-round basis. Exception - occasionally, under severe conditions (extremely severe winters, drought) animals may leave the area.

Proposed new seasonal range definition follows:

UND	Undetermined/ Undocumented	Areas or habitats, which are expected to or do support a population or portion of a population of animals. The distribution and importance of the area to the population has not been sufficiently documented to designate seasonal range occupancy. The term is applicable to areas where animals have recently been or will be reintroduced; where animals have migrated into and are establishing a population; where a population is expanding its range; or where management actions or activities have been implemented which will accommodate a population to expand their range.
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HIS Habitat	Historical supported a population or portion of a population of animals.	Areas or habitats which historically supported a population or portion of a population of animals. These areas may indicate potential reintroduction sites.
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Other seasonal range designations commonly used by the WGFD and the BLM but not specifically addressed by this committee are included for your information. These appear to meet the criteria desired and should be retained and adopted as part of the standardized definitions for seasonal wildlife ranges.

Symbol	Term	Definition
OUT	Out	Areas which do not contain enough animals to be important habitat, or habitats of limited importance to a species.
MR	Migration Routes	Definable routes followed during seasonal movements year after year.

→ → General area of movements
 → → → Specific movement corridors

Varies	Raptor Nests	Nesting areas for hawks, owls, and eagles. Examples Include: ○ prairie falcon, ○ merlin, □ goshawk, ○ ○ +
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Appendix 4. Definitions for Wyoming Game and Fish designated seasonal habitats

and great horned owl.



Concentrated Wetland Area



Areas of scattered wetlands important to wildlife because of numerous playas, flooded meadows, beaver ponds, or impoundments.

POT Potential Habitats identified for reintroduction of Threatened, Endangered, and Priority species (e.g., potential habitats for trumpeter swans and peregrine falcons).

BRE Breeding Area Documented courtship, nesting, and/or brood rearing areas, e.g.:



Censused lek, strutting or dancing ground



Uncounted lek, strutting or dancing ground



Abandoned lek, strutting or dancing ground

STA Staging Area Documented migration or pre/post-migration concentration are

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Common Name	Special Status	General Habitat	Presence in Webb Draw Individual
MAMMALS			
Black-Footed Ferret	Federally Listed Endangered Species - BLM Sensitive	Closely associated with prairie dog towns of 12.5 acres or larger (burrows used for denning and shelter) and rely almost entirely on these rodents as prey.	NOT PRESENT - Prairie dog towns have not been documented in the Webb Draw Individual. The entire assessment area has been block cleared from survey by USFWS.
Canada Lynx	Federally Listed Endangered Species - BLM Sensitive	High-elevation forested areas that support ample populations of snowshoe hares and other preferred prey species.	NOT PRESENT – There is no suitable habitat within or adjacent to the Webb Draw Individual area.
Grizzly Bear	Federally Listed Endangered Species - BLM Sensitive	Montane forests	NOT PRESENT - Grizzly Bears are known to occur in the Upper Green River Basin, primarily on USDA Forest Service lands but occasionally have roamed onto BLM administered lands in the past. The assessment area does not provide suitable Grizzly Bear habitat.
Gray Wolf	Federally Listed Endangered Species - BLM Sensitive	Greater Yellowstone Ecosystem	POSSIBLY – To date there has been no evidence of wolf activity in the Webb Draw Individual or surrounding area. Wolves have been observed in the Wyoming range and associated foothills to the west of the project area.
White-tailed Prairie Dog	BLM Sensitive	Basin-prairie shrub, grasslands	NOT PRESENT - There are no know white – tailed prairie dog towns within the Webb Draw Individual. However, the entire area has not been thoroughly surveyed

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Pygmy Rabbit	BLM Sensitive	Pygmy rabbits are typically associated with tall dense stands of sagebrush in loose, deep soils. They are the only lagomorph native to North America that digs its own burrows which are most often found at the base of tall sagebrush plants. Sagebrush not only provides cover from predators but comprises the majority of the pygmy rabbit diet.	UNLIKELY – To date pygmy rabbit sign has not been documented in the Webb Draw Individual.
Long-Eared Myotis	BLM Sensitive	Frequently found roosting under the bark or within cavities of ponderosa pine trees during the daytime, although it can also be found at much higher and lower elevations in deciduous forests and in caves.	NOT PRESENT - The long-eared myotis has been reported throughout the PFO (Luce et al. 1997). There is no suitable roosting habitat with in the Webb Draw Individual.
Idaho Pocket Gopher	BLM Sensitive	Can be found in subalpine mountain meadows, shrub steppes, and various grasslands, but appears to favor rocky, shallow soils.	NOT PRESENT - Documented within the PFO. No suitable exists within the Webb Draw Individual (WYNDD 2012)
BIRDS			
Western Yellow-Billed Cuckoo	Federally Listed Candidate Species - BLM Sensitive	Large tracts of deciduous riparian woodlands with dense, scrubby undergrowth. Cuckoos frequently use willow thickets for nesting and they forage among large cottonwoods (Bennett and Keinath 2001).	NOT PRESENT – Given the lack of suitable habitat It is unlikely that the Western Yellow Billed Cuckoo exists in the Webb Draw Individual. The nearest potential habitat is found along Cottonwood Creek but there are no recorded observations.
Northern Goshawk	BLM Sensitive	Conifer and deciduous forests	NOT PRESENT – No suitable exists within the Webb Draw Individual
Ferruginous Hawk	BLM Sensitive	Basin prairie shrub, grassland, rock outcrops	UNKNOWN - There are currently no known nesting areas within the Webb Draw Individual. Suitable nesting and foraging habitat exists within the area but extensive survey efforts are lacking.

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Bald Eagle	BLM Sensitive	Primarily along rivers, streams, lakes and waterways	UNKNOWN – No suitable habitat exists within the Webb Draw Individual. Bald Eagle nests and observation locations may exist along Cottonwood Creek and use of the project area during soaring and foraging activities is possible.
Burrowing Owl	BLM Sensitive	Burrowing owls nest in grassland, scrub, and steppe areas, usually using burrows excavated by other animals such as the prairie dog (Martin 1973).	NOT PRESENT – No documented nesting has occurred in the Webb Draw Individual.
Sage Thrasher	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	POSSIBLE - Sage thrashers have been documented within the PFO (WYNDD 2012) and the Webb Draw Individual does provide suitable sagebrush habitat.
Sage Sparrow	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	POSSIBLE - Sage Sparrows have been documented within the PFO (WYNDD 2012) and may occur in the assessment area
Brewer's Sparrow	BLM Sensitive	Basin-prairie shrub	POSSIBLE - Brewer's Sparrows have been documented within the PFO (WYNDD 2012) and the Webb Draw Individual does provide suitable habitat
Loggerhead Shrike	BLM Sensitive	Basin-prairie shrub, mountain-foothill shrub	POSSIBLE - The Loggerhead Shrike has been documented within the PFO (WYNDD 2012) and the Webb Draw Individual does provide suitable habitat
Mountain plover	BLM Sensitive	Short grass prairie/ sparse vegetation.	NOT PRESENT - Potential habitat does not exist in the Webb Draw Individual and there are no documented sightings.
White-Faced Ibis	BLM Sensitive	Marshes and wet meadows	UNLIKELY - Confirmed as nesting in the PFO (Luce et al. 1997) but no documentation of the species in the Webb Draw Individual. These birds may stop over at local stock reservoirs but are likely not found nesting in the assessment area.

Appendix 5. Threatened & Endangered/ Special Status Species Habitat and Presence

Trumpeter Swan	BLM Sensitive	Lakes, ponds, marshes, and other wetlands areas	UNLIKELY - Trumpeter swans have been observed in the PFO. Trumpeter swans have been periodically released on public land in the New Fork Potholes area however no suitable habitat exists within the Webb Draw Individual. The nearest potential habitat is along the Horse Creek riparian corridor where a man-made pond has been constructed creating swan nesting habitat.
American Peregrine Falcon	BLM Sensitive	Peregrine falcons nest on high cliffs, trees, high riverbanks, towers, and tall buildings (Savage 1992).	NOT PRESENT - This species is considered uncommon in the PFO, but some nesting has occurred (Luce et al. 1997). Peregrine falcons have been released on public lands near the Upper Green River. There is no suitable habitat within the Webb Draw Individual
Long-Billed Curlew	BLM Sensitive	Long-billed curlews usually nest in prairie and grassy meadows near water but occasionally choose dry upland sites.	POSSIBLE - Nesting and breeding has been documented in the PFO (WYNDD 2012) (Luce et al. 1997). No recent observations have been made within the assessment area however there is suitable habitat present. In addition the species may occur along the agricultural lands associated with the nearby Horse Creek riparian corridor.
Special Status Fish Species			
Colorado pikeminnow	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Razorback sucker	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Bonytail	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Humpback chub	Federally Listed Endangered Species - BLM Sensitive	Colorado River and its major tributaries	NOT PRESENT - No habitat within assessment area
Colorado River cutthroat trout	Federally Listed Endangered Species - BLM Sensitive	Upper Green River and Colorado River watersheds	NOT PRESENT - No habitat within assessment area

Relationship of 17 Indicators to 3 Attributes

Indicator	Attribute		
	Soil & Site Stability	Hydrologic Function	Biotic Integrity
1. Rills	X	X	
2. Water Flow Patterns	X	X	
3. Pedestals/Terracettes	X	X	
4. Bare Ground	X	X	
5. Gullies	X	X	
6. Wind Scoured, Blowouts and/or Depositions	X		
7. Litter Movement	X		
8. Soil Surface Resistance to Erosion	X	X	X
9. Soil Surface Loss or Degradation	X	X	X
10. Plant Community Composition & Distribution Relative to Infiltration & Runoff		X	
11. Compaction Layer	X	X	X
12. Functional/Structural Groups			X
13. Plant Mortality/Decadence			X
14. Litter Amount		X	X
15. Annual Production			X
16. Invasive Plants			X
17. Reproductive Capability of Perennial Plants			X

Webb Draw Pasture RLH Summary of 17 Indicators

Webb Draw Pasture Allotment 02101		Column9	Column1			
Location						
Ecological Site			Ly 15-19			
Indicator	Attribute	Attribute Rating				
1. Rills	SH	N-S				
2. Water Flow Patterns	SH	N-S				
3. Pedestals/Terracettes	SH	N-S				
4. Bare Ground	SH	N-S				
5. Gullies	SH	N-S				
6. Wind Scoured, Blowouts and/or Depositions	S	N-S				
7. Litter Movement	S	N-S				
8. Soil Surface Resistance to Erosion	SHB	N-S				
9. Soil Surface Loss or Degradation	SHB	N-S				
10. Plant Community Composition & Distribution Relative to Infiltration & Runoff	H	N-S				
11. Compaction Layer	SHB	N-S				
12. Functional/Structural Groups	B	S-M				
13. Plant Mortality/Decadence	B	N-S				
14. Litter Amount	HB	N-S				
15. Annual Production	B	N-S				
16. Invasive Plants	B	N-S				
17. Reproductive Capability of Perennial Plants	B	N-S				
N-S	None to Slight Departure from Expected					
S-M	Slight to Moderate Departure from Expected					
M	Moderate Departure from Expected					
M-E	Moderate to Extreme Departure from Expected					
E	Extreme Departure from Expected					
U	Undetermined					

Webb Draw Pasture RLH General Summary

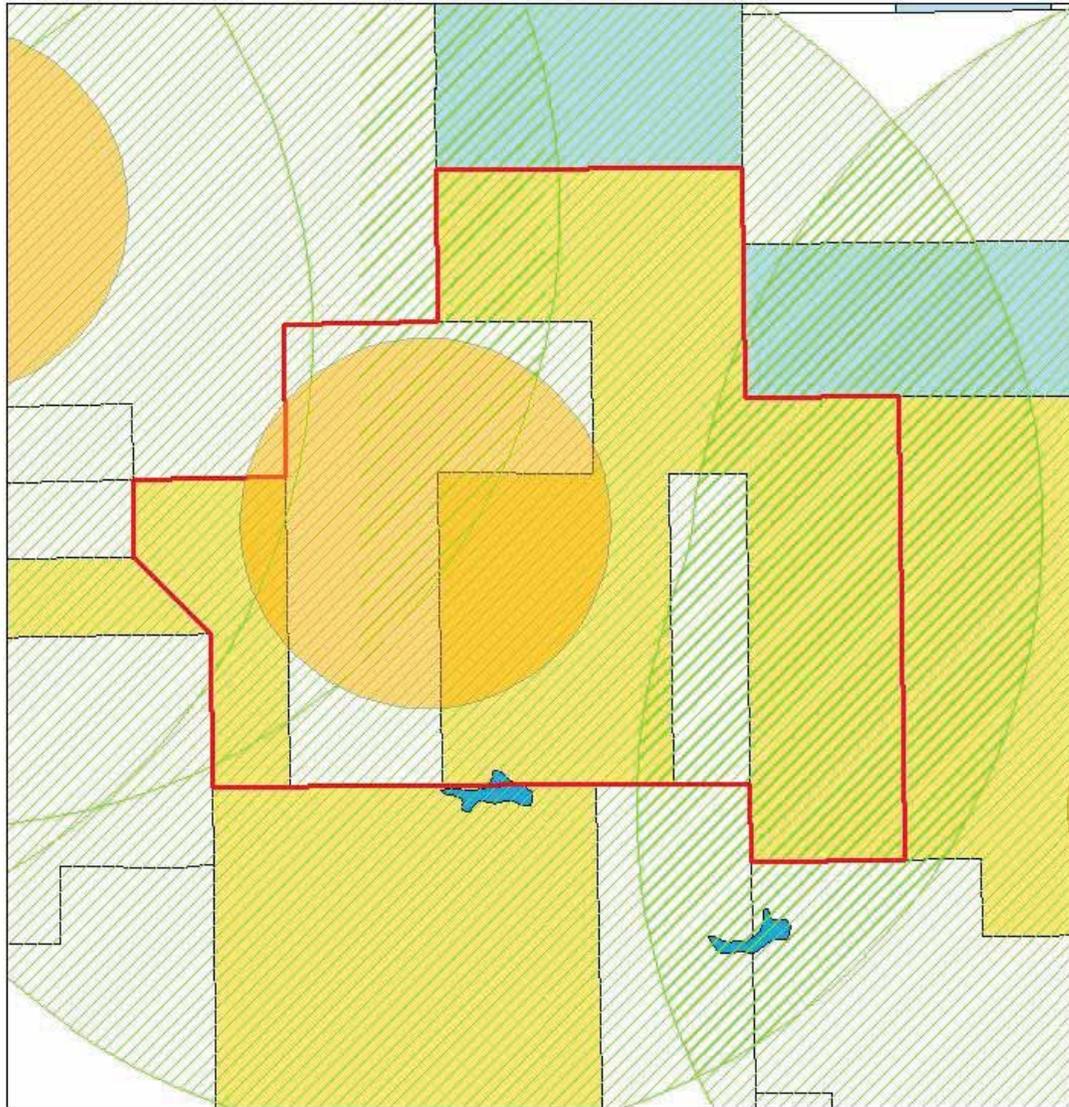
Allotment Name (Site #)	WY #	Category	Ecological Site	Plant Association	Degree of Departure from Expected		
					Soil Site Stability	Hydrologic Function	Biotic Integrity
Webb Draw Pasture	02101	M	Ly 15-19 W	Big Sage/Bunchgrass	N-S	N-S	N-S

Appendix 6. Rangeland Health Summary of 17 Indicators

Cover Estimates by Species					
Species	Scientific	Common	Year	Average Annual Foliar Cover %	Average Annual Basal Cover %
ACLE9	Achnatherum lettermanii	Letterman's needlegrass	2014	9.0	0.0
ANTEN	Antennaria Gaertn.	pussytoes	2014	1.0	0.0
ARTRV	Artemisia tridentata Nutt. ssp. vaseyana (Rydb.) Beetle	mountain big sagebrush	2014	21.0	0.0
CAREX			2014	10.0	0.0
CHV18	Chrysothamnus viscidiflorus (Hook.) Nutt.	yellow rabbitbrush	2014	2.0	0.0
COUMU	Comandra umbellata	bastard toadflax	2014	1.0	0.0
ERIOG	Eriogonum	buckwheat	2014	13.0	0.0
HECO26	Hesperostipa comata	needle and thread	2014	24.0	0.0
LEK12	Leucopoa kingii	spike fescue	2014	1.0	0.0
PHLO2	Phlox longifolia	longleaf phlox	2014	1.0	0.0

Cover/Litter Report		
Summary Category	Total Points	Avg Percent
Foliar Cover	60	60.0
Bare Ground	6	6.0
Basal Cover	0	0.0
Total Ground Cover	90	90.0
Ground Cover Between-Plant Cover	34	34.0
Ground Cover Under-Plant Cover	56	56.0
Total Litter	90	90.0
Litter Between-Plant Cover	34	34.0
Litter Under-Plant Cover	56	56.0

Webb Draw Greater Sage-grouse Habitats



- Lek 0.6 mile buffer
- Webb draw
- Sage-grouse Nesting
- Bureau of Land Management
- Private
- State
- Water

0 0.3 0.6 Miles



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Projection: UTM NAD83 Zone 12N



Appendix E. Webb Draw Pasture Determination

Pinedale Field Office
High Desert District
Bureau of Land Management

Determination
Achieving Standards for Rangeland Health and Conforming with Guidelines for Livestock Grazing Management

Allotment Name/Number: Webb Draw Pasture #02101
Public Land Acres: 1,550
Date Assessment Completed: July 24, 2013
Assessment Participants:

Kellie Roadifer	Supervisory Rangeland Management Specialist
Travis Ames	Range Specialist
Brian Roberts	Natural Resource Specialist
Josh Hemenway	Wildlife Biologist

In accordance with 43 CFR 4180.2(b), the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming* were approved by the Wyoming State Director in August 1997. The objectives of the rangeland health regulations are to “promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions... and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.” The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Initially the standards focused on livestock grazing on BLM-administered lands, but the standards were developed to apply to all uses and resources.

Members of an interdisciplinary team visited the assessment area on July 24, 2013 and completed the 17 Indicators of Rangeland Health. The Webb Draw Pasture Rangeland Health Assessment contains supporting documentation for the following Determination.

Standard	Standard Met	
	Yes	No
Standard 1-- Watershed Health	X	<input type="checkbox"/>
Standard 2 -- Riparian/Wetland Health	<input type="checkbox"/>	X
Standard 3 – Upland Vegetation Health	X	<input type="checkbox"/>
Standard 4 – Wildlife/Threatened and Endangered Species Habitat Health	X	<input type="checkbox"/>
Standard 5 – Water Quality	NA	NA
Standard 6 – Air Quality	<input type="checkbox"/>	X

Based on my review of the Assessment Team’s recommendation and other relevant information for the Webb Draw Pasture/02101, I have determined that it:

- A) **Meets** all the Standards for Rangeland Health and Guidelines for Grazing Management for BLM lands in Wyoming, or is making significant progress towards meeting the Standards;

- B) Is **not meeting** all the Standards, or is not making acceptable progress towards meeting the Standards, and *livestock grazing* **is** a significant factor. Appropriate action **has** been taken to ensure acceptable progress towards meeting the Standards;
- C) Is **not meeting** all the Standards, or is not making acceptable progress towards meeting the Standards, and *livestock grazing* **is** a significant factor. Appropriate action **has not** been taken to ensure acceptable progress towards meeting the Standards;
- D) Is **not meeting** all the Standards, or is not making acceptable progress towards meeting the Standards due to causes **other than** *livestock grazing*.

I have also determined that livestock grazing use X **is** OR **is not a significant factor in failing** to meet the Standards. Accordingly, pursuant to 43 CFR 4180.2(c), the following action is to be taken within 12 months of signing/dating this document:

If uses other than grazing are significant factors, specify those uses and corrective actions to be taken:

Historically Webb Draw has been grazed harder than it should have. We are addressing the riparian standard in Webb Draw by changing the season of use and shortening the trailing use back through the allotment.

The designation of the Upper Green River Basin of Wyoming as an ozone nonattainment area becomes final on July 20, 2012. In a letter to the BLM State Director on July 16, 2012, the Wyoming DEQ has determined that analysis of methane emissions from cattle is not required as a part of a general conformity review for ozone nonattainment areas. Methane has been determined by the EPA to have negligible photochemical reactivity, meaning that it does not react easily in the presence of sunlight to form ozone.

Authorized Officer

1-17-14

APPENDIX F. Ball Horse Creek
Health Assessment

Ball Horse Creek

Rangeland Health Assessment

Pinedale Field Office

High Desert District

Bureau of Land Management



Background

History and Process for Assessing Rangeland Health Standards

In accordance with 43 CFR 4180.2(b), the Standards for Healthy Rangelands and Guidelines for Livestock Grazing management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming were approved by the Wyoming State Director in August 1997. The objectives of the rangeland health regulations are to “promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions... and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.”

The fundamentals of rangeland health combine the basic precepts of physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Initially, the standards focused on livestock grazing on BLM-administered lands, but the standards were developed to apply to all users and resources. BLM collected the indicators for rangeland health and did a rangeland health assessment on the Ball Horse Creek Allotment in the fall of 2014. Site selection was based on the dominant ecological sites within the allotment.

Wyoming Rangeland Health Standards

The standards are the basis for assessing and monitoring rangeland conditions and trend. The assessments evaluate the standards and are conducted by an interdisciplinary team. Assessments are only conducted on BLM-administered public land, however, interpretation of watershed health and water quality may reflect on all landownerships within the area of analysis. The six standards are as follows:

Standard #1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

The standard is considered met if upland soil bare ground is appropriate for the ecological site and/or obvious signs of erosion are not apparent, and stream channels are stable and improving morphologically.

Standard #2 Riparian

Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.

The standard is considered met if riparian and wetland habitat is rated in Proper Functioning Condition (PFC) or Function at Risk with an upward trend and existing management will lead to maintaining or improving resource conditions.

Standard #3 Upland Vegetation

Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

The standard is considered met if plant communities are sustaining themselves under existing conditions and management. Plant species are also appropriate for the ecological sites on which they are found.

Standard #4 Wildlife

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened, endangered, species of special concern, or sensitive species will be maintained or enhanced.

The standard is considered met if habitat needed to support wildlife species is being sustained under existing conditions and management.

Standard #5 Water Quality

Water Quality meets State standards.

The standard is considered unknown unless information provided by the State of Wyoming determines the status of a water body as impaired (not meeting) or is meeting its beneficial uses.

Standard #6 Air Quality

Air quality meets State standards

The standard is considered met or impaired based on information provided by the State of Wyoming.

BLM Obligations Prescribed Under Rangeland Health Regulations

If an assessment shows that the standard(s) is/are not being met, factors contributing to the non-attainment are identified and management recommendations developed so the standards may be attained. A determination will be made whether livestock grazing is contributing to non-attainment of the standard(s). If livestock are contributing to the nonattainment of a standard, management practices will be implemented to ensure that progress is being made toward attainment of the standard(s). These practices must be implemented as soon as practical but no later than the start of next grazing season, The rangeland standards established a threshold; however, the desired resource condition will usually be at a higher level than the threshold.

Assessment Criteria

BLM used a variety of information sources and the professional judgment of resource staff specialists to conduct the assessment. The best available rangeland ecological site and soil maps were consulted and agency-approved technical references and methodology, including protocols outlined in BLM Manual H-4180-1, "Rangeland Health Standards", were used to arrive at conclusions about rangeland health conditions.

General Information

The Ball Horse Creek Allotment is located approximately 21 miles west of Pinedale, Wyoming in Township 34 North, Range 113 West, Sections 25 and 26. The allotment includes 222 acres of public lands administered by the BLM and is fenced in with state and private lands. The allotment ranges in elevation between 7,600 and 7,700 feet with annual precipitation from 15 to 19 inches per year. Precipitation occurs in the form of both snow and rain, with May being the wettest month.

Soils and Ecological Sites

The Ball Horse Creek Allotment consists of a variety of soil mapping units from the Soil Survey of Sublette County Wyoming. Most often the map units will be of two or more soil types, forming complexes or associations. The soil map units were then calculated into the ESDs within the allotment as shown in table 1. The soils in the allotment are moderately to very deep with a Typic Ustic soil moisture regime and frigid soil temperature regime (USDA NRCS, Web soil survey). Family particle size classes are fine loamy, loamy skeletal, coarse loamy, fine, loamy, and sandy. In general, soils within the allotment are stable with little to no erosion.

Ecological Sites

The Natural Resources Conservation Service (NRCS) has divided up the United States into Major Land Resource Areas (MLRAs). MLRAs are geographic areas with similar elevation, topography, soils, geology, climate, water, soils, biological resources, and land use (Cagney 2010). The NRCS has made revisions to the MLRAs based on soil, precipitation zones and divided them up into Ecological Site Descriptions (ESDs). The dominant Ecological Sites within the allotment are shown in Table 1:

Table 1: Ball Horse Creek Ecological Sites

Ecological Site	BLM Acres	Percent of Allotment
Loamy 15-19	88	40
Coarse Upland 15-19	58	26
Sandy 15-19	9	4
Gravelly 15-19	9	4
Shallow Loamy 15-19	0.3	0.1
Dense Clay 15-19	1	0.5
Shallow Clayey 10-14	10	5
Minor Component	47	21
Total:	222	100

Riparian

The primary method used to evaluate riparian areas is through a qualitative assessment called Proper Functioning Condition (PFC). The process evaluates physical functioning of riparian/wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. It's important to note that the PFC assessment provides information on whether an area is physically functioning in a manner that allows maintenance or recovery of potential values over time. However, PFC is not desired or future condition (TR 1737-15, 1998).

Noxious Weeds

There are 25 designated weeds as noxious in the State of Wyoming. Sublette County has 5 additional species on its declared list of weeds. The 5 Noxious weeds in Sublette County are Black Henbane (*Hyoscyamus niger*), Scentless Chamomile (*Matricaria perforata* Merat), Western Water Hemlock (*Cicuta douglasii*), Field Scabious (*Knautia arvensis*), Austrian Fieldcress (*Rorippa austriaca*). The only known noxious weed in the assessment area is Canada thistle.

Upland Vegetation

Vegetation is predominantly sagebrush-grass. Lettermans’ needle grass is the most common grass species. Big sagebrush is the dominant shrub with some yellow rabbitbrush. Perennial grasses that occur on the uplands include Letterman’s needle grass, thickspike wheatgrass, muttongrass, and Sandberg bluegrass. Common forb species include rosy pussytoes, Sulphur-flower buckwheat, granite prickly phlox, spiny phlox.

Grazing Allotment Summary

Ball Horse Creek Allotment (02133)

The Ball Horse Creek Allotment contains 222 acres of BLM land and is fenced in with private land. Grazing was uncontrolled and unlimited on the public domain, with reduction of natural vegetation and increased soil erosion until the enactment of the Taylor Grazing Act in 1934. Few written records of the grazing history exist for the allotment pre- 1989. See Table 2 for permitted use in the Ball Horse Creek Allotment.

Table 2: Ball Horse Creek Permitted Grazing Use

Allotment	Category	Livestock # and type		Dates of Use	BLM Acres	% Public Land	BLM AUMs
Ball Horse Creek Ind.	M	87	C	7/1 – 7/31	222	100	87

Category** M=Maintain C=Custodial I=Improve *Type** C=Cattle

Wildlife

The assessment area is dominated by wildlife habitats associated with Wyoming Big and Mountain Sagebrush. A variety of wildlife species can be found in the assessment area. Some species use several to many types of habitats, others are specialized in habitat needs. There are no Threatened or Endangered species or critical habitats documented within the assessment area.

Wyoming Rangeland Health Standards and Guidelines Conformance Review Summary

A rangeland health assessment provides information on the functioning of ecological processes relative to the reference state for the ecological site or other functionally similar unit for that land area (Technical Reference 1734-6). It gives an indication of the status of the three attributes of an evaluation area: Soil & Site Stability, Hydrologic Function, and Biotic Integrity. The rangeland health assessment protocol includes five steps:

11. Determine soil and ecological site at the evaluation area (Required).
12. Obtain or develop reference sheet (Required).
13. Collect supplementary information (Strongly Recommended).

14. Rate the 17 indicators on Evaluation sheet and justify ratings with written comments (Required).
15. Evaluate the three Rangeland Health Attributes based on the ratings of the 17 indicators and justify ratings with written comments (Required).

Standard 1 - Watershed Health

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

This Means That:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly variable within Wyoming.

Indicators May Include But Are Not Limited To:

- Water infiltration rates
- Soil compaction
- Erosion (rills, gullies, pedestals, capping)
- Soil micro-organisms
- Vegetative cover (gully bottoms and slopes)
- Bare ground and litter

The above indicators are applied as appropriate to the potential of the ecological site.

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? YES

Rational:

Members of an interdisciplinary team visited the assessment area in the fall of 2014 and completed the 17 Indicators of Rangeland Health as described in BLM Technical Reference 1734-6 on a Loamy 15-19 ecological site. A line point intercept transect (200 points) was collected and compared or data to the reference sheet for the Loamy 15-19 ecological site for interpreting the upland indicators. For a summary of the results of this process see Table 3, Upland Assessment Summary, Table 4, Cover Litter Report and Table 3 Rangeland Health Indicators.

Table 3: Upland Assessment Summary

Ecological Site	Allotment Name and Number	Plant Association	Degree of Departure from Expected	
			Soil Site Stability	Hydrologic Function
Loamy 15-19	Ball Horse Creek (02133)	Big Sage/Bunchgrass	None to Slight	None to Slight

Table 4: Cover/Litter Report

Ecological Site Loamy 15-19	Percent	Expected Bare Ground	Expected Litter
Foliar Cover	76%	-	-
Bare Ground	11%	0-20%	-
Basal Cover	0	-	-
Total Ground Cover	75%	-	-
Ground Cover Between-Plant Cover	13%	-	-
Ground Cover Under-Plant Cover	62%	-	-
Total Litter	75%	-	50-90%
Litter Between-Plant Cover	13%	-	-
Litter Under-Plant Cover	62%	-	-

Ball Horse Creek Loamy 15-19 Rangeland Health Indicators

Indicator	Departure from Reference
1. Rills	N-S
2. Water Flow Patters	N-S
3. Pedestals and/or terracettes	N-S
4. Bare Bround	N-S
5. Gullies	N-S
6. Wind-scoured, blowouts, and/or deposition areas	N-S
7. Litter movement	N-S
8. Soil surface resistance to erosion	N-S
9. Soil surface loss or degredation	N-S
10. Plant community composition and distribution relative to infiltration	N-S
11. Compaction layer	N-S
12. Functional/structural groups	S-M
13. Plant mortality / decadence	S-M
14. Litter amount	N-S
15. Annual production	S-M
16. Invasive plants	N-S
17. Reproductive capability of perennial plants	N-S
Indicator Summary	
Soil/ Site Stability (Indicators 1-9, 11)	N-S
Hydrologic Function (Indicators 1-5, 8-11, 14)	N-S
Biotic Integrity (Indicators 8-9, 11-17)	S-M
N-S None to Slight S-M Slight to Moderate M Moderate M-E Moderate to Extreme E-T Extreme to Total	

The evaluation of the 17 Indicators of Rangeland Health indicated the assessment area has naturally stable soils, within the potential of the Loamy 15-19 ecological site. Rills, water flow patterns, pedestalling, gullies, and wind-scoured blowouts were not observed. Transect data showed bare ground to be 11% and total litter to be 75%. Bare ground and litter were both within the values described in the reference sheet. Soil surface resistance to erosion was tested and shows what is expected for the ecological site. There were no compaction layers detected

and active gullies were not apparent on the rangeland but do occasionally occur in some draws. Litter movement is consistent with expected values for the ecological sites.

Standard 2 - Riparian/Wetland Health

Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel success and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

This Means That:

Wyoming has highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

Indicators May Include But Are Not Limited To:

- Erosion and deposition rate
- Channel morphology and floodplain function
- Channel succession and erosion cycle
- Vegetative cover
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
- Bank stability
- Woody debris and instream cover
- Bare ground and litter

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? YES

Rational

The Ball Horse Creek Allotment has about 5 acres of sub-irrigated meadow. On this site there are hummocks, Shrubby Cinquefoil, Kentucky bluegrass, Tufted Hair grass, Nebraska Sedge, Baltic Rush and Canada thistle. This is a dry site but has redox and gleying in the top 20" of soil. For this site we do not know what the potential is or what it should be.

Since PFC is not the way to determine the sites potential a riparian enclosure is recommended and through the use of photo points and measuring plant composition by cover will guide us on what the sites potential is without livestock grazing for a period of ten years.

For the hummocks that are on this site little is known. However, across the West hummocks have for a long time been associated with excessive livestock grazing. Additional research has shown that the creation of hummocks is complicated and not specifically tied to livestock grazing and/or trampling. Hummocked areas tend to be associated with fine soils and adequate moisture and are found all over the world's colder climate. In fact, hummocks commonly occur

where larger ungulates are absent. Recent research by Colorado State University on several Colorado hummocked sites has only raised more questions about how hummocks are formed.

Standard 3 – Upland Vegetation Health

Upland vegetation on each ecological site consists of plant communities appropriate to the site, which are resilient, diverse, and able to recover from natural and human disturbance.

This Means That:

Plant communities must have the components present to support the nutrient cycle and adequate energy flow to maintain desirable conditions and/or recover from disturbance within acceptable timeframes. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and the soils are fundamental components of rangeland health. The amount, timing and distribution on energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

Indicators May Include But Are Limited To:

- Vegetative cover
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
- Bare ground and litter
- Erosion (rills, gullies, pedestals, capping)
- Water infiltration rates

The above indicators are applied as appropriate to the potential of the ecological site.

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? YES

Rational

At present, the review of upland vegetation conditions in the Ball Horse Creek assessment area reveals an overall healthy plant community.

The assessment area falls within the Big Sage/ Bunchgrass State see Table 5 for cover by species. This state contains a sagebrush canopy with an herbaceous understory dominated by bunchgrasses. This state was formed when sagebrush advanced on the transitional bunchgrass community. This is a stable state and is protected from erosion and the watershed is functioning (USDA ESIS).

Table 5. Cover by Species

Species	Scientific	Common	Annual Foliar Cover %
ACLE9	Achnatherum lettermanii	Letterman’s needlegrass	12%
ANRO2	Antennaria rosea	rosy pussytoes	30%
ARTRW8	Artemisia tridentata	Wyoming big sagebrush	38%
CAREX	Carex	Carex	14%

CHVI8	Chrysothamnus viscidiflorus	Yellow rabbitbrush	1%
ELLA3	Elymus lanceolatus	thickspike wheatgrass	2%
ERUM	Eriogonum umbellatum	Sulphur-flower buckwheat	3%
LEPU11	Linanthus pungens	Granite prickly phlox	4%
PHHO	Phlox hoodii	Spiney phlox	3%
POFE	Poa fendleriana	muttongrass	5%
POSE	Poa secunda	Sandberg bluegrass	4%

Desirable species (including herbaceous and browse species important for livestock and wildlife forage, as well as those species important for ground cover) are present. Soil and Site stability, and Hydrologic Function were all rated as having a None-Slight departure from reference. These are indications that the upland vegetation communities are functioning.

As the table below shows Biotic Integrity had a Slight to Moderate departure from reference. The indicators that showed a Slight to Moderate departure from the reference sheet were Functional/structural groups, Plant mortality and decadence, and annual production. Functional structural groups showed a departure from reference based on shrub composition being too high but, all other species were present for the site. Plant mortality and decadence showed a departure since the shrubs were older and not many young shrubs. Total annual production was estimated to be as expected for the site but showed a departure since most of the production is coming from the shrubs. All species on site exhibited good vigor and reproductive capability.

Ecological Site	Allotment Name and Number	Plant Association	Degree of Departure From Expected
			Biotic Integrity
Loamy 15-19	Ball Horse Creek (02133)	Big Sage/Bunchgrass	Slight to Moderate

STANDARD 4 – WILDLIFE/THREATENED AND ENDANGERED SPECIES HABITAT HEALTH

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

This Means That:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species to recover and be delisted.

Indicators may Include But Are Not Limited To:

- Noxious weeds
- Species diversity
- Age class distribution

- All indicators associated with the upland and riparian standards
- Population trends
- Habitat fragmentation

The above indicators are applied as appropriate to the potential of the ecological site.

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? YES

Rational

While several wildlife species are present or have the potential to utilize habitat within the assessment area, the dominant species are big game and sage-grouse. Their respective habitat requirements fulfill the needs of many of the secondary species. Therefore focusing on big game and sage-grouse as primary indicator species will provide an adequate assessment for the condition of wildlife habitat within the assessment area.

As outlined in Standard 3 the plant community is generally healthy and stable. The presence of desirable forage and cover species is critical to maintain wildlife populations and utilization. The dominance of mature to decadent shrub communities indicates a late successional vegetative community with a greater proportion of shrub production. These shrubs represent an important component of winter and transitional diets for big game and winter forage and nesting cover for sage-grouse.

The majority of big game species populations appear to be decreasing or increasing. Elk represent the only big game species currently above objective for their respective herd unit (Table 6). Moose population estimates are below objective but are considered to be stable (Table 6). Both pronghorn and mule deer represent big game species that exhibit a declining population trend (Table 6). Pronghorn were above objective until the 2011 season. Prior to this decline the population had remained above objective for several years and was considered stable. Wyoming Game & fish attributes this recent pattern of decline in the pronghorn population to drought and severe winter conditions in recent years (WGFD 2013b). It should be noted that discrepancies in recent population survey numbers has cast doubt on the estimated population size (WGFD 2013b). The declining mule deer populations are of great concern and have received significant management attention. The Mesa winter complex located east of the assessment area is the most thoroughly monitored portion of the Sublette Herd Unit and has shown the sharpest population decline. Wyoming Game and Fish identifies the primary issues the influencing population dynamics in this herd unit as winter survival, habitat condition and quality on winter ranges, and habitat loss (direct and indirect) from gas and residential development (WGFD 2013a).

Table 6: Pinedale Region big game population statistics summarized from published 2013 JCR data

Species	Herd Unit	08-'12 avg.	2013 estimate	Objective	% difference	# years above /below obj.
Mule Deer	Sublette	23482	22900	32000	-28.4	5
Pronghorn	Sublette	50600	34000	48000	-29.2	3
Moose	Sublette	1193	1400	1500	-6.7	0
Elk	Piney	4165	3800	2400	58	10

In general, upland sage-brush habitats found in the assessment area are in suitable condition for sage-grouse nesting, upland summer and winter seasonal use based on the assessment framework (Table 7). The classification of riparian and late brood rearing summer habitat as marginal was in part due to the limited size and unknown potential of the sub-irrigated meadow, the majority of birds are more likely to preferentially utilize the riparian habitat along Horse Creek that is immediately adjacent to the allotment. Upland sagebrush habitat adjacent to the riparian/agricultural corridor may provide early morning and evening roosting areas during the late brood rearing period.

Table 7: Ball Horse Creek Allotment Sage-Grouse Habitat Assessment Framework Summary

ESD Reference Site	Year Collected	Plant Community	Seasonal Habitat	Condition
Ball Horse Creek #1 Ly 15-19"	2014	Big Sage/Bunchgrasses	Nesting/Early Brood Rearing	Suitable
			Upland Summer/Late Brood Rearing	Suitable
			Riparian Summer/Late Brood Rearing	Marginal
			Winter	Suitable

Species diversity in the assessment area appears to be suitable for associated habitat types. There is little to no habitat fragmentation within the assessment area. Noxious weeds were not documented during the collection of field data, this suggests that if present they do not represent a major impact to wildlife habitats. The assessment area supports a wide variety of animal species, including Special Status Species. Desired conditions may not be fully realized for certain wildlife habitats however the capability to sustain or enhance current wildlife populations and habitats does exist.

Standard 5 – Water Quality

Water quality meets State standards.

This Means That:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming’s Water Quality rules and Regulations. The latter regulations contain Quality Standards for Wyoming Surface Waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

Indicators may Include But Are Not Limited To:

- Chemical characteristics (e.g., pH, conductivity, dissolved oxygen)
- Physical characteristics (e.g., sediment, temperature, color)
- Biological characteristics (e.g., macro- and micro- invertebrates, fecal coliform, and plant and animal species)

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? NOT APPLICABLE

Rational

There are no areas of standing or flowing water bodies within the assessment area, therefore this standard does not apply.

Standard 6 – Air Quality

Air quality meets State standards.

This Means That:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in Wyoming Air Quality Standards and Regulations.

- Indicators may Include But Are Not Limited To:
- Particulate matter
- Sulfur dioxide
- Photochemical oxidants (ozone)
- Volatile organic compounds (hydrocarbons)
- Nitrogen oxides
- Carbon monoxide
- Odors
- Visibility

RESOURCE CONDITIONS IN THE ALLOTMENT MEET THE STANDARD? NO

Rational

Air quality issues in the assessment area center mainly around elevated ozone levels in the UGRB. Elevated ozone episodes have been observed at air monitoring stations during winter and early spring in the UGRB since 2005. Concentrations of ambient ozone exceeding the National Ambient Air Quality Standard, currently 75 ppb daily maximum eight-hour average, were recorded in 2005, 2006, and 2008.

The standard was not met; however, livestock grazing was not a causal factor.

Conclusion: Standards for Rangeland Health were met except for Standard 6. Standard 6 – Air Quality was not met due to the non-attainment but was not due to livestock grazing.

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Appendix G. WGFD Designated Habitats

Wyoming Chapter of the Wildlife Society

Report on

Standardized Definitions for Seasonal Wildlife Ranges

The Wyoming Chapter of The Wildlife Society (TWS) formed a committee to review, discuss and address the current Standardized Definitions for Seasonal Wildlife Ranges developed by the Chapter between 1984 and 1986 and subsequently adopted for Wyoming by the Soil Conservation Service (SCS), Bureau of Land Management (BLM), Forest Service (FS), United States Fish and Wildlife Service (USFWS) and the Wyoming Game and Fish Department (WGFD). The request, received from the WGFD and BLM, was to review the current standards, address criteria for quantifying the seasonal range definitions, develop necessary modifications and make recommendations.

Criteria for quantifying the seasonal ranges were discussed at great length. Among the criteria discussed were animal densities, percentage of a population occupying a designated seasonal range, frequency of observations, and indices of use among others. Attention was also directed at improving communication, cooperation, and data sharing among and between agency biologists, agency administrators, and interested publics.

Based upon our discussions and review along with input from TWS members, the committee finds and recommends the following:

1. The standardized definitions developed by TWS between 1984 and 1986 are still applicable and with minor refinement, their use should be continued.
2. Two new seasonal wildlife range definitions have been included in Appendix A.
3. Additional quantification of these definitions, while an admirable goal, seems impractical on a statewide basis due to inherent variability among herd units in terms of habitat type and condition, population structure, habituation to existing disturbance, climate, land ownership, and inherent differences between big game species when coupled with existing wildlife staff levels and budgets.
4. Seasonal wildlife ranges should be quantified based on documented frequency of animal use over time. Documentation, in most instances, would be recorded observation of animals, however indications of animal use or potential use such as vegetation use, animal droppings, tracks, forage type, forage availability, and forage distribution in relation to cover should also be considered particularly for herds expanding their range or for transplanted animals.
5. The primary problem did not appear to be the current definitions or criteria, but the application of the information and communication among and between agency biologists, agency administrators and interested publics.
6. Each agency should agree to cooperate in data collection, data sharing and data transmission, in establishing and/or refining seasonal range boundaries and sharing in the collection of information. Agency biologists/conservationists having responsibility within a given herd unit or population of animals should jointly develop seasonal ranges with sign-off provisions for concurrence with the final boundary delineations and any refinements made thereafter. Said concurrence must be developed at the field level with concurrence at the regional and state level as necessary.
7. Final seasonal wildlife range maps should be reviewed and approved by each agency before it is made available to other interested parties; and
8. Seasonal range maps should be reviewed at least annually. Proposed revisions based on new data or knowledge should be documented and agreed upon. Revisions should probably not be formalized until sufficient data is available to establish a trend differing from historical baseline information. This

may require 3 to 5 years.

Recommended changes to the current Standardized Definitions for Seasonal Wildlife Ranges are included in Appendix A and a discussion of the Application and Use of Standardized Wildlife Range Designators is included in Appendix B for your review and consideration. We have also included an informational summary for big game species relative to species behavioral habits, habituation to disturbance, geographic variability in terms of habitat types, land ownership patterns, climatic conditions, migratory patterns, etc.

It is our recommendation that each agency review the attached changes and committee recommendations, adopt them following review and input, and develop appropriate agreements and procedures to cooperatively establish seasonal wildlife range boundaries and share in the collection of information.

Note: In early 2004, WGFD adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions in Appendix A.

Recommended Changes to the Current
Standardized Definitions for Seasonal
Wildlife Ranges

These recommended changes to the current standardized definitions for seasonal wildlife ranges are directed primarily at big game and threatened and endangered species. The term 'documented' is construed as generally referring to recorded observation of animals, however evidence of their use based on such factors as forage utilization and fecal excretion in relation to forage type; forage availability and the spatial relationships of forage to cover among others may also be used to refine seasonal distribution boundaries or to delineate seasonal ranges for transplanted species or herds expanding their range.

Note: In early 2004, WGFD adopted standardized, statewide beginning and ending dates for use of WIN, WYL and SSF seasonal ranges. Those date ranges are listed in italics at the end of the applicable seasonal range definitions below.

<u>Symbol</u>	<u>Term</u>	<u>Definition</u>
CRU	Crucial seasonal range	Crucial range can describe any particular or habitat component (often winter or winter/yearlong range in Wyoming) but describes that component which has been documented as the determining factor in a population's ability to maintain itself at a certain level (theoretically at or above the WGFD population objective) over the long term.

Example: The total crucial winter

range for an elk herd unit should be available, relatively intact and allow a population at the objective to the objective to survive the winter in adequate body condition to maintain average reproductive rates 8 out of 10 years.

CRT	Critical Habitat*	Those areas designated as critical by the Secretary of the Interior or Commerce, for the survival and recovery of listed Threatened and Endangered Species (50 CFR, Parts 17 and 226). Because use of the term has legal implications, its use is limited to only those habitats officially determined as critical by the Secretary.
ESS	Essential Habitat*	Those areas possessing the same characteristics as critical habitat for Threatened and Endangered but not species declared critical habitat by the Secretary of the Interior or Commerce.
PAR	Parturition Areas	Documented birthing areas commonly used

(calving areas,
fawning areas,
lambing grounds)

between 5/15 and 6/30 by the female
segment members of a population. These
areas may also be used as “nursery
areas” by some species.

* Pertain to threatened and endangered species only.

SSF	Summer or Spring- Summer-Fall	A population or portion of a population of animals use the documented habitats within this range annually only (from the previous winter) to the onset of persistent winter conditions (variable, but commonly this period is between 5/1 and 11/30 or shorter in Wyoming). <i>(5/1 – 11/14, adopted by WGFD in 2004)</i>
SWR Relief	Severe Winter may not be considered a crucial range area as defined above.	A documented survival range which may or may not be considered a crucial range area as defined above. It is used to a great extent, only in occasionally extremely severe winters (e.g., 2 years out of 10). It may lack habitat characteristics which would make it attractive or capable of supporting major portions of the population during normal years but is used by and allows at least a significant portion of the population to survive the occasional extremely severe winter.
WIN	Winter	A population or portion of a population of animals use the documented suitable habitat within this range annually, in substantial numbers only during the winter (variable, but commonly between 12/1 and 4/30). <i>(11/15 – 4/30, adopted by WGFD in 2004)</i>
WYL	Winter/Yearlong	A population or a portion of a population of animals makes general use of the documented suitable habitat within this range on a year-round basis. But during the winter months (commonly between 12/1 and 4/30), there is a significant influx of additional animals into the area from other seasonal ranges. <i>(11/15 – 4/30, adopted by WGFD in 2004)</i>
YRL	Yearlong	A population or portion of a population of animals makes general use of the suitable documented habitat within the range on a year-round basis. Exception - occasionally, under severe conditions (extremely severe winters, drought) animals may leave the area.

Proposed new seasonal range definition follows:

UND Undetermined/
Undocumented Areas or habitats, which are expected to or do support a population or portion of a population of animals. The distribution and importance of the area to the population has not been sufficiently documented to designate seasonal range occupancy. The term is applicable to areas where animals have recently been or will be reintroduced; where animals have migrated into and are establishing a population; where a population is expanding its range; or where management actions or activities have been implemented which will accommodate a population to expand their range.

HIS Historical Areas or habitats which historically supported a population or portion of a population of animals. These areas may indicate potential reintroduction sites.

Other seasonal range designations commonly used by the WGFD and the BLM but not specifically addressed by this committee are included for your information. These appear to meet the criteria desired and should be retained and adopted as part of the standardized definitions for seasonal wildlife ranges.

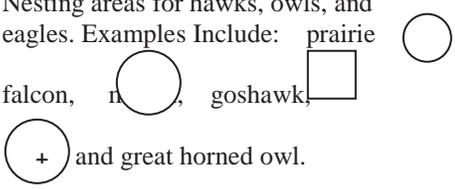
Symbol	Term	Definition
OUT	Out	Areas which do not contain enough animals to be important habitat, or habitats of limited importance to a species.

MR	Migration Routes	Definable routes followed during seasonal movements year after year.
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→ General area of movements

→ Specific movement corridors

Varies	Raptor Nests	Nesting areas for hawks, owls, and eagles. Examples Include: prairie falcon, n. goshawk, and great horned owl.
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 Concentrated Wetland Area

 Areas of scattered wetlands important to wildlife because of numerous playas, flooded meadows, beaver ponds, or impoundments.

POT	Potential	Habitats identified for reintroduction of Threatened, Endangered, and Priority species (e.g., potential habitats for trumpeter swans and peregrine falcons).
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BRE	Breeding Area	Documented courtship, nesting, and/or brood rearing areas, e.g.:
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Censused  strutting or dancing ground

 hunted lek, strutting or dancing ground

 abandoned lek, strutting or dancing ground

STA	Staging Area	Documented migration or pre/post-migration concentration areas
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Appendix H. Paleontological Resources

Class	Description	Basis	Comments
1	Igneous and metamorphic (tuffs are excluded from this category) geologic units or units representing heavily disturbed preservational environments that are not likely to contain recognizable fossil remains	<ul style="list-style-type: none"> Fossils of any kind known not to occur except in the rarest of circumstances. Igneous or metamorphic origin. 	The land manager's concern for paleontological resources on Class 1 acres is negligible. Ground disturbing activities will not require mitigation except in rare circumstances.
2	Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant invertebrate fossils	<ul style="list-style-type: none"> Vertebrate fossils known to occur very rarely or not at all. Age greater than Devonian. Deep marine origin. Diagenetic alteration. 	The land manager's concern for paleontological resources on Class 2 acres is low. Ground disturbing activities are not likely to require mitigation.
3	Fossiliferous sedimentary geologic units in which fossil content varies in significance, abundance, and predictable occurrence. Also sedimentary units of unknown fossil potential.	<ul style="list-style-type: none"> Units with sporadic known occurrences of vertebrate fossils. Vertebrate fossils and significant invertebrate fossils known to occur inconsistently; predictability known to be low. Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance. 	The land manager's concern for paleontological resources on Class 3 acres may extend across the entire range of management. Ground disturbing activities will require sufficient mitigation to determine whether significant paleontological resources occur in the area of a proposed action. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action.
4	Class 4 geologic units are Class 5 units (see below) that have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation	<ul style="list-style-type: none"> Significant soil/vegetative cover; outcrop is not likely to be impacted. Areas of any exposed outcrop are smaller than two contiguous acres. Outcrop forms cliffs of sufficient height and slope that most is out of reach by normal means. Other characteristics that lower the vulnerability of both known and unidentified fossil sites. 	The land manager's concern for paleontological resources on Class 4 acres is toward management and away from unregulated access. Proposed ground disturbing activities will require assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action will affect the paleontological resources. Mitigation beyond initial findings will range from no further mitigation necessary to full and continuous monitoring of significant localities during the action.

Class	Description	Basis	Comments
5	Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils and/or scientifically significant invertebrate fossils and that are at risk of natural degradation and/or human-caused adverse impacts	<ul style="list-style-type: none"> • Vertebrate fossils and/or scientifically significant invertebrate fossils are known and documented to occur consistently, predictably, and/or abundantly. • Unit is exposed; little or no soil/vegetative cover. • Outcrop areas are extensive; discontinuous areas are larger than two contiguous acres. • Outcrop erodes readily, may form badlands. • There is easy access to extensive outcrop in remote areas. • Other characteristics that increase the sensitivity of both known and unidentified fossil sites. 	The land manager's highest concern for paleontological resources should focus on Class 5 acres. These areas are likely to be poached. Mitigation of ground disturbing activities is required and may be intense. Areas of special interest and concern should be designated and intensely managed.

Source: Originally developed by the Paleontology Center of Excellence and the Region 2 (USFS) Paleo Initiative, 1996. Some modification by Dale Hanson, Regional Paleontologist, Wyoming BLM, 2002.

Paleontological Resources Contained Within Geologic Units
<p>Precambrian Era (4.6 billion to 544 million years ago) The Precambrian rocks located within the area contain no paleontological resources.</p>
<p>Paleozoic Era (544 million to 245 million years ago) The Paleozoic Era is divided into seven periods: Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian.</p>
<p>Cambrian Period (544 million to 505 million years ago) The Cambrian Formations present in the planning area include the Flathead Sandstone, the Gros Ventre Formation, and the Gallatin Limestone (Love et al. 1993).</p> <ul style="list-style-type: none"> • Flathead Sandstone. Noteworthy invertebrate fossils have not been reported from the Middle Cambrian Flathead Sandstone (Daitch and Robinson 2002). Brachiopods are known to occur in several localities throughout Wyoming. • Gros Ventre Formation. Invertebrate fossils are known to occur in this formation, including trilobites. • Gallatin Limestone. Noteworthy invertebrate fossils are known to occur within the formation.
<p>Ordovician Period (505 million to 440 million years ago) There are no formations of Ordovician age in the planning area.</p>
<p>Silurian Period (440 million to 410 million years ago) There are no formations of Silurian age in the planning area.</p>
<p>Devonian Period (410 million to 360 million years ago) The Upper Devonian Darby Formation has been assigned a Class 3 paleontology potential throughout Wyoming. Fossils in the Upper Devonian Darby Formation include several invertebrate groups and conodonts (Daitch and Robinson 2002).</p>
<p>Mississippian Period (360 million to 325 million years ago) The Mississippian Madison Limestone has produced abundant invertebrates, including mollusks, crinoids, brachiopods, and corals.</p>
<p>Pennsylvanian Period (325 million to 286 million years ago) There are no paleontological resources of the Pennsylvanian Period in the planning area.</p>
<p>Permian Period (286 million to 245 million years ago) There are no paleontological resources of the Permian Period in the planning area.</p>

Paleontological Resources Contained Within Geologic Units

Mesozoic Era (245 million to 65 million years ago)

The Mesozoic Era is often referred to as the “age of dinosaurs.” The Mesozoic is divided into three periods: Triassic, Jurassic, and Cretaceous.

Triassic Period (245 million to 208 million years ago)

There are no paleontological resources of the Triassic Period in the planning area.

Jurassic Period (208 million to 146 million years ago)

There are two Jurassic-age formations mapped in the area: the Stump Sandstone and the Morrison Formations. Both units have the potential to produce significant fossils in the area.

- Stump Sandstone. Rare fossil vertebrates have been reported in the Middle to Upper Stump Sandstone sediments, and both invertebrate and trace fossils have been reported in abundance (Daitch and Robinson 2002).
- Morrison Formation. The Morrison Formation is well known for producing significant and highly diverse fauna and flora that include mollusks, fish, trace fossils, as well as various dinosaurs, such as *Camptosaurus*, *Allosaurus*, *Brachiosaurus*, *Apatosaurus*, and *Stegosaurus* (Jenkins and Jenkins 1993, Turner and Peterson 2002).

Cretaceous Period (146 million to 65 million years ago)

There are two geologic units of Cretaceous age in the area: the Mesa Verde Formation and the Lance Formation. Both formations have a moderate to high potential to produce significant vertebrate fossils in the planning area.

- Mesa Verde Formation. Represents a lowland environment and contains plant and invertebrate fossils.
- Lance Formation. Deposited from a braided stream environment and contains vertebrate and plant fossils.

Cenozoic Era (65 million years ago to present day)

The Cenozoic Era, also known as the “age of mammals,” spans from 65 million years ago to the present day. The Cenozoic is broken into two periods of geologic time, the Tertiary and the Quaternary. Because of a more complete fossil record, the Tertiary Period can be broken down further into five epochs: Paleocene, Eocene, Oligocene, Miocene, and Pliocene. The Quaternary Period is broken into two epochs: the Pleistocene and Holocene (or Recent; the current period of geologic time). A discussion of the paleontological resources of the Cenozoic age contained within the planning area is presented below.

Tertiary Period (65 million to 1.8 million years ago)

Highly significant paleontological resources of Tertiary age are found in the planning area.

- Paleocene Epoch (65 million to 54 million years ago). One geologic formation of Paleocene age, the Fort Union, is present in the area. In addition, the Pinyon Conglomerate may be in part Paleocene in age, and the Chappo Member of the Wasatch Formation may contain mammalian fauna of mid- to late-Paleocene age.
- Fort Union Formation. This formation was formed in a deltaic environment and contains vertebrate and invertebrate fossils.
- Eocene Epoch (54 million to 38 million years ago). Formations of Eocene age in the planning area include the Wasatch and Green River (Bradley 1964). These formations were deposited somewhat contemporaneously and contain rich vertebrate remains; thus, they have similarly high Paleontological Class designations (4 or 5).
- Wasatch Formation. Much of the Wasatch Formation is considered Lower Eocene, although a mid- to late-Tiffanian (mid- to late-Paleocene) mammalian fauna is known from the Chappo Member (Gunnell 1994) and a middle Eocene mammalian fauna has been reported from the Cathedral Bluffs Tongue (West and Dawson 1973). The Wasatch Formation contains a well-preserved record of vertebrate fossils, including fish, reptiles, birds, and mammals, as well as invertebrate and plant fossils. A large body of literature has been published on the Wasatch Formation (e.g., McKenna 1960, West 1969, West and Dawson 1973, Dorr 1978, Gingerich and Dorr 1979, Gauthier 1982, Roehler et al. 1988, Gunnell 1994).
- Green River Formation. The Green River Formation represents one of the most important Eocene deposits in the world. It is famous for well-preserved mammal, fish, turtle, bird, snake, insect, and plant fossils. Grande (1980) reviewed important fish and other vertebrate fossil discoveries.

Oligocene, Miocene, or Pliocene Epochs (38 million to 1.8 million years ago)

There are no paleontological resources of Oligocene, Miocene, or Pliocene Epochs in the planning area.

Quaternary Period (1.8 million to present day)

The Quaternary is broken into two epochs: Pleistocene (the time of the “ice ages”), and Holocene. Rare vertebrate fossils have been recorded from the alluvium and colluvium in the planning area.

Appendix I. Habitat Assessment **Framework Data Sheets**

Form H-2: Sage-Grouse Habitat Suitability Worksheet – Lek Habitat

Date: 11/16/2012	State: WY	County: SUBLETTE
Evaluators: HEMENWAY	Subpopulation: DANDEL CORE AREA	
Legal Description: T.34 R.112 Sections 19, 26, 27, 28, 29, 30	Home Range Name:	
Lek ID#:	Lek Status (circle one): Active Inactive Unknown	
Land Cover Type:	GPS file #:	UTM: _____

Habitat Suitability Range

Habitat Indicator	Suitable	✓	Marginal	✓	Unsuitable	✓
Availability of Sagebrush Cover	Lek has adjacent protective sagebrush cover (within 100 m)		Sagebrush within 100 m provides very little protective cover		Adjacent sagebrush cover is > 100 m	
Proximity of Trees or Other Tall Structures	Trees or other tall structures are not within line of sight of lek and none to uncommon within 3 km of lek		Trees or other tall structures are within line of sight of lek and uncommon or scattered within 3 km of lek		Trees or other tall structures are within the vicinity of the lek site	

Site-Scale Suitability

Anthropogenic Noise Description:

Rationale for Overall Suitability Rating:

NO OCCUPIED OR UNOCCUPIED LEKS WITHIN ALLOTMENT
 (JAMES RYEGRASS)

Form H-3: Sage-Grouse Habitat Suitability Worksheet – Breeding Habitat

Date: 11/16/2012	County: SOUTHERN	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEWENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. 34 R. 12 Sections 19, 26, 27, 28, 29, 30	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Ecological Site: LY 10-14"		
Number of Transects: 2	Area Sampled (ha)	Site Info. (Circle one) Arid Site Mesic Site	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: NAD 83 ZONE 12 E 0566297 N 4748005			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	<input checked="" type="checkbox"/>	Marginal	<input checked="" type="checkbox"/>	Unsuitable	<input checked="" type="checkbox"/>
Sagebrush Canopy Cover (mean)	27	15 to 25%	<input type="checkbox"/>	5 to < 15% or > 25%	<input checked="" type="checkbox"/>	< 5%	<input type="checkbox"/>
Sagebrush Height Mesic Site (mean) Arid Site (mean)	40.5	40 to 80 cm 30 to 80 cm	<input checked="" type="checkbox"/>	20 to < 40 cm or > 80 20 to < 30 cm or > 80	<input type="checkbox"/>	< 20 cm < 20 cm	<input type="checkbox"/>
Predominant Sagebrush Shape (mode) Spreading (n) Mixed (n) Columnar (n)	35	Spreading	<input type="checkbox"/>	Mix of spreading and columnar FROM PHOTOS	<input checked="" type="checkbox"/>	Columnar	<input type="checkbox"/>
Perennial Grass and Forb Height (mean)	22	≥ 18 cm	<input type="checkbox"/>	10 to < 18 cm	<input type="checkbox"/>	< 10 cm	<input checked="" type="checkbox"/>
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	31	$\geq 15\%$ $\geq 10\%$	<input checked="" type="checkbox"/>	5 to < 15% 5 to < 10%	<input type="checkbox"/>	< 5% < 5%	<input type="checkbox"/>
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	25	$\geq 10\%$ $\geq 5\%$	<input checked="" type="checkbox"/>	5 to < 10% 3 to < 5%	<input type="checkbox"/>	< 5% < 5%	<input type="checkbox"/>
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	<input checked="" type="checkbox"/>	Preferred forbs are common but only a few species are present	<input type="checkbox"/>	Preferred forbs are rare	<input type="checkbox"/>
Number of Preferred Forb Species (n)	7		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Site-Scale Suitability



Does ecological site potential limit suitability potential? (circle one)	Yes	<input checked="" type="radio"/> No		
Drought Condition (circle one):	Extreme Drought	Severe Drought	<input checked="" type="radio"/> Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: SAGEBRUSH CANOPY COVER WAS ONLY SLIGHTLY ABOVE SUITABLE THRESHOLD OF 25%. FORB + GRASS HEIGHT WAS NOT COLLECTED - THE DOMINANT GRASS SPECIES (PASM, ACLE) ARE LIKELY TO PROVIDE SUITABLE HEIGHT HOWEVER THE DOMINANCE OF MAT FORMING FORBS WOULD LIKELY DREW THE AVERAGE INTO THE MARGINAL CATEGORY. WITH NO UNSUITABLE CALLS AND THE HIGH COVER VALUES THE HABITAT IS LIKELY FUNCTIONING AS SUITABLE RESIDUAL GRASS HEIGHT WAS COLLECTED IN THE SPINDLE. TALLER STALKS HAD BEEN Matted DOWN BY SNOW PACK.				

Form H-4: Sage-Grouse Habitat Suitability Worksheet – Upland Summer Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANSEL CORE AREA
Evaluators: HEMENWAY		Home Range Name: RYEGRASS LANDSCAPE	
Legal Description: T.34 R.112 Sections 19, 26, 27, 28, 29 30		Associated Leks: RYEGRASS COMPLEX	
Land Cover Type: MIXED GRASS / BIG SAGE		Ecological Site: LY 10-14"	
Number of Transects: 2		Area Sampled (ha or acres)	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: NAD 83 ZONE 12 E 0566297 N 4748005			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	27	10 to 25%		5 to < 10% or > 25%	X	< 5%	
Sagebrush Height (mean)	48.5	40 to 80 cm	X	20 to < 40 or > 80 cm		< 20cm	
Perennial Grass and Forb Canopy Cover (mean)	31 25	≥ 15 %	X	5 to < 15%		< 5%	
Preferred Forb Availability (relative to site potential)		Forbs are common with several preferred species present	X	Forbs are common but only a few preferred species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	7						

Site-Scale Suitability

Does site potential limit suitability? (circle one)	Yes	<u>No</u>		
Drought Condition (circle one):	Extreme Drought	Severe Drought	<u>Moderate Drought</u>	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: SAGE BRUSH CANOPY COVER WAS ONLY SLIGHTLY ABOVE THE 25% REQUIRED FOR SUITABLE HABITAT. ALL OTHER CATEGORIES WERE SUITABLE				

Form H-5: Sage-Grouse Habitat Suitability Worksheet – Riparian Summer Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T.34 R.12 Sections 19, 26, 27, 28, 29, 30	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Site Info. (circle one): Arid Site Mesic Site		
Site Type (circle one) riparian areas, wetland/wet meadows, springs, lakebeds, all, other:			
Number of Transects:		Area (ha or acres) or Distance (km) Sampled:	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Riparian and Wet Meadow Stability (mode)		Majority of areas are in PFC		Majority of areas are FAR		Majority of areas are NF	
PFC (n)							
FAR (n)							
NF (n)							
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	✗	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	7						
Proximity of Sagebrush Cover (mean)		Sagebrush cover is adjacent to brood-rearing areas (< 90m)		Sagebrush cover is in close proximity to brood-rearing areas (90 to 275 m)		Sagebrush cover is unavailable (> 275 m)	

Site-Scale Suitability

Drought Condition (circle one):	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: NO RIPARIAN AREAS PRESENT				

Form H-6: Sage-Grouse Habitat Suitability Worksheet – Winter Habitat

Date: 11/19/12	County: SOUTHE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. 34 R. 112 Sections 19, 26, 27, 28, 29, 30	Associated Leks: RYEGRASS COMPLEX		
Land Cover Type:	Ecological Site: LY 10-14"		
Number of Transects: 2	Area Sampled (ha or acres):		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: VAD 83 26048 12 E0566297 N4748605			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	27	≥ 10 %		5 to < 10%		< 5%	
Sagebrush Height above Snow (mean)		> 25 cm		> 10 to < 25 cm		< 10cm	

Site-Scale Suitability

Rationale for Overall Suitability Rating:

USED EXISTING OBS. DATA TO DETERMINE HABITAT USE PATTERN

Form H-2: Sage-Grouse Habitat Suitability Worksheet – Lek Habitat

Date: 11/19/2012	State: WY	County: SUBLETTE
Evaluators: HEMENWAY	Subpopulation: DANIEL CORE AREA	
Legal Description: T. 34 R. 112 Sections 19, 26, 27, 28, 29, 30	Home Range Name: RYEGRASS LANDSCAPE	
Lek ID#:	Lek Status (circle one): Active Inactive Unknown	
Land Cover Type:	GPS file #:	UTM: _____

Habitat Suitability Range

Habitat Indicator	Suitable	✓	Marginal	✓	Unsuitable	✓
Availability of Sagebrush Cover	<i>Lek has adjacent protective sagebrush cover (within 100 m)</i>		<i>Sagebrush within 100 m provides very little protective cover</i>		<i>Adjacent sagebrush cover is > 100 m</i>	
Proximity of Trees or Other Tall Structures	<i>Trees or other tall structures are not within line of sight of lek and none to uncommon within 3 km of lek</i>		<i>Trees or other tall structures are within line of sight of lek and uncommon or scattered within 3 km of lek</i>		<i>Trees or other tall structures are within the vicinity of the lek site</i>	

Site-Scale Suitability

Anthropogenic Noise Description:

Rationale for Overall Suitability Rating:

NO OCCUPIED LEKS WITHIN ALLOTMENT (JAMES RYEGRASS)

Form H-3: Sage-Grouse Habitat Suitability Worksheet – Breeding Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY		Home Range Name: RYEGRASS LANDSCAPE	
Legal Description: T. 34 R. 12 Sections 19, 26, 27, 28, 29, 30		Associated Leaks: RYEGRASS COMPLEX	
Land Cover Type: MIXED GRASS / BIGSAGE		Ecological Site:	
Number of Transects: 2	Area Sampled (ha)	Site Info. (Circle one) Arid Site Mesic Site	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: NAD 83 ZONE 12 E 0559654 N 4749133			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	10	15 to 25%		5 to < 15% or > 25%	X	< 5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	203	40 to 80 cm 30 to 80 cm		20 to < 40 cm or > 80 20 to < 30 cm or > 80	X	< 20 cm < 20 cm	
Predominant Sagebrush Shape (mode) Spreading (n) Mixed (n) Columnar (n)		Spreading	X	Mix of spreading and columnar		Columnar	
Perennial Grass and Forb Height (mean)	20 20	≥ 18 cm		10 to < 18 cm		< 10 cm	X
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	49	$\geq 15\%$ $\geq 10\%$	X	5 to < 15% 5 to < 10%		< 5% < 5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	6	$\geq 10\%$ $\geq 5\%$	X	5 to < 10% 3 to < 5%		< 5% < 5%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	7						

Site-Scale Suitability

Does ecological site potential limit suitability potential? (circle one)	Yes	No		
Drought Condition (circle one):	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: THE REDUCED SAGE COVER FROM MECHANICAL TREATMENTS LIMITS THE HABITAT POTENTIAL FOR NESTING. THE HIGHER GRASS + FORB COVER VALUES MAY PROVIDE INSECT FORAGING HABITAT FOR EARLY BROOD REARING				

Form H-4: Sage-Grouse Habitat Suitability Worksheet – Upland Summer Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. 34 R. 112 Sections 19, 26, 27, 28, 29, 30	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Ecological Site: LY 10-14"		
Number of Transects: 2	Area Sampled (ha or acres)		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: NAD 83 Zone 12 E0559654 N4749133			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	16	10 to 25%	X	5 to < 10% or > 25%		< 5%	
Sagebrush Height (mean)	33	40 to 80 cm		20 to < 40 or > 80 cm	X	< 20cm	
Perennial Grass and Forb Canopy Cover (mean)	49 6	≥ 15 %	X	5 to < 15%		< 5%	
Preferred Forb Availability (relative to site potential)		Forbs are common with several preferred species present	X	Forbs are common but only a few preferred species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	7						

Site-Scale Suitability

Does site potential limit suitability? (circle one)	Yes	<u>No</u>		
Drought Condition (circle one):	Extreme Drought	Severe Drought	<u>Moderate Drought</u>	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	

Rationale for Overall Suitability Rating:
THE VALUE FOR SAGE CANOPY COVER IS ON THE LOW END OF SUITABLE AND THE HEIGHT IS ON THE LOW END OF MARGINAL. THIS IS FOLLOWING A MECHANICAL TREATMENT AND THE SITE POTENTIAL WILL RESULT IN INCREASING VALUES OVER TIME FOR SAGE BRUSH

Form H-5: Sage-Grouse Habitat Suitability Worksheet – Riparian Summer Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEBGRASS LANDSCAPE		
Legal Description: T. 34 R. 112 Sections 19, 26, 27, 28, 29, 30	Associated Leaks: RYEBGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Site Info. (circle one): <u>Arid Site</u> <u>Mesic Site</u>		
Site Type (circle one) riparian areas, wetland/wet meadows, springs, lakebeds, all, other:			
Number of Transects:		Area (ha or acres) or Distance (km) Sampled:	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			

Habitat Indicator Suitability Range

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Riparian and Wet Meadow Stability (mode)		Majority of areas are in PFC		Majority of areas are FAR		Majority of areas are NF	
PFC (n)							
FAR (n)							
NF (n)							
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	x	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	7						
Proximity of Sagebrush Cover (mean)		Sagebrush cover is adjacent to brood-rearing areas (< 90m)		Sagebrush cover is in close proximity to brood-rearing areas (90 to 275 m)		Sagebrush cover is unavailable (> 275 m)	

Site-Scale Suitability

Drought Condition (circle one):	Extreme Drought	Severe Drought	<u>Moderate Drought</u>	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating:				
NO RIPARIAN AREAS IN ALLOTMENT NEAREST HABITAT OCCURS ON ADJACENT SOME PRIVATE LANDS				

Form H-6: Sage-Grouse Habitat Suitability Worksheet – Winter Habitat

Date: 11/19/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY		Home Range Name: RYEGRASS LANDSCAPE	
Legal Description: T. 34 R. 112 Sections 19, 26, 27, 28 29, 30		Associated Leks: RYEGRASS COMPLEX	
Land Cover Type: MOWED GRASS/BIG SAGE		Ecological Site: LY 10-14"	
Number of Transects: 2		Area Sampled (ha or acres):	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: NAD 83 ZONE 12 E 0551654 N 4749133			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	10	≥ 10 %	X	5 to < 10%		< 5%	
Sagebrush Height above Snow (mean)		> 25 cm		> 10 to < 25 cm		< 10cm	

Site-Scale Suitability

Rationale for Overall Suitability Rating:

USED EXISTING OBS. DATA TO DETERMINE HABITAT USE

Form H-2: Sage-Grouse Habitat Suitability Worksheet – Lek Habitat

Date: 12/13/12	State: WY	County: SUBLETTE
Evaluators: HEMENWAY	Subpopulation: DANIEL CORE AREA	
Legal Description: T. R. Sections ¼ ¼	Home Range Name: RYEBASS LANDSCAPE	
Lek ID#:	Lek Status (circle one): Active Inactive Unknown	
Land Cover Type:	GPS file #:	UTM: _____

Habitat Suitability Range

Habitat Indicator	Suitable	✓	Marginal	✓	Unsuitable	✓
Availability of Sagebrush Cover	<i>Lek has adjacent protective sagebrush cover (within 100 m)</i>		<i>Sagebrush within 100 m provides very little protective cover</i>		<i>Adjacent sagebrush cover is > 100 m</i>	
Proximity of Trees or Other Tall Structures	<i>Trees or other tall structures are not within line of sight of lek and none to uncommon within 3 km of lek</i>		<i>Trees or other tall structures are within line of sight of lek and uncommon or scattered within 3 km of lek</i>		<i>Trees or other tall structures are within the vicinity of the lek site</i>	

Site-Scale Suitability

Anthropogenic Noise Description:

Rationale for Overall Suitability Rating:

NO OCCUPIED OR UNOCCUPIED LEKS WITHIN ALLOTMENT

Form H-3: Sage-Grouse Habitat Suitability Worksheet – Breeding Habitat

Date: 12/13/12	County: <u>SURLETTE</u>	State: <u>WY</u>	Subpopulation: <u>DANIEL CORE AREA</u>
Evaluators: <u>HENGLWAY</u>	Home Range Name: <u>RYEGRASS LANDSCAPE</u>		
Legal Description: <u>T. 34 R. 112 Sections 19, 20, 27, 28, 29</u>	Associated Leks: <u>RYEGRASS COMPLEX</u>		
Land Cover Type: <u>MIXED GRASS / BIG SAGE</u>	Ecological Site: <u>LY 10-14"</u>		
Number of Transects: <u>≠ 3</u>	Area Sampled (ha)	Site Info. (Circle one) <u>Arid Site</u> <u>Mesic Site</u>	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: <u>NAD 83 ZONE 12</u> <u>526760 4748701 560956 4748187</u> <u>564699 4748694</u>			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	<u>37</u>	15 to 25%	<input checked="" type="checkbox"/>	5 to < 15% or > 25%	<input checked="" type="checkbox"/>	< 5%	<input type="checkbox"/>
Sagebrush Height (mean) Mesic Site (mean) <u>NOT COLLECTED</u> Arid Site (mean)		40 to 80 cm 30 to 80 cm	<input type="checkbox"/>	20 to < 40 cm or > 80 20 to < 30 cm or > 80	<input type="checkbox"/>	< 20 cm < 20 cm	<input type="checkbox"/>
Predominant Sagebrush Shape (mode) Spreading (n) <u>VISUAL</u> Mixed (n) <u>ESTIMATE</u> Columnar (n)		Spreading	<input type="checkbox"/>	Mix of spreading and columnar	<input checked="" type="checkbox"/>	Columnar	<input type="checkbox"/>
Perennial Grass and Forb Height (mean) <u>NOT COLLECTED</u>	<u>6.4</u>	≥ 18 cm	<input type="checkbox"/>	10 to < 18 cm	<input type="checkbox"/>	< 10 cm	<input checked="" type="checkbox"/>
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	<u>31</u>	≥ 15% ≥ 10%	<input checked="" type="checkbox"/>	5 to < 15% 5 to < 10%	<input type="checkbox"/>	< 5% < 5%	<input type="checkbox"/>
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	<u>25</u>	≥ 10% ≥ 5%	<input checked="" type="checkbox"/>	5 to < 10% 3 to < 5%	<input type="checkbox"/>	< 5% < 5%	<input type="checkbox"/>
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present	<input type="checkbox"/>	Preferred forbs are common but only a few species are present	<input checked="" type="checkbox"/>	Preferred forbs are rare	<input type="checkbox"/>
Number of Preferred Forb Species (n)	<u>3</u>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>

Site-Scale Suitability

Does ecological site potential limit suitability potential? (circle one)	Yes	<u>No</u>		
Drought Condition (circle one):	Extreme Drought	Severe Drought	<u>Moderate Drought</u>	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: SAGE CANOPY COVER WAS WELL ABOVE THE SUITABLE THRESHOLD - VEGETATION HEIGHT FOR SHRUB AND FORB+GRASS WAS NOT COLLECTED - THE DOMINANT GRASS SPECIES GROWTH HABITS WOULD LIKELY PROVIDE GOOD COVER BUT THE PREVALENCE OF MAT FORMING FORBS WOULD REDUCE THE AVERAGE MAKING IT MARGINAL - THE LOW # OF PREFERRED FORBS MAY BE DUE TO THE LATE DATA COLLECTION EFFORTS AND DRY YEAR. THE HIGH SAGE COVER VALUES AND REDUCED FORB #'S MAKE THIS MARGINAL HABITAT				

Form H-4: Sage-Grouse Habitat Suitability Worksheet – Upland Summer Habitat

Date: 12/13/12	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. 34 R. 11Z Sections 19, 26, 27, 28, 29, 30	Associated Leks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Ecological Site: LY 10-14"		
Number of Transects: 3	Area Sampled (ha or acres)		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			
NAD 83 Zone 12	526760 4748701	56956 4748187	
	564099 4748694		

Habitat Indicator Suitability Range

Habitat Indicator	Σ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	37	10 to 25%		5 to < 10% or > 25%	X	< 5%	
Sagebrush Height (mean) NOT COLLECTED		40 to 80 cm		20 to < 40 or > 80 cm		< 20cm	
Perennial Grass and Forb Canopy Cover (mean)	21 25	≥ 15 %	X	5 to < 15%		< 5%	
Preferred Forb Availability (relative to site potential)		Forbs are common with several preferred species present		Forbs are common but only a few preferred species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (n)	3						

Site-Scale Suitability

Does site potential limit suitability? (circle one)	Yes	No		
Drought Condition (circle one):	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
<p>Rationale for Overall Suitability Rating: THE REDUCED PREFERRED FORB #'S ARE LIKELY THE RESULT OF THE TIMING OF THE DATA COLLECTION EFFORTS (FALL) AND THE EXTREMELY DRY SUMMER. THE HIGH SAGE COVER VALUES AND REDUCED VARIETY IN FORBS RESULT IN A MARGINAL RATING.</p>				

Form H-5: Sage-Grouse Habitat Suitability Worksheet – Riparian Summer Habitat

Date: 12/13/12	SORLETTE County:	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T.34 R.12 Sections 19, 26-30	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Site Info. (circle one): <u>Arid Site</u> Mesic Site		
Site Type (circle one) riparian areas, wetland/wet meadows, springs, lakebeds, all, other:			
Number of Transects:		Area (ha or acres) or Distance (km) Sampled:	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Riparian and Wet Meadow Stability (mode)		Majority of areas are in PFC		Majority of areas are FAR		Majority of areas are NF	
PFC (n)							
FAR (n)							
NF (n)							
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (n)	3						
Proximity of Sagebrush Cover (mean)		Sagebrush cover is adjacent to brood-rearing areas (< 90m)		Sagebrush cover is in close proximity to brood-rearing areas (90 to 275 m)		Sagebrush cover is unavailable (> 275 m)	

Site-Scale Suitability

Drought Condition (circle one):	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating:				
NO RIPARIAN AREAS WITHIN ADJUTMENT NEAREST HABITAT IS ON ADJACENT PRIVATE LANDS				

Form H-6: Sage-Grouse Habitat Suitability Worksheet – Winter Habitat

Date: 12/13/12	SORLENE County:	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. 34 R. 12 Sections 19, 26-30	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: MIXED GRASS / BIG SAGE	Ecological Site: LY 10-14"		
Number of Transects:	Area Sampled (ha or acres):		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			

Habitat Indicator Suitability Range

Habitat Indicator	✕	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	37	≥ 10 %	✕	5 to < 10%		< 5%	
Sagebrush Height above Snow (mean)		> 25 cm		> 10 to < 25 cm		< 10cm	

Site-Scale Suitability

Rationale for Overall Suitability Rating:

USED EXISTING WINTER CONCENTRATION OBS. TO DETERMINE SUITABILITY

Form H-2: Sage-Grouse Habitat Suitability Worksheet – Lek Habitat

Date: 8/20/13	State: WY	County: Sublette
Evaluators: HEMENWAY	Subpopulation:	
Legal Description: T.35 R.12 sections 28, 29, 24	Home Range Name: DANIEL CORE	
Lek ID#: THE CLAW	Lek Status (circle one): <u>Active</u> Inactive Unknown	
Land Cover Type:	GPS file #:	UTM: _____

Habitat Suitability Range

Habitat Indicator	Suitable	✓	Marginal	✓	Unsuitable	✓
Availability of Sagebrush Cover	Lek has adjacent protective sagebrush cover (within 100 m)	✓	Sagebrush within 100 m provides very little protective cover		Adjacent sagebrush cover is > 100 m	
Proximity of Trees or Other Tall Structures	Trees or other tall structures are not within line of sight of lek and none to uncommon within 3 km of lek	✓	Trees or other tall structures are within line of sight of lek and uncommon or scattered within 3 km of lek		Trees or other tall structures are within the vicinity of the lek site	

Site-Scale Suitability

Anthropogenic Noise Description:

NO MAJOR NOISE SOURCES IN AREA

Rationale for Overall Suitability Rating:

OCCUPIED AND ACTIVE LEXS IN AREA

Form H-3: Sage-Grouse Habitat Suitability Worksheet – Breeding Habitat

Date: 8/20/13	County: SUB	State: WY	Subpopulation:
Evaluators: HEMENWAY	Home Range Name: DANIEL COPE		
Legal Description: T. 35 R. 112 Sections 21, 28, 29	Associated Leaks: THE CLAN		
Land Cover Type: Mtn Big Sage	Ecological Site:		
Number of Transects: 2	Area Sampled (ha): 2400 ac	Site Info. (Circle one) Arid Site Mesic Site	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: 563211 4757827			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	35	15 to 25%	✓	5 to < 15% or > 25%		< 5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	61	40 to 80 cm 30 to 80 cm	✓	20 to < 40 cm or > 80 20 to < 30 cm or > 80		< 20 cm < 20 cm	
Predominant Sagebrush Shape (mode) Spreading (n) From obs. Mixed (n) + photos Columnar (n)		Spreading	✓	Mix of spreading and columnar		Columnar	
Perennial Grass and Forb Height (mean)	75	≥ 18 cm		10 to < 18 cm		< 10 cm	✓
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	30	≥ 15% ≥ 10%	✓	5 to < 15% 5 to < 10%		< 5% < 5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	22	≥ 10% ≥ 5%	✓	5 to < 10% 3 to < 5%		< 5% < 5%	
Preferred Forb Availability (relative to site potential)		Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	✓	Preferred forbs are rare	
Number of Preferred Forb Species (n)							

Site-Scale Suitability



Does ecological site potential limit suitability potential? (circle one)	Yes	No		
Drought Condition (circle one):	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: GOOD CANOPY COVER FOR NESTING / POOR FORB DIVERSITY MAY BE DUE TO LATE SEASON OF DATA COLLECTION (JULY 24, 2013)				

Form H-4: Sage-Grouse Habitat Suitability Worksheet – Upland Summer Habitat

Date: 8/20/13	County: SUB	State: WY	Subpopulation:
Evaluators: HEMENWAY		Home Range Name: DANIEL CORE	
Legal Description: T. 35 R. 112 Sections 28, 29, 21		Associated Leaks: THE CLAN	
Land Cover Type: Mtn Big Sage		Ecological Site: LY 15-19"	
Number of Transects: 2		Area Sampled (ha or acres) 2448 ac	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: 563211 4757827			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	25.5	10 to 25%	✓	5 to < 10% or > 25%		< 5%	
Sagebrush Height (mean)	64	40 to 80 cm	✓	20 to < 40 or > 80 cm		< 20cm	
Perennial Grass and Forb Canopy Cover (mean)	22 30	≥ 15 %	✓	5 to < 15%		< 5%	
Preferred Forb Availability (relative to site potential)		Forbs are common with several preferred species present		Forbs are common but only a few preferred species are present	✓	Preferred forbs are rare	
Number of Preferred Forb Species (n)							

Site-Scale Suitability

Does site potential limit suitability? (circle one)	Yes	<u>No</u>		
Drought Condition (circle one):	Extreme Drought	<u>Severe Drought</u>	Moderate Drought	Mic-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: Dominated by mtn sage w/ Riparian along horse creek nearby for late-broad seeding. Good Sage and Forb/grass canopy cover / Poor forb #'s may be due to late season date collection (7/24/13)				

Form H-6: Sage-Grouse Habitat Suitability Worksheet - Winter Habitat

Date: 8/26/13	County: SUB	State: WY	Subpopulation:
Evaluators: Hemenway			Home Range Name: DANIEL CORE
Legal Description: T. 35 R. 12 Sections 20, 21, 21		Associated Leks: THE CLAW	
Land Cover Type: Sagebrush		Ecological Site: LY 15-19"	
Number of Transects: 2		Area Sampled (ha or acres): 2448 ac	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: 56321 4757827			

Suitability Range

Habitat Indicator	Habitat Indicator			Suitability Range		
	Suitable	Marginal	Unsuitable	Suitable	Marginal	Unsuitable
Sagebrush Canopy Cover (mean)	≥ 10%	5 to < 10%	< 5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sagebrush Height above Snow (mean)	> 25 cm	> 10 to < 25 cm	< 10 cm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Site-Scale Suitability

Rationale for Overall Suitability Rating:

Higher snow loads may limit this areas value as winter habitat in most years
USED EXISTING WINTER OBS. DATA TO DETERMINE HABITAT USE

BALL HORSE CRN
LY 15-14"

Form H-2: Sage-Grouse Habitat Suitability Worksheet – Lek Habitat

Date: 12-1-14	State: WY	County: SUBLETT
Evaluators: HENEKAWY	Subpopulation: DAVIDA CORE AREA	
Legal Description: T. R. Sections X X	Home Range Name: RYEGRASS LANDSCAPE	
Lek ID#: NA	Lek Status (circle one): Active Inactive Unknown	
Land Cover Type:	GPS file #:	UTM:

Habitat Suitability Range

Habitat Indicator	Suitable	✓	Marginal	✓	Unsuitable	✓
Availability of Sagebrush Cover	Lek has adjacent protective sagebrush cover (within 100 m)		Sagebrush within 100 m provides very little protective cover		Adjacent sagebrush cover is > 100 m	
Proximity of Trees or Other Tall Structures	Trees or other tall structures are not within line of sight of lek and none to uncommon within 3 km of lek		Trees or other tall structures are within line of sight of lek and uncommon or scattered within 3 km of lek		Trees or other tall structures are within the vicinity of the lek site	

Site-Scale Suitability

Anthropogenic Noise Description:

COUNTY ROAD THROUGH CENTER OF ALLOTMENT

Rationale for Overall Suitability Rating:

THE ARE NO LEKS WITHIN ALLOTMENT BOUNDARIES LEKS ARE PRESENT IN ADJACENT ALLOTMENTS

SUITABLE HABITAT PRESENT BUT RANKED NOT APPLICABLE

Form H-3: Sage-Grouse Habitat Suitability Worksheet – Breeding Habitat

Date: 12-1-14	County: SUBLETTE	State: WY	Subpopulation: DANIEL CORB AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. R. Sections	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: WY BIG SAGE / BUNCHGRASS	Ecological Site: LY 15-19		
Number of Transects: 1	Area Sampled (ha)	Site Info. (Circle one) <u>Arid Site</u> Mesic Site	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: 558883 42449017			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	38	15 to 25%		5 to < 15% or > 25%	X	< 5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	52	40 to 80 cm 30 to 80 cm	X	20 to < 40 cm or > 80 20 to < 30 cm or > 80		< 20 cm < 20 cm	
Predominant Sagebrush Shape (mode) Spreading (n) Mixed (n) Columnar (n)		Spreading	X	Mix of spreading and columnar		Columnar	
Perennial Grass and Forb Height (mean)		≥ 18 cm		10 to < 18 cm		< 10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	21	≥ 15% ≥ 10%	X	5 to < 15% 5 to < 10%		< 5% < 5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	10	≥ 10% ≥ 5%	X	5 to < 10% 3 to < 5%		< 5% < 5%	
Preferred Forb Availability (relative to site potential)	2x	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	6						

Site-Scale Suitability

Does ecological site potential limit suitability potential? (circle one)	<u>Yes</u>	No		
Drought Condition (circle one):	Extreme Drought	<u>Severe Drought</u>	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: SAGEBRUSH CANOPY COVER WAS SIGNIFICANTLY OVER 25%. GRASS HEIGHT WAS NOT COLLECTED SO SUITABILITY WAS ASSUMED TO BE MARGINAL → UNSUITABLE. ALL OTHER CATEGORIES WERE CONSIDERED SUITABLE				

Form H-4: Sage-Grouse Habitat Suitability Worksheet – Upland Summer Habitat

Date: 12-1-14	County: <u>SUGAR CREEK</u>	State: <u>WY</u>	Subpopulation: <u>DAWSEL CORO AREA</u>
Evaluators: <u>HEMENWAY</u>	Home Range Name: <u>RYEGRASS LANDSCAPE</u>		
Legal Description: T. R. Sections	Associated Leaks: <u>RYEGRASS COMPLEX</u>		
Land Cover Type: <u>WY REG STAGE / BUNCHGRASS</u>	Ecological Site: <u>LY 15-19</u>		
Number of Transects: <u>1</u>	Area Sampled (ha or acres)		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: <u>558883 47449017</u>			

Habitat Indicator Suitability Range

Habitat Indicator	\bar{x}	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	<u>38</u>	10 to 25%		5 to < 10% or > 25%	<input checked="" type="checkbox"/>	< 5%	
Sagebrush Height (mean)	<u>62</u>	40 to 80 cm	<input checked="" type="checkbox"/>	20 to < 40 or > 80 cm		< 20cm	
Perennial Grass and Forb Canopy Cover (mean)	<u>30.5</u>	≥ 15 %	<input checked="" type="checkbox"/>	5 to < 15%		< 5%	
Preferred Forb Availability (relative to site potential)		Forbs are common with several preferred species present	<input checked="" type="checkbox"/>	Forbs are common but only a few preferred species are present		Preferred forbs are rare	
Number of Preferred Forb Species (n)	<u>6</u>						

Site-Scale Suitability

Does site potential limit suitability? (circle one)	Yes	<u>No</u>		
Drought Condition (circle one):	Extreme Drought	<u>Severe Drought</u>	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating:				

Form H-5: Sage-Grouse Habitat Suitability Worksheet – Riparian Summer Habitat

Date: 12-2-14	County: SUB	State: WY	Subpopulation: DANIEL COBE AREA
Evaluators:			Home Range Name: RIBGRASS LANDSCAPE
Legal Description: T. R. Sections			Associated Leaks: RIBGRASS COMPLEX
Land Cover Type:			Site Info. (circle one): <u>Arid Site</u> Mesic Site
Site Type (circle one) riparian areas, wetland <u>wet meadows</u> springs, lakebeds, all, other:			
Number of Transects:		Area (ha or acres) or Distance (km) Sampled:	
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect:			

Habitat Indicator Suitability Range

Habitat Indicator	R	Suitable	✓	Marginal	✓	Unsuitable	✓
Riparian and Wet Meadow Stability (mode) PFC (n) <u>NO DATA</u> FAR (n) <u>MOD</u> NF (n)		Majority of areas are in PFC		Majority of areas are FAR		Majority of areas are NF	
Preferred Forb Availability (relative to site potential) Number of Preferred Forb Species (n)	<u>6</u>	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Proximity of Sagebrush Cover (mean)		Sagebrush cover is adjacent to brood-rearing areas (< 90m)	X	Sagebrush cover is in close proximity to brood-rearing areas (90 to 275 m)		Sagebrush cover is unavailable (> 275 m)	

Site-Scale Suitability

Drought Condition (circle one):	Extreme Drought	<u>Severe Drought</u>	Moderate Drought	Mid-Range
	Moderately Moist	Very Moist	Extremely Moist	
Rationale for Overall Suitability Rating: MARGINAL RATING DUE TO UNKNOWN SITE POTENTIAL AND LIMITED SIZE SINCE MOST BIRDS WOULD LIKELY USE LARGER MORE SUITABLE RIPARIAN HABITAT ALONG HUBER CREEK				

Form H-6: Sage-Grouse Habitat Suitability Worksheet – Winter Habitat

Date: 12-4-14	County: SOB	State: WY	Subpopulation: DANIEL CORE AREA
Evaluators: HEMENWAY	Home Range Name: RYEGRASS LANDSCAPE		
Legal Description: T. R. Sections	Associated Leaks: RYEGRASS COMPLEX		
Land Cover Type: WY BIG SAGE / BOWLER GRASS	Ecological Site: LY 15-19		
Number of Transects: 1	Area Sampled (ha or acres):		
List UTM Coordinates (Coordinates, Zone, Datum) of All Transect: 558883 47149017			

Habitat Indicator Suitability Range

Habitat Indicator	R	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	38	≥ 10 %	X	5 to < 10%		< 5%	
Sagebrush Height above Snow (mean)	2.7	> 25 cm		> 10 to < 25 cm	X	< 10cm	
IDENTIFIED W.C. USE	X						

Site-Scale Suitability

Rationale for Overall Suitability Rating:

SAGE CANOPY COVER IS WELL OVER 10%
THE WESTERN PORTION OF THE ALLOTMENT HAS BEEN
DETERMINED AS WINTER CONCENTRATION HABITAT

Plant Species commonly used by sage grouse. Other species may have local importance.

TRANSECT #: BALL HORSE CREEK LY 15-19

Common Name	Scientific Name	Food or Cover	Native?	Present
SHRUBS				
Plains silver sagebrush	<i>Artemisia cana</i> subsp. <i>cana</i>	Both	Yes	
Fringed sagebrush	<i>Artemisia frigida</i>	Food	Yes	
Early sagebrush	<i>Artemisia longiloba</i>	Both	Yes	
Black sagebrush	<i>Artemisia nova</i>	Both	Yes	
Basin big sagebrush	<i>Artemisia tridentata</i> subsp. <i>tridentata</i>	Both	Yes	
Mountain big sagebrush	<i>Artemisia tridentata</i> subsp. <i>vaseyana</i> var. <i>pauciflora</i>	Both	Yes	1
Wyoming big sagebrush	<i>Artemisia tridentata wyomingensis</i>	Both	Yes	1
FORBS				
Western yarrow	<i>Achillea millefolium</i>	Food	Yes	
False dandelion	<i>Agoseris glauca</i>	Food	Yes	
Everlasting	<i>Antennaria</i> spp.	Food	Yes	1
Aster	<i>Aster</i> spp. (multiple genera)	Food	Yes	1
Balsamroot	<i>Balsamorhiza</i> spp.	Both	Yes	
Sego lily	<i>Calochortus</i> spp.	Food	Yes	
Hawksbeard	<i>Crepis</i> spp.	Food	Yes	
Prairie clover	<i>Dalea</i> spp.	Food	Yes	
Fleabane	<i>Erigeron</i> spp.	Food	Yes	
Buckwheat	<i>Egiogonum</i> spp.	Food	Yes	1
Curlycup gumweed	<i>Grindelia squarrosa</i>	Food	Yes	
Northern sweetvetch	<i>Hedysarum boreale</i>	Food	No	
Prickly lettuce	<i>Lactuca serriola</i>	Food	Unclear	
Common pepperweed	<i>Lepidium densiflorum</i>	Food	Some	
Flax	<i>Linum</i> spp.	Food	Yes	
Desertparsley/Biscuitroot	<i>Lomatium</i> spp.	Food	Yes	
Lupine	<i>Lupinus</i> spp.	Both	Yes	1
Alfalfa	<i>Medicago sativa</i>	Both	No	
Sweetclover	<i>Mellilotus officinalis</i>	Both	No	
Microsteris	<i>Microsteris gracilis</i>	Food	Yes	
Prairie dandelion	<i>Microsteris toximoides</i>	Food	Yes	
Sainfoin	<i>Onobrychis vicifolia</i>	Food	No	
Phlox	<i>Phlox</i> spp.	Food	Yes	4 2
Small burnet	<i>Sanguisorba minor</i>	Food	No	
Globemallow	<i>Sphaeralcea</i> spp.	Food	Yes	
Common dandelion	<i>Traxacum officinale</i>	Food	No	
Western salsify	<i>Tragopogon dubius</i>	Food	No	
Clover	<i>Trifolium</i> spp.	Food	No	
GRASSES				
Bottlebrush squirreltail	<i>Elymus elymoides</i>	Cover	Yes	
Slender wheatgrass	<i>Elymus trachycaulus</i>	Cover	Yes	
Prairie junegrass	<i>Koeleria macrantha</i>	Cover	Yes	
Indian ricegrass	<i>Achnatherum hymenoides</i>	Cover	Yes	
Mutton bluegrass	<i>Poa fendleriana</i>	Cover	Yes	1
Sandberg bluegrass	<i>Poa secunda</i>	Cover	Yes	1
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	Cover	Yes	
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cover	Yes	
Needle-and-threadgrass	<i>Hesperostipa comata</i>	Cover	Yes	
Letterman's needlegrass	<i>Achnatherum lettermanii</i>	Cover	Yes	1
TOTAL PRESENT:				11

Appendix J: NRCS Ecological Site Descriptions
Section II: Ecological Site Interpretations

Section II: Ecological Site Interpretations Ly 10-14

Animal Community – Grazing Interpretations

NOTE: That this statement applies to all Site Interpretations. The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

Plant Community Production (lb./ac) and Carrying Capacity* (AUM/ac)
Mixed Grass/Big Sagebrush (HCPC) 600-1400 lb./ac and .33 AUM/ac
Big Sagebrush/Bunchgrass 400-1200 lb./ac and .25 AUM/ac
Big Sagebrush/Rhizomatous Wheatgrass 100-800 lb./ac and .15 AUM/ac
Rabbitbrush/Rhizomatous Wheatgrass 100-500 lb./ac and .08 AUM/ac

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations Ly 15-19

Plant Community Production Carrying Capacity*
(lb./ac) (AUM/ac)
Mixed Grass/Big Sage (HCPC) 1400-2400 .6
Mountain Big Sage/Bunchgrass 800-2200 .5
Mountain Big Sage/Idaho Fescue 400-1500 .3
Kentucky Bluegrass/Idaho Fescue 200-800 .15

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations CU 15-19

Plant Community Production Carrying Capacity*
(lb./ac) (AUM/ac)
Bunchgrass/Bitterbrush 1100-2000 .5
Mountain Big Sage/Bitterbrush 900-1800 .4
Mountain Big Sage/Snowberry 500-1400 .22
Cheatgrass 300-1200 .12

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations Gr 15-19

Plant Community Production Carrying Capacity*
(lb./ac) (AUM/ac)
Bluebunch Wheatgrass (HCPC) 650-1250 .25
Noxious Weed/Forb 100-800 .09

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations DC 15-19

Plant Community Production Carrying Capacity*

(lb./ac) (AUM/ac)

Rhizomatous Wheatgrass/Low Sage (HCPC) 800-1500 .35

Low Sage/Bunchgrass 600-1300 .3

Rhizomatous Wheatgrass 400-1000 .22

Heavy Low Sage/Forb 200-600 .12

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations Sb 15-19

Plant Community Production Carrying Capacity*

(lb./ac) (AUM/ac)

Tufted Hairgrass/Willow (HCPC) 3500-5500 1.7

Managed Noxious Weed 3000-5000 1.3

Shrubby Cinquefoil/Kentucky Bluegrass 2500-4500 1.1

Kentucky Bluegrass/Forb 2000-4000 .9

Noxious Weed 1500-3500 .8

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations SwLy 15-19

Plant Community Production Carrying Capacity*

(lb./ac) (AUM/ac)

Bluebunch Wheatgrass/Bitterbrush (HCPC) 800-1700 .4

Mountain Big Sage/Idaho Fescue 500-1200 .3

Cheatgrass 200-800 .15

* - Continuous, season-long grazing by cattle under average growing conditions.

Section II: Ecological Site Interpretations Sy 15-19

****Note:** There is no site developed for the Sy 15-19 so used the Sy 10-14 stocking rates.

Plant Community Production (lb./ac) and Carrying Capacity* (AUM/ac)

Needleandthread/Indian Ricegrass (HCPC) 700-1500 lb./ac and .4 AUM/ac

Big Sagebrush/Bunchgrass 500-1300 lb./ac and .33 AUM/ac

Big Sagebrush/Rhizomatous Wheatgrass 100-900 lb./ac and .2 AUM/ac

Rabbitbrush/Rhizomatous Wheatgrass 100-600 lb./ac and .1 AUM/ac

* - Continuous, season-long grazing by cattle under average growing conditions

Section II: Ecological Site Interpretations SwCy 10-14

Plant Community Production (lb./ac) and Carrying Capacity* (AUM/ac)

Rhizomatous Wheatgrass/Early Sagebrush (HCPC) 500-1000 lb./ac and .2 AUM/ac

Early Sagebrush/Bunchgrass 400-800 lb./ac and .15 AUM/ac

Early Sagebrush/Rhizomatous Wheatgrass 50-300 lb./ac and .05 AUM/ac

* - Continuous, season-long grazing by cattle under average growing conditions.

NOTE: All minor components were multiplied by .1.