COMMENTS ON THE BUREAU OF LAND MANAGEMENT
DRAFT BIGHORN BASIN
RESOURCE MANAGEMENT PLAN AND
ENVIRONMENTAL IMPACT STATEMENT
VOLUME I – EXECUTIVE SUMMARY & COMMENT DOCUMENT

Prepared by

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EXECUTIVE SUMMARY

With the announcement of the Bureau of Land Management (BLM) Bighorn Basin Resource Management Plan (RMP) revision in 2008, the Bighorn Basin Local Government Cooperating Agencies (LGCA) began active participation in the RMP and accompanying Environmental Impact Statement (EIS) process. LGCA analysis and evaluation of the process to date culminates in the comprehensive comment document critiquing the BLM Bighorn Basin Draft RMP and EIS (RMP/EIS). The importance of the Final Bighorn Basin RMP/EIS to the LGCA and its constituencies cannot be overstated. Accordingly, the comments provided are based on comprehensive and thoughtful review of the RMP/EIS. Consideration and formulation of comments for additional documents important to the development of the RMP/EIS (e.g. Reasonable Foreseeable Development (RFD) scenarios) are also proffered by the LGCA.

1.1 KEY FINDINGS AND ISSUES

Review and comprehension of the RMP/EIS unveiled a multitude of deficiencies, inaccuracies, and generalizations grounded in aspirational philosophy, not recognized science, nor basis in fact. In its entirety, the RMP/EIS is 1,851 pages in length. Therefore, LGCA commentary is extensive and detailed. Thirteen resource and/or issue areas are the focus of discussion in the comment document composed by the LGCA. As duly elected County Commissioners and Conservation District Supervisors of Big Horn, Hot Springs, Park, and Washakie counties, the LGCA, in summary, has identified the following key findings and issues based on appraisal of the RMP/EIS.

1.1.1 Air Quality

- The Wyoming Department of Environmental Quality (WDEQ) is not given a seat at the table in the monitoring of air quality in the Bighorn Basin. Air quality and state-of-the-art monitoring is important to the LGCA. It is fundamental that the WDEQ is given primacy in monitoring of air quality in the Planning Area.

1.1.2 Cultural

- Cultural site and historic trail buffers are excessive. Alternative D buffers for cultural sites, national, and other historic trails would restrict or constrain resources uses on BLM that have yet to be identified. The BLM does not identify intact segments of historic trails nor do they identify cultural sites where the scene and setting is intact. The three mile buffer on cultural sites and the two, three, and five mile buffers (depending upon resource) of the historic trails shall be reduced and the BLM must identify exactly where the scene and the setting is intact in the Bighorn Basin to effectively analyze the economic impacts of these actions. If the BLM cannot produce intact segments of historic trails or properly identifying the cultural sites where the scene and setting is intact then the buffers for both resources will be eliminated.

1.1.3 Minerals

- There is no treatment or consideration of enhanced oil recovery potential in the Bighorn Basin. New drilling techniques and the use of CO_2 could significantly change the potential of the Basin to develop energy resources.
- Mineral potential in the Bighorn Basin is significantly underestimated in the RFD scenarios.
- Mowry Shale energy potential is not evaluated in the RMP/EIS. Beneficial economic impacts from Mowry Shale extraction would bring thousands of jobs and billions of dollars in revenue to the Bighorn Basin.

1.1.4 Fish

- Protective measures for fish include "intensively manage intermittent streams on a case-by-case basis." Intensive management measures for fish, or their need, are not disclosed and thus could unnecessarily hamper local governments and stakeholders.

1.1.5 Geographic Information Systems

- Geographic Information Systems (GIS) files provided to the LGCA include blank attribute table records, overlapping polygons of disparate management actions, and datasets that cannot be used to reproduce numbers in the RMP/EIS.

1.1.6 Lands with Wilderness Characteristics and Special Designations

- The Lands with Wilderness Characteristics (LWC) analysis conducted by the BLM is flawed, as it was based on incomplete or erroneous data. Designation of LWCs could potentially erase $1.9 billion of total potential output (gross present value) and 434 jobs annually during the drilling and completion process. The BLM did not identify structures within the LWCs that detract from wilderness characteristics. Using the BLM's own GIS data the LGCA identified 634 miles of roads, of which 518 miles are two track, 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, eight oil fields, 68 miles of oil and gas pipeline, eight active oil and gas wells, 59 plugged and abandoned oil and gas wells, and 248,315 acres (43%) have oil and gas leases. Since the release of the preceding, the LGCA conducted a local stakeholder review. Likely, these totals will be increased based on the incorporation of stakeholder review data. The BLM is required to identify structures based on their own guidance in BLM Manual 6301 and summarize and analyze the cumulative effects of structures on wilderness characteristics. Clearly, the BLM did not do so. The LWC inventory must be entirely revised using LGCA input and data.
- In review of the LWC Inventory conducted by the BLM, the LGCA sought guidance from BLM Manuals 6301, 6302, and 6303, as well as U.S. Department of Interior (USDI) Secretarial Order

3310. The preceding provide direction and guidance to the BLM in inventorying, considering, and designating LWCs and Wild Lands. Due to congressional action, Secretarial Order 3310 was rescinded by USDI Secretary Ken Salazar on June 1, 2011. Additionally, following the LGCA inventory review and confirmation, and during the RMP/EIS comment period, Instruction Memorandum (IM) 2011-154 was issued by the BLM on July 26, 2011. IM 2011-154 places into abeyance 6301, 6302, and 6303 "until further notice." The IM has an expiration date of September 30, 2012. Abeyance of the three manuals and Secretarial Order 3310 do not affect, in any manner, the LWC confirmation inventory completed by the LGCA, nor future participation in the LWC inventory process by local governments.

- Relevance and importance criteria used in the analysis of Areas of Critical Environmental Concern (ACEC) is generic and does not include data sets to confirm or deny the four noted importance criteria and the five relevance criteria.

1.1.7 Livestock Grazing

- Reductions in animal unit months (AUMs) are a result of management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations.
- Counter to existing BLM RMPs in Wyoming, the RMP/EIS discloses in the glossary that grazing is a "surface disturbing activities." Livestock grazing should not be considered a surface disturbing activity due to the onerous/nebulous requirements that such a designation would carry.

1.1.8 Over-arching Issues

- Acreage discrepancies are present within the RMP/EIS (e.g. vegetation resources).
- Historic and current condition data for the Planning Area are undisclosed and necessary for proper analysis of the alternatives.
- Resource management challenges identified by the BLM are subjective and overly qualitative. Consequently, groundless "management challenges" may lead to unnecessary constraints that adversely impact local governments, stakeholders, and multiple uses.
- Measurement indicators are missing for all resources, making it infeasible to conduct an effects analysis.

1.1.9 Socioeconomics

- The BLM did not conduct a public Economic Strategies Workshop, which allows the public to "identify desired economic and social conditions" and to "collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions."

1.1.10 Travel Management and Rights-of-Way

- Non-motorized use is characterized as superior to motorized uses.
- Rights-of-way (ROW) avoidance/mitigation areas are immense (941,778 acres – 2,717,617 acres), economically irresponsible, and not proven to be necessary or effective in protecting resources.
- Reclassification of travel restrictions from the current management standard that limits motorized use to "existing roads and trails" to the proposed "designated roads and trails" will have a significant adverse impact on energy development, grazing, and recreation uses by stifling access.

1.1.11 Vegetation

- Vegetation inventories are deficient, particularly invasive species inventories.

1.1.12 Visual

- It is unclear how Visual Inventory Classes and Visual Resource Management (VRM) classes were determined. Specifically, it is not clear how sensitivity levels were designated in the Inventory and it is not stated why some VRM classes were expanded from Alternative A to Alternative D.

1.1.13 Wildlife

- Actions proposed in the RMP/EIS may compromise the economic viability of working ranches to the degree those ranches are lost to subdivision, along with the valuable wildlife habitats they contain.
- Descriptions of wildlife species and habitats are based on perceptions, not qualitative and quantitative data.
- Implicit priority is given to wildlife and habitats over domestic livestock grazing.
- Recognition of elk parturition areas is not contained in current elk scientific literature. Yet, 205,872 acres of BLM-recognized elk parturition habitat would prohibit or restrict grazing, oil and gas development, and motorized access.

In total, the key findings and issues identified lead the LGCA to firmly assert that the RMP/EIS is inadequate in its current form. Of great concern to the LGCA is the overwhelming lack of both historic and current condition quantitative data in the RMP/EIS. A common theme commented on by the LGCA throughout the revision process has been, and continues to be, that the BLM is proposing management actions with associated constraints and restrictions on domestic livestock grazing, oil and gas development, and the travel management infrastructure without demonstrating cause and/or need. If the BLM can substantiate management challenges via data collection and analysis, then the LGCA, stakeholders, and the general public will have an opportunity to evaluate the accuracy of findings and

results. Should field data and corroborating research validate the need for an alteration of uses to protect the natural environment, the LGCA and stakeholders are willing to collaborate with the BLM to identify adaptive management strategies that are in the interest of all parties and Planning Area resources. Unfortunately, the BLM has largely ignored numerous requests by the LGCA, following review of previous iterations of the RMP/EIS and Analysis of the Management Situation (AMS), to increase the amount and use quantitative data and scientific literature in BLM-produced documents.

1.2 THE LGCA

Cooperation between government entities in the Bighorn Basin has always been strong. Individually and collectively they strive to make the social, economic, and political landscape amenable to the needs and desires of the citizenry. To that end, the four Bighorn Basin county governments and seven conservation districts formed the LGCA in 2008 in response to the Notice of Intent (NOI) to revise the Bighorn Basin RMP. Individually, Big Horn, Hot Springs, Park, and Washakie counties constitute 83%, 75%, 36%, and 97% of the Planning Area, respectively. The eleven government bodies which form the LGCA include:

- Big Horn County
- Cody Conservation District
- Hot Springs Conservation District
- Hot Springs County
- Meeteetse Conservation District
- Park County
- Powell-Clarks Fork Conservation District
- Shoshone Conservation District
- South Big Horn Conservation District
- Washakie County
- Washakie County Conservation District

The value of resource uses in the Bighorn Basin cannot be understated by the LGCA. The formation as cooperating agencies is intended to ensure that resource uses are not lost due to excessive protective management stemming from the RMP. It is expected that the RMP will guide management in the Bighorn Basin for 20 years, and the LGCA is intent on protecting traditional and non-traditional uses for the life of the RMP.

For generations, citizens of the Bighorn Basin have relied on natural resources to provide a sense of well-being both remuneratively and recreationally. Accordingly, analysis of employment potential conducted by the LGCA found that alternative selection will directly influence natural resource job creation and maintenance. Current management (Alternative A) and the agency-preferred Alternative D would lead to 1,121 or 1,050 annual jobs in the oil and gas sector, respectively. Additionally, the livestock grazing and recreation sectors would create 186 and 158 annual jobs under both alternatives. From those jobs, Alternative A and Alternative D would generate, over the 20-year planning period, $5.5 billion total, which equals $5.1 billion, $202 million, and $115 million from the oil and gas, livestock grazing, and recreations sectors, respectively. Employment and economic numbers such as those previously disclosed

are significant. The mission of the LGCA is to maximize resources uses compatible with resource protection so that employment and economic opportunities are plentiful in the Bighorn Basin.

1.3 STAKEHOLDERS

With the term "stakeholder" comes unique responsibilities. As a stakeholder, individuals or groups are granted standing to influence and shape land management decisions. The LGCA takes seriously the status of stakeholder and is ever cognizant of its importance. It is vital to the LGCA that individuals and/or groups do not abuse stakeholder-status and that it does not become a vehicle where anyone can gain the title and unduly influence land planning. Accordingly, the LGCA reached out to the BLM to strengthen the definition of stakeholder in the RMP/EIS. Presently, the definition of stakeholder in the RMP/EIS (Glossary-37) is as follows:

> An individual or group (such as local government) with a "stake" or interest in the success of delivering or maintaining the viability of a business's products and services. Stakeholders influence programs, products, and services (BLM 2009a).

On August 19, 2011, Caleb Hiner (Bighorn Basin RMP/EIS Project Lead) corresponded with the LGCA and propositioned the inclusion of a second definition of stakeholder in the RMP/EIS. The addition, which will become part of the current definition, reads as follows:

> Federal, state, or local governments and agencies, or other entities where a Memorandum of Understanding, Cooperative Agreement, Interagency Agreement, or other such agreement has been executed with the BLM, or an applicant for a BLM authorization or permit.

Appreciation is extended to Mr. Hiner for offering to strengthen the definition of stakeholder in the RMP/EIS that will ensure that the LGCA has a seat at the table in land planning decisions. Further, the revised definition will inhibit individuals or groups with ill-intent and no reasonable or rational "stake" in land planning decisions from gaining stakeholder-status. Such individuals or groups prefer engaging in litigious activities meant to hamstring land planning actions than compromise and honest debate. The LGCA supports the revised definition of stakeholder and finds that the BLM shall update the RMP/EIS with the new definition. Stakeholder is used throughout this comment document. It use and meaning is compatible with Mr. Hiner's proposed revision with one exception.

Record #6268, commensurate with Goals/Objectives LR:10.1 and LR:10.3, in the RMP/EIS (2-160) states the following:

> In cooperation, consultation, and coordination with permittees/lessees, cooperators, and other stakeholders, develop and implement appropriate livestock grazing management actions to enhance rangeland health, improve forage for livestock, and meet other multiple use objectives by using the Wyoming Guidelines for Livestock Grazing Management, other appropriate BMPs (see Appendices L and W), and development of appropriate range improvements.

The LGCA strongly urges the BLM to delete the word "stakeholder" from this Record #6268 and add the words "interested public." Interested public is an established term used in the livestock grazing portions of the Code of Federal Regulations (CFR) and this RMP must be consistent with existing regulations.

CFR 4100.0-5 includes a specific definition for interested publics. It is important to cite these regulations in the RMP:

> CFR 4100.0-5 Interested public means an individual, group, or organization that has:(1)(i) Submitted a written request to BLM to be provided an opportunity to be involved in the decision making process as to a specific allotment, and(ii) Followed up that request by submitting written comment as to management of a specific allotment, or otherwise participating in the decision making process as to a specific allotment, if BLM has provided them an opportunity for comment or other participation; or(2) Submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

Even though there is a definition of stakeholders in the glossary, stakeholders are not included in the grazing portion of the regulations and cannot be used in this RMP. The definition of stakeholders in the glossary can include anyone holding U.S. citizenship. The CFR regulations cited above require U.S. citizens to actively request involvement before being consulted on grazing management decisions and allotment management plans (AMP).

1.4 THE RMP/EIS PUBLIC PROCESS

On October 17, 2008 the BLM issued a NOI to prepare the Bighorn Basin RMP/EIS. Recognizing the importance of the RMP revision, individual members of the LGCA became involved in the process early to ensure that their interests would be well-served by the BLM. The eleven members of the LGCA entered into a Memorandum of Understanding (MOU) with the BLM previous to or shortly after the release of the NOI. The MOU granted LGCA members "cooperating agency" status in the RMP/EIS process and established procedures through which each county and conservation district and the BLM can participate on the BLM interdisciplinary team to conduct the analyses and develop the EIS.

1.4.1 Cooperating Agency Status

Council on Environmental Quality (CEQ) provides regulatory guidance for the implementation of the National Environmental Policy Act (NEPA). CEQ 1501.6 is the cooperating agencies section and states:

> The purpose of this section is to emphasize agency cooperation early in the NEPA process. Upon request of the lead agency, any other Federal agency which has jurisdiction by law shall be a cooperating agency. In addition any other Federal agency which has special expertise with respect to any environmental issue, which should be addressed in the statement may be a cooperating agency upon request of the lead agency. An agency may request the lead agency to designate it a cooperating agency.

Quite early in the process the BLM alerted the LGCA (January 29, 2009 meeting in Cody, Wyoming) that it was unnecessary for cooperating agencies to review and understand NEPA, FLPMA, CEQ regulations for implementing NEPA, the BLM Planning Handbook H-1601-1, and the BLM NEPA Handbook H-1790-1. Now, as then, the LGCA disagrees with that premise. Not only does the preceding help define and outline the role given cooperating agencies and the lead agency, but provide essential rules for how the planning process should be conducted.

As cooperating agencies, the LGCA has participated ardently in the review and development (when a participatory role was granted by the BLM) of documents related to the RMP/EIS. Although there have been disagreements between the two parties throughout the development of the RMP/EIS, and the LGCA does not believe they were fully involved in every step of the process, we do acknowledge and appreciate the relationship that has developed over the course of two and a half years with the BLM. The BLM Land Use Planning Handbook H-1601-1 states that "planning is inherently a public process." Without question the LGCA believes that planning is a public process and have done everything necessary to meet the obligations granted cooperating agencies.

1.4.2 **Public Meetings**

Interest in the Bighorn Basin RMP/EIS is evident by the voluminous number of comments expected to be received during the comment period and the number of public meetings conducted by the LGCA, BLM, and non-governmental organizations (i.e. Greater Yellowstone Coalition). During the two and a half year process, the LGCA has been involved in 37 interagency/interest group meetings spanning 2,739 hours. This figure only includes meetings up to the release of the Draft RMP/EIS. Since then the LGCA has accumulated significantly more hours of involvement in the process. When the BLM announced that it would conduct six public meetings throughout the Bighorn Basin in early June to discuss the RMP/EIS with the public, the LGCA determined it would conduct a separate set of meetings prior to the agency-sponsored forums. Holding a set of meetings sponsored by local government entities would not only provide citizens an additional setting to review and understand the RMP/EIS, but also afford the BLM an opportunity to attend meetings regarding their planning efforts in an alternate setting where they would not have to be facilitators, only participants or spectators.

Regrettably, in the seven meetings held by the LGCA (attended by 360 individuals (meeting sign-in sheets available upon request)), beginning May 24th in Thermopolis and ending June 1st in Cody, at only one meeting (Worland May 25th) did one BLM employee (Caleb Hiner, Bighorn Basin RMP/EIS Project Lead) attend. Only recently has it come to the LGCA's attention that BLM employees were instructed by the BLM Regional Director Eddie Bateson to not attend any of the meetings sponsored by the LGCA (pers. comm. Shockley Siggins). By intentionally not attending the cooperating agency public meetings on the Draft RMP/EIS review, the BLM has breached much of the inclusive guidance in the manuals and regulations (e.g. Federal Land Policy and Management Act (FLPMA), NEPA, CEQ, BLM Planning Handbook, Final Land Use Planning Rule in the Federal Register (Vol. 70, No. 55), and the BLM Contractor's Public Participation Plan).

The signed Cooperating Agency MOUs state under the "responsibilities of the BLM" (5) that: "the BLM will utilize the (County or Conservation District name) input and proposals to the maximum extent possible consistent with legal requirements and its responsibility as lead agency." By intentionally ignoring the seven public meetings (Thermopolis, May 24^{th,} 58 attendees; Ten Sleep, May 25th, 41 attendees; Worland, May 25th 32 attendees; Greybull 78 attendees; Powell May 31st, 51 attendees;

Meeteetse, June 1st, 26 attendees; and Cody, June 1st, 74 attendees) sponsored by the LGCA to review the RMP/EIS, the BLM violated the intent if not the letter of the MOUs. Section 6 of the MOU states:

> parties will cooperator in the development and *review* (emphasis ours) of any operating guidelines or agreements between (County or Conservation District name) or BLM and other entities involved in the EIS for Bighorn Basin RMP effort which might affect the environmental analysis and writing of the EIS. BLM and (County or Conservation District name) agree to meet on issues concerning the EIS at the request of either party.

The BLM was invited to attend the LGCA meetings with several commissioners extending a personal invitation. The BLM's blatant disregard of the local governments sponsored meetings is inexcusable. The BLM Planning Handbook (H-1601-1, p.2-3) identifies the importance of public and intergovernmental involvement in the planning process by defining and describing the four important elements: 1) coordination, 2) cooperation, 3) consultation, and 4) collaboration. By deliberately neglecting public concerns discussed at the local government sponsored meetings, the BLM violated the coordination, cooperation, consultation, and collaboration requirements.

It would have been in the best interest of the agency and the public if the BLM would have attended, as the meetings were highly objective, informative, and civil. The 360 attendees of the LGCA meetings had and have valid interests and concerns unlikely captured in the BLM content and comment analysis. The fundamental planning concerns by interested attendees were dismissed by the BLM and clearly articulated by the Regional Director's decision to forbid BLM from observing and listening to stakeholders in local meetings. The fact that the BLM sponsored meetings were round tables, without the benefit of presentations or available forums to publically comment, made the BLM meetings unnecessarily confusing. One participant in the Worland meeting, while waiting for BLM personnel to finish a non-stakeholder discussion, left a note which read "this is confusing."

The LGCA believes that portions of the process have allowed effective participation, while other steps in the public planning process have been woefully inadequate. As local county commissioners and conservation district staff and supervisors, the LGCA has continually stated opposition to the closed planning meetings. The BLM's perspective is understandable, that closed meetings are necessary to allow open and forthright discussion. However, many members of the LGCA have participated in other federal public land planning efforts that have been open to the public and benefited from the openness. While these meetings are occasionally chaotic, they do offer a transparent view of the public land planning process.

Undeterred by the lack of participation by the BLM in the cooperating agency-sponsored meetings, the LGCA enthusiastically attended meetings held by the BLM in early to mid-June. Total attendance for the seven BLM public meetings was 252 (total includes BLM employees). To the LGCA's disappointment, the meetings were lacking in depth. The BLM, rather than discussing the elements of the Plan and alternatives in a group setting, set up informational booths where different components of the Plan were outlined by agency employees. Such a format was not conducive to group discussion and participation. As formatted, the BLM-sponsored meetings offered no opportunity to compare alternatives, which would

have afforded participants the ability to understand how the action alternatives would alter management. Given the size of the RMP/EIS (1,851 pages), it is fundamentally inaccessible to the general public. The BLM did a disservice to the public, and in fact the agency, by not conducting open forum meetings utilizing multimedia platforms and active participant interaction to accurately disclose the impacts of the EIS by alternative and in comparison to current management. It marginalized opinions and in no way facilitated a greater understanding of public sentiment toward the RMP/EIS. FLPMA, Section 103(d), states:

> The term "public involvement" means the opportunity for participation by affected citizens in rule making, decision making, and planning with respect to the public lands, including public meetings or hearings held at locations near the affected lands, or advisory mechanisms or such other procedures as may be necessary to provide public comment in a particular instance.

Further, Section 202(f) of FLPMA, states:

> The Secretary shall allow an opportunity for public involvement and by regulation shall establish procedures, including public hearings where appropriate, to give Federal, State, and local governments and the public, adequate notice and opportunity to comment upon and participate in the formulation of plans and programs relating to the management of the public lands.

It is the contention of the LGCA that the format of the public meetings sponsored by the BLM, while meeting the minimum requirements of the law, did not provide adequate opportunity to participate in the formulation of the RMP/EIS.

1.5 FEDERAL LAWS, POLICIES, REGULATIONS

Federal laws, policies, and regulations are emplaced by Congress to ensure that federal agencies involved in land use planning documents produce quality work and release documents that will stand up to legal challenge. These laws and policies enable public involvement and participation in public land use planning documents and set the guidance for procedures to be followed by federal agencies. BLM handbooks, CEQ, FLPMA, and NEPA set precedence for compliance with federal laws, policies, and regulations. The following section will document how the BLM has neglected to adequately comply with multiple federal laws, policies, and regulations.

1.5.1 BLM Handbooks, CEQ, Data Quality Act, FLPMA, and NEPA

In accordance with FLPMA, the BLM is currently revising and combining three RMPs for the Cody and Worland Field Offices in Wyoming. NEPA, guided by CEQ regulations, mandates that the BLM prepare an EIS to analyze the impacts of the proposed RMP in the Planning Area. The BLM Land Use Planning Handbook H-1601-1 guides BLM personnel in the development of planning documents, while the BLM NEPA Handbook H-1790-1 works to ensure that the agency is compliant with both NEPA and CEQ regulations. It is the opinion of the LGCA that the RMP/EIS, and the development process leading up to the release of the draft version, has inadequately followed guidance and regulations found within BLM Handbooks, CEQ, FLPMA, and NEPA. As outlined in preceding sections, the LGCA asserts that the role

and authority given to cooperating agencies in guidance documents and federal regulations has not been fulfilled. Section 1.7 of this document discloses a failure of the BLM to meet the requirements of CEQ 1502.15 Affected Environment and 1502.22 Incomplete or Unavailable Information.

1.5.1.1 *Data Quality Act*

In reviewing the RMP/EIS, as well as maps and data disseminated by the BLM during the RMP revision process, it is clear that there are several issues with data and information presented as fact by the BLM. The hierarchy of federal requirements, as existing in statutes, rules and regulations, case law, and agency handbooks and manuals was reviewed and, in fact, corroborates that the BLM inaccurately used and presented data and information. It is for this reason that the LGCA asserts that the BLM must recognize and correct factual errors as required by the Data Quality Act (DQA) of 2000. The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information.

The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information. The uncodified DQA, as it amends the Paperwork Reduction Act of 1980, is intended to prevent harm from the dissemination of inaccurate information. Public Law 106-544 Section 515 led to the publication of DOI and BLM guidelines for data quality and integrity. DQA guidelines (FR Vol. 67 No. 36) required all federal agencies to provide the following:

- By October 1, 2002, issue its own information quality guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information that it disseminates.
- Establish administrative mechanisms to allow affected persons to seek and obtain correction of information maintained or disseminated by the agency that does not comply with OMB or agency guidelines.
- Report periodically to OMB the number and nature of complaints received by the agency regarding the accuracy of its information and how such complaints were resolved.
- Ensure that influential information, such as that used in the preparation of resource management plans, be characterized by reproducibility and transparency.

Specific examples of incorrect or inaccurate data in the RMP/EIS that fail to meet the requirements of the DQA include:

- Improper or incomplete inventory of LWCs as is illustrated in Appendix A. Note that the LWC inventory and maps have been presented during public meetings. There are numerous specific references to incorrect information provided by the BLM in Appendix A.
- The BLM LWC Inventory is flawed. The BLM did not include any GIS data for structures detracting from wilderness characteristics in inventory forms or on maps. Refer to Appendix A for more detail on this issue.

It is not possible to recreate maps and information based on information provided in the RMP/EIS. Therefore, the BLM must better describe and disclose methodologies and correct GIS data issues. Additionally, the following databases distributed to the LGCA have several problems and apparent conflicts with data presented:

- Travel Management: Blank records in the GIS attribute table for Alternative D. RMP vs. GIS acres do not match.
- Mineral Constraints: Alternative D Mineral Constraints is missing all records for the "Standard Constraints."
- Withdrawals: Alternative A GIS files contain blank records in the GIS attribute tables. Acres do not match those in the RMP.
- Rights-of-Way Avoidance and Exclusion: GIS file contained overlapping areas resulting in conflicting management in the same areas. This also results in incorrect acres.
- Recreation Management Areas (RMAs): Both Alternative A and D GIS files do not show a complete data set of all RMAs included in the RMP.
- Geothermal Constraints: GIS files contain overlapping polygons resulting in conflicting management in those areas and double counting of acres in GIS.

It is for the highlighted examples of data quality issues in the RMP/EIS provided above that the LGCA asserts that the BLM must recognize and correct factual errors as required by the DQA. The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information. The BLM, in preparing the RMP/EIS, failed to abide by the provisions of the DQA.

1.6 BIGHORN BASIN COUNTY AND CONSERVATION DISTRICT LAND USE PLANS

LGCA members believe that the BLM has ignored in the RMP/EIS numerous stated policies and goals included in the Big Horn, Hot Springs, Park, and Washakie Land Use Plans and Meeteetse, Cody, Hot Springs, Powell-Clarks Fork, Shoshone, South Big Horn, and Washakie County Conservation District Land Use Plans. In not addressing inconsistencies between the RMP/EIS and County and Conservation District Land Use Plans, the BLM is in violation of CEQ Section 1506.2 – Elimination of Duplication with State and Local Procedures. The counties and conservation districts have consistently stated that they favor continued multiple use and disfavor reducing access to public lands for a variety of purposes. Nevertheless, the BLM-preferred alternative in the RMP/EIS includes LWCs that potentially reduce or eliminate significant acreage available for oil and gas leasing even though the BLM LWC inventory included lands that contain significant development including roads, pipelines, oil and gas wells (active and abandoned), reservoirs, fences, and grazing improvements. The LGCA LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics.

The LGCA fully supports the goals of multiple use and sustained yield, balancing increasing and competing demands for resources on public lands while serving the best interests of the residents of the Bighorn Basin. Implementation of multiple uses through a combination of elements selected from Alternative A, B, C, and D, which would work to strike an appropriate balance between traditional and

non-traditional resource uses and recreational use/conservation, is the goal of the LGCA. Alternative B and D, in particular, restrict certain multiple uses (e.g. resource extraction, grazing, and travel management designations) across much of the Planning Area, which is contradictory to the stated goals of the BLM, as well as the policies set forth in the county and conservation district land use plans.

With respect to projections of oil and gas development in the RMP/EIS, the LGCA believes that the BLM significantly underestimated the potential for recent and upcoming technologies to develop existing resources. This position is backed up by letters and comments from those in the industry (see Mineral Resource discussion and comments). The number of acres administratively unavailable to oil and gas leasing increases from approximately 155,000 under current conditions (Alternative A) to over 290,000 acres under the BLM-preferred alternative (Alternative D). This is not consistent with the goals and policies of any of the county and conservation district land use plans.

1.7 GIS DATA

GIS has emerged at the forefront as one of the most important tools in land use planning. Analysis for all resources, spatial locations, and acreage calculations rely heavily on GIS. It is disconcerting to see significant inconsistencies and inaccuracies in GIS data in an RMP/EIS that will guide management on 5.6 million acres for 20 years. The Bighorn Basin RMP will have major impacts to the local communities and stakeholders in the Bighorn Basin. Inaccuracies in the RMP/EIS need to be acknowledged and fixed prior to the release of the Final RMP/EIS.

The analysis processes, shapes, and acreages contained within the RMP/EIS GIS data should be complete, accurate, and highly reproducible. The DQA (Public Law 106-554, §515) requires Federal agencies to ensure that influential information, such as that used in the preparation of resource management plans, be characterized by reproducibility and transparency. The RMP/EIS GIS data does not meet these requirements. Significant coordination between the LGCA (via the consulting firm Ecosystem Research Group (ERG)) and the BLM was required to work through several GIS-related issues. A number of issues were resolved, but many major data issues remain unresolved. Coordination by ERG's highly skilled GIS staff should not be required to use data to recreate acreages and analysis. The definition queries for selection processes should have been thoroughly tracked in GIS, or at the least in a text document. Again, this did not occur.

GIS data sets and methodologies should be in the administrative record for the RMP/EIS. GIS files that match the acreages in the RMP/EIS also need to be included in the administrative record. The files that the BLM supplied to ERG do not match information in the RMP/EIS. Proper documentation of GIS methodologies is required to recreate analyses and acreages reported in the RMP/EIS. Two options to document GIS analysis and definition query processes when conducting GIS analysis surrounding public land use policies and projects are as follows:

- A complete library of the original GIS data sets with completed geometry and attribute information is required. The library would be supplemented by a text document clearly outlining

the definition queries and selection processes documented in order to recreate the analysis processes performed by ICF International (BLM contractor working on the RMP/EIS) to arrive at the acreages and conclusions reported in the RMP/EIS. Metadata for all GIS files should be complete according to the Federal Geographic Data Committee (FGDC) guidelines.

- A more common and simplistic approach is to set the definition queries or selection process, run the analysis processes, and export them into new, final analysis GIS files and disseminate those to the public or cooperating agencies. All appropriate metadata needs to be completed under the FGDC metadata guidelines for all original and final analysis files.

At least one of the two options for documenting GIS analysis should be included in the project's administrative record. These methodologies are standard protocol for GIS professionals.

1.8 RESOURCE AREAS ANALYSIS

Plainly stated, the LGCA is disappointed with the lack of depth provided by the BLM in analyzing the resource areas discussed below. It is our contention that the RMP/EIS in its present iteration is incomplete in numerous capacities. Chapter 3 – Affected Environment describes the current condition in such general terms it leaves the LGCA questioning the existing state of the natural environment. Is it above average with minor problems or below average condition with significant issues? The stated problem with Chapter 3 is that it lacks critical scientific substantiation through data and research. This is true for both current and historic conditions. The many unanswered questions, as well as overwhelming skepticism regarding statements advanced in Chapter 3, continue into Chapter 4 – Environmental Consequences.

Following a brief introduction, Chapter 4 discloses methods and assumptions for each respective resource. To be factual and accurate, the RMP/EIS should title the sections "Assumptions" and remove "Methods." The term method suggests that it is a standard operating procedure carried out numerous times previously in the biological, physical, and social sciences for deriving an end point. As such, the method has been published, tested by researchers and scientists, and substantiated as a "best" method. In the case of the RMP/EIS, the end point should be an effects conclusion. Yet, the supposed methods in the RMP/EIS are not clear, referenced, or appreciably used to make effects determinations. A concurrent dilemma with having insufficient methods is that Chapter 4 does not divulge measurement indicators. Both methods and measurement indicators are indispensable in an EIS. Measurement indicators define the variable(s) most likely to impact, negatively or positively, a resource upon plan implementation. Sans methods and measurement indicators, an EIS is ineffectual.

The previously identified issues regarding lack of data and analysis to support management actions in the RMP/EIS, which are based on lack of baseline or historical conditions, violate CEQ Section 1502.15 Affected Environment which states:

> The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues. Verbose descriptions of the affected environment are themselves no measure of the adequacy of an environmental impact statement.

The RMP/EIS does not adequately describe the environment of the area. Baseline and historical condition descriptions are not found within the RMP/EIS. Data, analysis, and references supporting major management action decisions are negligent and not commensurate with the importance of the impacts resulting from such management actions.

Information missing from the RMP/EIS is extensive and varying in degrees of absence (from wholesale nondisclosure of historic, baseline, and existing conditions and quantitative effects analysis to repeatedly not referencing with citation(s) what is portrayed as statement of fact). CEQ regulations speak directly to the inclusion or exclusion of "incomplete or unavailable information" in Section 1502.22:

> When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.
>
> (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

Part B of CEQ 1502.22 covers the necessary steps to be taken if overall cost would be exorbitant to obtain incomplete or unavailable information. Because cost to obtain a significant majority of the missing information in the RMP/EIS would not be exorbitant, Part A of CEQ 1502.22 is relevant. By violating CEQ1502.22, the BLM produced a NEPA document out of compliance and ineffectual in guiding management action in the Planning Area.

As such, the LGCA is gravely concerned that management actions in the future will unduly restrict or prohibit multiple uses in the Planning Area for the next 20 years. In the proceeding subsections, the LGCA summarizes the most egregious findings and conclusions for each resource area in the order in which they are presented in the RMP/EIS. Following discussion of resource areas, the LGCA offers mitigation/corrective actions that work to protect multiple uses, local governments, stakeholders, and citizens in the Bighorn Basin.

1.8.1 **Air Quality**

The LGCA in interested in seeing that the BLM use reasonable planning measures for the protection of high-quality air resources and to maintain compliance with laws and regulations, while encouraging development of natural resources throughout the Basin. Without question, to do such the BLM will give the WDEQ primacy over air quality monitoring in the Bighorn Basin. In its current incarnation, the RMP/EIS does not fulfill these goals. Generally, the LGCA requests that changes in the air quality

monitoring process, administered by the WDEQ, be made in order to fully characterize the current and future air quality conditions. Please refer to the more detailed comments for additional deficiencies in the RMP/EIS.

1.8.2 Geologic Resources

Given that management of geologic resources primarily focuses on the preservation of unique features such as paleontological resources, fragile, easily eroded features, and scientifically important strata, these features are evaluated in the Heritage and Visual Resources and Special Designations and Other Management Areas of the RMP/EIS. Therefore, the LGCA offers any pertinent geologic comments in the sections discussing the aforementioned resource areas.

1.8.3 Water

Regarding water resources, the LGCA has several concerns with the RMP/EIS. First, the AMS listed three indicators for water: (1) chemical characteristics, (2) physical characteristics and (3) biological characteristics. Yet none of the indicators is mentioned in the RMP/EIS and no baseline information regarding the indicators is provided in Chapter 3 of the RMP/EIS. Furthermore, in order for there to be adverse impacts to water resources, there must be demonstrated negative impacts as measured by indicators. Without the presence of baseline data pertaining to chemical, physical, and biological characteristics, it cannot be demonstrated that adverse or positive impacts would occur as a result of any alternative action.

Accordingly, the BLM will give water quality monitoring responsibilities to the WDEQ. During the life of the Plan, the WDEQ will collect and analyze baseline data related to the indicators for water of physical, chemical, and biological characteristics of surface and groundwater in the Planning Area. Following collection of baseline data, the WDEQ will actively monitoring water quality in the Bighorn Basin and compare and contrast current data with baseline data.

1.8.4 Mineral Resources

It is imperative to the LGCA that the occurrence and development potential and impacts analysis for mineral resources in the Planning Area are accurately and fully disclosed in the RMP/EIS. In particular, it is important that the projected oil and gas development potential be accurately characterized, as this will allow for effective long term management and planning. Given the high level of importance concerning both the beneficial and detrimental impacts associated with energy development, the RMP/EIS should thoroughly address the likely increase in demand over the 20-year planning period and the increase in development that recent advances in technology will yield.

The RMP/EIS states under Section 4.2.5 Leasable Minerals – Oil and Gas (pg. 4-55) the following:

> The potential for oil and gas occurrence in the Planning Area ranges from high to low, depending on location, as documented in the Reasonable Foreseeable Development Scenario (RFD). The

> RFD for oil and gas in the Planning Area analyzed the potential for anticipated drilling activity over the next 20 years. Lands in the Planning Area are classified as having moderate to no potential for development of oil and gas resources, depending on location and based on projected drilling densities (BLM 2009u). Drilling in existing fields accounts for a large proportion of the growth, with a lesser share attributed to additional new discoveries in both conventional and unconventional reservoirs.

However, it is documented in Figure 40 of the Draft Bighorn Basin RFD, and cited in the RMP/EIS, that 92 percent of the Planning Area is classified as high occurrence potential for oil and gas (USDI 2009a). While it is appropriate to use past drilling densities in part to establish a baseline for development potential, it is incorrect to disregard the high occurrence potential throughout the Planning Area.

It is further stated under RMP/EIS Section 4.2.5.1 Methods and Assumptions (pg. 4-56) that:

> The unconstrained baseline RFD for oil and gas in the Planning Area is based on a set of reasonable geologic, engineering, and economic assumptions about resource occurrence only, and past and present activity, without management constraints on future activities….In addition, because the RFD is a snapshot in time, it cannot capture how future advances in technology may make it possible to exploit certain oil and gas plays in the future that are currently not economical or commercially exploitable.

Yet, recent oil and gas discoveries and comparisons of past assessments indicate that there needs to be an accounting of advances in technology. For example, in 1995 the United States Geological Survey (USGS) reported that the Williston Basin contained 150 million barrels of recoverable continuous-type oil accumulations (Attanasi 1998). In 2008, the USGS estimated continuous oil reserves at a total mean resource of 3.65 billion barrels of oil for the province (USDI 2008).

The RMP/EIS posits that management direction for oil and gas leasing be based on past drilling densities disclosed in the RFD and, in doing so, may significantly underestimate the development potential of recoverable oil and gas resources within the Bighorn Basin. Therefore, the impacts to oil and gas resources are most likely miscalculated, which in turn leads to insufficient analysis from many other resources listed in the RMP/EIS.

1.8.5 **Fire and Fuels**

The RMP/EIS presents actions common to all alternatives that include prescribed burning, hazardous fuel reduction in WUIs, and protection of facilities and habitable structures from wildfire. The LGCA supports these actions to the extent that the economic value of marketable timber or goods is not lost to prescribed wildfire. The LGCA questions the long-term viability of suppressing fire in greater sage-grouse habitat since sagebrush systems have evolved with fire. Also, as noted in the RMP/EIS, the long-term effects of suppressing fire would likely result in higher fuel loadings and increased fire severity and behavior. The fire and fuels analysis could benefit from a better explanation or quantification of fuels conditions. In its current form, there is only a cursory discussion of the existing condition of fuels.

1.8.6 **Vegetation**

It is essential to the LGCA that the vegetative resources in the Planning Area are accurately and fully disclosed in the RMP/EIS. The vegetation sections of the Draft Bighorn Basin RMP/EIS are consistently incomplete, contradictory, and unclear. An Affected Environment chapter should comprehensively disclose resources, spatially and tabularly, describe historic vegetative processes and conditions, and then make the case for management affecting current conditions. With this foundation set, the Environmental Consequences section can clearly describe how management will direct resources towards desired conditions. This is not the case with the Bighorn RMP/EIS. The LGCA feels very strongly that the RMP/EIS vegetation section is inadequate as a basis for making management decisions with far-reaching, both spatial and temporal, ramifications.

Within the Invasive Species and Pest Management section there is nearly nonexistent disclosure of relevant field-verified data. The most glaring deficiency within this subject area is that only 10% of the Worland Field Office has been inventoried for invasive nonnative annual bromes. Clearly an EIS cannot accurately analyze the impact of invasive species when only 10% of the Worland Field Office has been inventoried. Prior to finalization, the BLM must conduct a new, expanded inventory and reanalyze impacts.

1.8.7 **Fish**

Throughout the RMP/EIS, there are many terms and practices regarding fish resources that are not defined or described. The issues have been highlighted where clarification is needed, including questions that will assist in better identifying where such information is lacking.

1.8.8 **Wildlife**

Wildlife species descriptions, analysis, and findings/conclusions in the RMP/EIS are best described as intuitive and aspirational. For instance, under the subheading "Management Challenges" in section 3.4.6 Fish and Wildlife Resources – Wildlife of the RMP/EIS (pg. 3-98), the following is stated:

> Management challenges for big game species include poor habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species. The WGFD monitors disease in big game species. The BLM and the WGFD continually coordinate and evaluate actions affecting herd units and habitat conditions to determine the appropriate management direction.
>
> Big game species that depend on woody plant communities (e.g., pronghorn, mule deer, and moose) are generally declining in numbers due to a decline in habitat quality and quantity. Species that depend on herbaceous plants (e.g., elk and bighorn sheep) generally have stable or increasing populations.

The statement that "habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of

livestock grazing management on the frequency, quality, and composition of key forage species" may be true to varying degrees. However, the preceding statement, as well as the inadequate Affected Environment summaries of individual species, provides an egregious lack of data and research to support such conclusions. For instance, if woody plant communities for pronghorn, mule deer, or moose have indeed declined, the Affected Environment should identify the key variables and provide quantifiable data to show baseline conditions compared against historic conditions (which are also not disclosed in the RMP/EIS) that would support such a contention. Under CEQ 1502.22 – Incomplete or Unavailable Information, the BLM has a duty to provide relevant information unless it is proven to be unattainable or the agency would incur exorbitant costs to obtain the information. Neither of which are the case in this circumstance.

Recognizing the mandate outlined in CEQ 1502.22, the LGCA requires that the BLM qualify and quantify the aforementioned management challenges for big game species prior to any management decision(s) that alter or minimize allotment management plans or allotments, road-use designations, oil and gas activities, or additional multiple-use activities. At present, the BLM could choose to alter grazing allotments, road designations, hunting units, etc. as a rationale for improving big game habitat based on exceedingly inadequate and incomplete information. The effects of such could have detrimental social, economic, and political impacts.

It is disconcerting to the LGCA that impacts to wildlife from predation in the Bighorn Basin are minimized and whitewashed in the RMP/EIS. Predators, including gray wolves and grizzly bears, have adverse impacts to big game in the Bighorn Basin. The RMP/EIS states that management challenges to big game include (RMP/EIS pg. 3-98):

> habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species.

Note that predators and predation are not listed as a management challenge for big game. The BLM must acknowledge, account for, and analyze the predation of big game species in the RMP/EIS.

1.8.8.1 *Special Status Species – Wildlife*

Greater sage-grouse receives the greatest focus in the Special Status Species – Wildlife section. As a federally-designated candidate species, BLM special status species, and important resource in the Bighorn Basin, the LGCA acknowledges that certain protections for greater sage-grouse are warranted. Without protective measures, greater sage-grouse may be elevated to threatened or endangered status, drastically reducing multiple-use options in the Bighorn Basin. The LGCA understands the constraints that are associated with threatened and endangered species status and understandably strive to avoid such an outcome. State-of-the-art mitigations (controlled surface use, timing limitations, lek buffering) are available to ensure that effects to greater sage-grouse from oil and gas activities are significantly minimized. To that point, greater sage-grouse populations in the Bighorn Basin are healthy and select

members of the LGCA assert that mitigations are excessively restrictive and applied too broadly, discouraging resource use and development.

The discussion of greater sage-grouse in the RMP/EIS Affected Environment is deficient, rendering impossible proper analysis of impacts disclosed in Environmental Consequences. First, management challenges are not isolated, but amalgamated. As with big game, the RMP/EIS provides a laundry list of challenges facing greater sage-grouse (pg. 3-111):

> There are many sources of habitat fragmentation, all of which may affect the greater sage-grouse. Industrial development, livestock and wildlife grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects and other activities may cause an artificial component to a natural habitat condition. Structures such as powerlines and towers and industrial disruptive activities may cause avoidance and abandonment of habitat. Livestock grazing, fuels treatments, and weed spread infestations are factors which may cause habitat degradation depending upon severity, intensity, and design. West Nile virus, which recently has had lethal effects on greater sage grouse in parts of Wyoming, could become an important factor in greater sage-grouse survival. There has been little research to document the presence of the virus and its effect on greater sage-grouse in the Bighorn Basin.

Again, as with big game, the RMP/EIS does not include predation as a management challenge facing greater sage-grouse. Certainly predation is one of many factors affecting greater sage-grouse in the Bighorn Basin. In the opinion of the LGCA it is disingenuous of the BLM to not include predation in the list of stressors affecting greater sage-grouse.

Finally, as it pertains to greater sage-grouse, guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, not arbitrary Key Areas constructed by the BLM, and provides adaptive management principles for the species, shall be implemented by the BLM. Unequivocally, the LGCA supports Executive Order 2011-5.

1.8.9 **Wild Horses**

Wild horses in the Planning Area are a nonnative species that negatively impacts resources and resource-uses. The Affected Environment discussion of wild horses states that population growth is expected at a 15% annual rate. But, in Environmental Consequences – Methods and Assumptions, it is stated that the number of wild horses would increase by 18% annually. As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the Wild Free-Roaming Horses and Burros Act (WFRHBA) are met. Should any expansion of wild horses occur, which is not mandated by the WFRHBA and thus unnecessary, this expansion must result in no reduction in livestock AUMs.

Coinciding with management objectives outlined in the WFRHBA, the LGCA asks that the BLM continues compliancy with the 2003 Consent Decree signed between the Wyoming Attorney General and the Assistant Attorney General, Environmental and Natural Resources Division, U.S. Department of Justice. Currently wild horses in the Planning Area are within the mandated appropriate management

level (AML) range established in the Consent Decree. Yet, the LGCA's stated position is that wild horse populations should be further reduced to a total head that is at or near the minimum AML.

1.8.10 Heritage and Visual Resources

Comments regarding Heritage and Visual Resources are focused on cultural and visual topic areas.

1.8.10.1 *Cultural*

Cultural features are one of the many unique elements of the Bighorn Basin. The LGCA acknowledge the importance of cultural artifacts and sites, but are distressed by the constraints associated with this resource. Concerns related to cultural resources are in regard to the significant buffers around important cultural sites, potentially precluding surface disturbing activities over tens of thousands of acres in the Planning Area. The LGCA is also concerned that the BLM may work to protect portions of historic trails in areas where there is no on-the-ground locatable evidence of such historic trails. It is the position of the LGCA that appropriate mitigation measures can be employed that would protect cultural resources without precluding development on surrounding lands.

1.8.10.2 *Visual*

With respect to Visual Resources, most of the comments relate to ambiguous determination of the Visual Inventory Classes and the Visual Resource Management (VRM) classes. Specifically unclear is the sensitivity levels in the inventory and why several VRM classes were expanded from Alternative A to Alternative D (e.g. Sheep Mountain Anticline).

1.8.11 Land Resources

Comments regarding Land Resources are focused on rights-of-way, corridors, and travel management, recreation, LWCs, and livestock grazing.

1.8.11.1 *Rights-of-Way, Corridors, and Travel Management*

The LGCA is very sensitive to changes in access and potential for resource uses as a result of land resource management actions. Of particular concern in the RMP/EIS is the change in travel restrictions that would limit motorized use from the current management standard of "existing roads and trails" to the proposed "designated roads and trails," which will have a significant adverse impact on energy development, grazing, and recreation uses by stifling access. While the issues that precipitate restrictions in renewable energy development, general rights-of-ways, or travel management are covered under the relevant resource sections, the LGCA requests that more information be included in the Land Resources section that cross-references the rationale for proposed change. With expanded descriptions of decisions which affect land resources, a fuller understanding can be reached concerning the variations between alternatives and, ultimately, the future actions undertaken in the Planning Area.

1.8.11.2 *Recreation*

Common throughout the sections addressing Recreation Resources is that statements are made with little or no supporting research or citations. The BLM must address and correct statements advanced in the Recreation Resource discussion prior to any alteration of recreational pursuits in the Planning Area.

1.8.11.3 *LWCs*

Section 201 of FLPMA directs the BLM to inventory for LWCs. Prior to the Bighorn Basin RMP revision, the Cody and Worland Field Offices of the BLM inventoried for LWCs. When reviewed by the LGCA, skepticism arose about the wilderness characteristics, or lack thereof, contained within the areas. Given the vast local knowledge of the areas by LGCA members, there was skepticism of the designations based on roads and structures known to be present. The LGCA directed ERG to conduct a confirmation inventory of LWCs.

ERG used BLM GIS data for roads, range improvements, oil and gas fields, and data from other agencies such as the Wyoming Pipeline Authority and the Wyoming Oil and Gas Commission to inventory structures within the BLM-defined LWCs that detract from wilderness characteristics. The BLM ignored their data and other readily available data sources for structures when designating LWCs. Objections to the LWC designations from BLM resource specialist were documented on signature sheets and refuted during the designation process.

The LGCA/ERG LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics. In the 3.2 million acres, the BLM has identified 56 LWC areas comprising a total of 571,000 acres. Within 571,000 acres there are 634 miles of roads, of which 518 miles are two-track, 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, eight oil fields, 68 miles of oil and gas pipeline, eight active oil and gas wells, and 59 plugged and abandoned oil and gas wells (248,315 acres (43%) have oil and gas leases). Following the release of the BLM's inventory findings, the LGCA conducted a local stakeholder review. Additional features detracting from wilderness characteristic were identified during the stakeholder review. Based on both the BLM and LGCA inventory processes, the LGCA does not support the BLM's designated LWCs in the Planning Area. In addition, the LGCA has requested the BLM to initiate a new inventory process and postpone indefinitely the management of LWCs until a comprehensive and objective inventory is completed.

1.8.11.4 *Livestock Grazing*

The RMP/EIS states that the current AUMs of 305,887 acres will only be reduced by 1–2% over the life of the RMP. However, according to the RMP/EIS, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts

disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that "when rangelands are not meeting resource objectives, the BLM implements changes in grazing management". There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160–162) that state management must be consistent with "other resource objectives," but does not disclose which resources or objectives. The other resource management actions could have significant impacts to livestock grazing, but are not disclosed in the RMP/EIS.

1.8.12 Special Designations and Other Management Areas

The BLM produced and released a Draft ACEC Report on February 26, 2010. Although this report was never finalized, the BLM has carried forward a number of the ACECs in the Draft RMP/EIS. The LGCA's overarching concern with any ACEC is the fact that this designation focuses on the often-undocumented environmental values of an area to the potential detriment of other uses, and thus narrows management flexibility. In Appendix F, page F-4, ACEC designation is described, appropriately, in the same sentence as wilderness study areas, another management classification with stringent constraints.

> Unlike other special designations, such as wilderness study areas (WSAs), the designation of an area as an ACEC does not by itself automatically prohibit or restrict other uses in the area (with the exception that a mining plan of operation is required for any proposed mining activity within a designated ACEC). However, to be considered for designation, special management beyond the standard provisions established by the RMP must be required to protect relevant and important qualities.

The LGCA believes that ACEC designations are but another affront to the congressionally-mandated multiple use and sustained yield direction for public lands. The RMP notes in Appendix F (pg. F-4) that the nomination process can be accomplished by the public or by BLM staff. The LGCA believes that any ACEC nomination by the public during the scoping process needs to be weighed against competing and valid arguments to minimize management restrictions including ACECs within the Planning Area.

However, the negotiated agreement regarding the Absaroka Front Management Area (AFMA) (coined Alternative D-3 at the time), which allows constrained energy development on 402,690 acres, as well as proposing ACECs within AFMA, is supported by the LGCA. ACECs anywhere else in the Bighorn Basin are not supported by the LGCA, only those within AFMA.

1.8.13 Socioeconomics

The Socioeconomic sections of the RMP/EIS were analyzed in terms of how well the BLM utilized Appendix D of the BLM Land Use Planning Handbook and the adequacy of the data used in the impacts analysis. The following findings guide the analysis of the individual sections:

- The BLM failed to conduct the required economics workshop, which allows the public to "identify desired economic and social conditions" and to "collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy

decisions." This failure has lead to a disconnect between the concerns of the communities of the Planning Area and the BLMs socio-economic analysis.

- The impact analysis does not satisfy Table D-3 of Appendix D. In particular, the impact analysis does not describe or quantify impacts to particular communities (the geographic dispersion of impacts).
- The RMP/EIS lacks adequate data from other resource areas, in particular, mining and grazing. By underestimating potential effects from these areas the BLM and the LGCA are missing an opportunity to develop policies and mitigations should there be an oil and gas boom or a vast reduction in AUMs due to restrictions on land use.

1.9 MITIGATIONS

Each of the resource areas discussed previously, and in more detail in the full comment document, is substantially devoid of critical information. As such, the LGCA has formulated a set of mitigations/corrective actions to address inadequacies in the RMP/EIS. This is a proactive approach to inhibit the BLM from implementing management actions derived from the RMP/EIS that are groundless in fact and validation. Legitimately, the LGCA has serious reservations that in the future the BLM will use the finalized RMP to impose restrictions and prohibitions on multiple uses in the Bighorn Basin that afford both economic well-being and recreational enjoyment to citizens and stakeholders. Numerous protections are granted to wildlife species through constraints on oil and gas development, road designations, ROW avoidance/mitigation areas, and domestic livestock grazing. While protective measures for wildlife or other resources may be warranted, it must be based on factual information derived through established scientific means. For instance, page 2-13 of the RMP/EIS states:

> Management actions include maintaining or improving important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of applicable guidance.

The preceding excerpt is overly general and open-ended to what "livestock grazing strategies" may be implemented to maintain or improve important wildlife habitats. This is but one example of many found in the RMP/EIS that either explicitly or implicitly leads the LGCA to believe that the BLM, through an imprecise, incomprehensive, and inaccurate finalized RMP will minimize multiple uses in the Bighorn Basin under the auspices of resource protection. To counteract such from happening, mitigations/corrective actions are included in comments for each resource. For instance, the following mitigation/corrective action was devised by the LGCA for wildlife and grazing:

- Prior to any proposed modification of an AMP or elimination of livestock grazing allotments in the Planning Area as a protective measure for greater sage-grouse and/or other wildlife species, the BLM must design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of livestock grazing in the Planning Area. At the conclusion of the study the BLM

will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

It is critical that the mitigations/corrective actions developed by the LGCA are carefully reviewed and understood by the BLM as they will be an integral step that the BLM must incorporate into any management decision that limits resource uses, both traditional and non-traditional, in the Bighorn Basin upon implementation of the Final RMP.

1.10 THE NEXT STEP

It is paramount that the BLM address and correct the significant inadequacies highlighted by the LGCA in the Final RMP/EIS. The intent of the LGCA is to actively collaborate with the BLM as the agency revises the RMP/EIS to address the numerous concerns expressed in the comment document. As representatives of the citizens of the Bighorn Basin and advocates of responsible multiple uses, it is the firm position of the LGCA that the BLM acknowledge that as currently written the RMP/EIS does not provide the level of detail and analysis necessary to make planning decisions for the next 20 years.

An additional apprehension which the LGCA posits is in regard to the increased level of rules, regulations, and restrictions advanced by the BLM in the RMP/EIS. The LGCA concerns regarding the BLM's ability to administer and manage the array of directives and policy as part of the RMP/EIS suggests that the BLM continue the cooperating agency relationships with the Counties, Conservation Districts, and State agencies. A continuing relationship will allow the LGCA to continue to provide appropriate technical, and in some cases, financial assistance. Since federal budgets for monitoring and implementing projects are anticipated to be constrained in the future, it may be to the interest of all parties to continue to cooperate on future projects.

Weight and priority given to wildlife and vegetative resources at the expense of multiple resource uses will have the affect of crippling the economy and stifling the culture, customs, and traditions so important to the LGCA and residents of the Bighorn Basin. Making the situation more alarming is that findings and conclusions in the RMP/EIS are not grounded in science and field-verified data, but partisan, over-reaching assumptions and aspirations that encapsulate the vision the BLM has of the Bighorn Basin. The LGCA recognizes that the BLM is in fact one of many stakeholders in the Planning Area. Conversely, the BLM appears to dismiss the importance of stakeholders who do not share the same management philosophy as the agency. Such an attitude is short-sighted, flawed, and not in keeping with the BLM's mission to "to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations." Section 302 of FLPMA is clear in stating: "the Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act."

In addition to the expressed concern the LGCA has with the primacy given to wildlife species and habitat protection (e.g. CSU, NSO, and TLS constraints and LWC and ACEC designations) is the apparent understated oil and gas development potential presented in both the RMP/EIS and RFD. Marathon Oil has stated that in their professional opinion the RFD is understated by a factor of 25 to 50. Using a conservative estimate that the RFD is understated by a factor of 10, well potential in the Mowry Shale currently under lease would increase exponentially. In the entire Mowry Shale formation, both leased and non-leased, the well potential would increase even more. Economically, an underestimate at such a scale would have impacts that ripple throughout and beyond the Bighorn Basin. At minimum, the oil and gas development sections of the RMP/EIS must be updated to reflect true potential. Realistically, the RMP/EIS should be entirely revised and impacts from increased development should be analyzed across all affected resources.

In the opinion of the LGCA, the mitigations developed and incorporated in the comment document are a necessary protection against unwarranted BLM management actions that will adversely affect multiple parties in the Bighorn Basin. With the mitigations in place and noted in the administrative record, the next step is for the BLM to open all lines of communication with the LGCA and stakeholders to work toward a solution for rectifying numerous issues, crossing all resource areas, in the RMP/EIS. Enthusiastically the LGCA will work in partnership with the BLM to reach solutions to the problem areas in the RMP/EIS. As both community members and public officials embodying decades of experience with and knowledge of resource uses and issues in the Bighorn Basin, the LGCA will bring a wealth of knowledge to the RMP/EIS correction process. It is in the best interest of all parties involved and affected that the RMP, when finalized, is a planning document worthy of the beauty, diversity, and specialness that is the Bighorn Basin. Any less than a well-crafted RMP that both protects and utilizes resources to their potential in the Planning Area is a failure that will threaten sense of place and future remunerative and recreational pursuits throughout the Bighorn Basin for decades.

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1. INTRODUCTION

In accordance with the Federal Land Policy and Management Act (FLPMA), the Bureau of Land Management (BLM) is currently revising and combining three resource management plans (RMP) for the Cody and Worland Field Offices in Wyoming. Consolidation of the Washakie, Grass Creek, and Cody RMPs will conclude with the production of a single planning document, the Bighorn Basin RMP. In total the Planning Area encompasses 5.6 million acres, including 3.2 and 4.2 million acres of BLM surface and federal mineral estate ownership, respectively. Revision of an RMP is a major federal action. As such, the National Environmental Policy Act (NEPA) mandates that the BLM prepare an Environmental Impact Statement (EIS) to analyze the impacts of the proposed RMP for the Planning Area. The Draft Bighorn Basin RMP and EIS (RMP/EIS) evaluates four alternatives.

With the announcement of the Bighorn Basin RMP revision in 2008, the Bighorn Basin Local Government Cooperating Agencies (LGCA) began active participation in the process. LGCA analysis and evaluation of the process to date culminates in the following comprehensive RMP/EIS comment document. The importance of the final Bighorn Basin RMP to the LGCA and its constituencies cannot be overstated. Accordingly, the comments provided are based on comprehensive and thoughtful review of the RMP/EIS. Consideration and formulation of comments for additional documents important to the development of the RMP/EIS (e.g. Reasonable Foreseeable Development (RFD) scenarios) are also proffered by the LGCA.

1.1 KEY FINDINGS AND ISSUES

Review and comprehension of the RMP/EIS unveiled a multitude of deficiencies, inaccuracies, and generalizations grounded in aspirational philosophy, not recognized science, nor basis in fact. In its entirety, the RMP/EIS is 1,851 pages in length. Therefore, LGCA commentary is extensive and detailed. Thirteen resource and/or issue areas are the focus of discussion in the comment document composed by the LGCA. As duly elected County Commissioners and Conservation District Supervisors of Big Horn, Hot Springs, Park, and Washakie counties, the LGCA, in summary, has identified the following key findings and issues based on appraisal of the RMP/EIS.

1.1.1 Air Quality

- The Wyoming Department of Environmental Quality is not given a seat at the table in the monitoring of air quality in the Bighorn Basin. Air quality and state-of-the-art monitoring is important to the LGCA. It is fundamental that the WDEQ is given primacy in monitoring of air quality in the Planning Area.

1.1.2 Cultural

- Cultural site and historic trail buffers are excessive. Alternative D buffers for cultural sites, national, and other historic trails would restrict or constrain resources uses on BLM that have yet to be identified. The BLM does not identify intact segments of historic trails nor do they identify cultural sites where the scene and setting is intact. The three mile buffer on cultural sites and the two, three, and five mile buffers (depending upon resource) of the historic trails shall be reduced and the BLM must identify exactly where the scene and the setting is intact in the Bighorn Basin to effectively analyze the economic impacts of these actions. If the BLM cannot produce intact segments of historic trails or properly identifying the cultural sites where the scene and setting is intact then the buffers for both resources will be eliminated.

1.1.3 Minerals

- There is no treatment or consideration of enhanced oil recovery potential in the Bighorn Basin. New drilling techniques and the use of CO_2 could significantly change the potential of the Basin to develop energy resources.
- Mineral potential in the Bighorn Basin is significantly underestimated in the RFD scenarios.
- Mowry Shale energy potential is not evaluated in the RMP/EIS. Beneficial economic impacts from Mowry Shale extraction would bring thousands of jobs and billions of dollars in revenue to the Bighorn Basin.

1.1.4 Fish

- Protective measures for fish include "intensively manage intermittent streams on a case-by-case basis." Intensive management measures for fish, or their need, are not disclosed and thus could unnecessarily hamper local governments and stakeholders.

1.1.5 Geographic Information Systems

- Geographic Information Systems (GIS) files provided to the LGCA include blank attribute table records, overlapping polygons of disparate management actions, and datasets that cannot be used to reproduce numbers in the RMP/EIS.

1.1.6 Lands with Wilderness Characteristics and Special Designations

- The Lands with Wilderness Characteristics (LWC) analysis conducted by the BLM is flawed, as it was based on incomplete or erroneous data. Designation of LWCs could potentially erase $1.9 billion of total potential output (gross present value) and 434 jobs annually during the drilling and completion process. The LWC inventory must be entirely revised using LGCA input and data.

- Relevance and importance criteria used in the analysis of Areas of Critical Environmental Concern (ACEC) is generic and does not include data sets to confirm or deny the four noted importance criteria and the five relevance criteria.

1.1.7 Livestock Grazing

- Reductions in animal unit months (AUMs) are a result of management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations.
- Counter to existing BLM RMPs in Wyoming (e.g. Casper, Kemmerer, and Rawlins), the RMP/EIS discloses in the glossary that grazing is a "surface disturbing activities." Livestock grazing should not be considered a surface disturbing activity due to the onerous and nebulous requirements that such a designation would carry.

1.1.8 Over-arching Issues

- Acreage discrepancies are present within the RMP/EIS (e.g. vegetation resources).
- Historic and current condition data for the Planning Area are undisclosed and necessary for proper analysis of the alternatives.
- Resource management challenges identified by the BLM are subjective and overly qualitative. Consequently, groundless "management challenges" may lead to unnecessary constraints that adversely impact local governments, stakeholders, and multiple uses.
- Measurement indicators are missing for all resources, making it infeasible to conduct an effects analysis.

1.1.9 Socioeconomics

- The BLM did not conduct a public Economic Strategies Workshop, which allows the public to "identify desired economic and social conditions" and to "collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions."

1.1.10 Travel Management and Rights-of-Way

- Non-motorized use is characterized as superior to motorized uses.
- Rights-of-way (ROW) avoidance/mitigation areas are immense (941,778 acres – 2,717,617 acres), economically irresponsible, and not proven to be necessary or effective in protecting resources.

- Reclassification of travel restrictions from the current management standard that limits motorized use to "existing roads and trails" to the proposed "designated roads and trails" will have a significant adverse impact on energy development, grazing, and recreation uses by stifling access.

1.1.11 Vegetation

- Vegetation inventories are deficient, particularly invasive species inventories.

1.1.12 Visual

- It is unclear how Visual Inventory Classes and Visual Resource Management (VRM) classes were determined. Specifically, it is not clear how sensitivity levels were designated in the Inventory and it is not stated why some VRM classes were expanded from Alternative A to Alternative D.

1.1.13 Wildlife

- Actions proposed in the RMP/EIS may compromise the economic viability of working ranches to the degree those ranches are lost to subdivision, along with the valuable wildlife habitats they contain.
- Descriptions of wildlife species and habitats are based on perceptions, not qualitative and quantitative data.
- Implicit priority is given to wildlife and habitats over domestic livestock grazing.
- Recognition of elk parturition areas is not contained in current elk scientific literature. Yet, 205,872 acres of BLM-recognized elk parturition habitat would prohibit or restrict grazing, oil and gas development, and motorized access.

In total, the key findings and issues identified lead the LGCA to assert firmly that the RMP/EIS is inadequate in its current form. Of great concern to the LGCA is the overwhelming lack of both historic and current condition quantitative data that in the RMP/EIS. A common theme commented on by the LGCA throughout the revision process has been, and continues to be, that the BLM is proposing management actions with associated constraints and restrictions on domestic livestock grazing, oil and gas development, and the travel management infrastructure without demonstrating cause and/or need. If the BLM can substantiate management challenges via data collection and analysis, then the LGCA, stakeholders, and the general public will have an opportunity to evaluate the accuracy of findings and results. Should field data and corroborating research validate the need for an alteration of uses to protect the natural environment, the LGCA and stakeholders are willing to collaborate with the BLM to identify adaptive management strategies that are in the interest of all parties and Planning Area resources. Unfortunately, the BLM has largely ignored numerous requests by the LGCA, following review of

previous iterations of the RMP/EIS and Analysis of the Management Situation (AMS), to increase the amount and use quantitative data and scientific literature in BLM-produced documents.

As will be convincingly shown in the LGCA's comment document, the ramifications of the RMP to local governments, stakeholders, and citizens of the Bighorn Basin are potentially severe depending on the alternative selected. There is not across-the-board agreement amongst the members of the LGCA as to which alternative as currently written is most desirable. Independently, each alternative has management actions both advantageous and disadvantageous to the future interests of the Bighorn Basin. Permitted (e.g. grazing and oil and gas development) and recreational uses in the Planning Area generate hundreds of millions of dollars each year. These dollars funnel throughout and beyond the Bighorn Basin and are vital in supporting families and individuals and funding schools, libraries, roads, fire, and police departments. Money generated from multiple uses in the Bighorn Basin is also redirected to the BLM by means of tax proceeds. Thus, the outcome of the RMP/EIS revision and how it affects the economic landscape of the Bighorn Basin is not only of great importance to the LGCA, its constituency, and stakeholders, but also the BLM. For that and many other reasons, the LGCA believes it is imperative that the RMP/EIS be improved before being released in final form.

1.2 THE LGCA

Cooperation between government entities in the Bighorn Basin has always been strong. Individually and collectively they strive to make the social, economic, and political landscape amenable to the needs and desires of the citizenry. To that end, the four Bighorn Basin county governments and seven conservation districts formed the LGCA in 2008 in response to the Notice of Intent (NOI) to revise the Bighorn Basin RMP. Individually, Big Horn, Hot Springs, Park, and Washakie counties constitute 83%, 75%, 36%, and 97% of the Planning Area, respectively. The eleven government bodies which form the LGCA include:

- Big Horn County
- Cody Conservation District
- Hot Springs Conservation District
- Hot Springs County
- Meeteetse Conservation District
- Park County
- Powell-Clarks Fork Conservation District
- Shoshone Conservation District
- South Big Horn Conservation District
- Washakie County
- Washakie County Conservation District

The value of resource uses in the Bighorn Basin cannot be understated by the LGCA. The formation as cooperating agencies is intended to ensure that resource uses are not lost due to excessive protective management stemming from the RMP. It is expected that the RMP will guide management in the Bighorn Basin for 20 years, and the LGCA is intent on protecting traditional and non-traditional uses for

the life of the RMP. Acknowledging the importance of multi-party participation in the land use planning process, the Land Use Planning Handbook H-1601-1 was revised by the BLM in 2005 to reflect the integral role of cooperating agencies (Federal Register (FR), Vol. 70, No. 55):

> The rule is necessary to emphasize the importance of working with Federal and state agencies and local and tribal governments through cooperating agency relationships in developing, amending, and revising the Bureau's resource management plans. BLM's current planning regulations do not mention the cooperating agency relationship.

For generations, citizens of the Bighorn Basin have relied on natural resources to provide a sense of well-being both remuneratively and recreationally. Accordingly, analysis of employment potential conducted by the LGCA found that alternative selection will directly influence natural resource job creation and maintenance. Current management (Alternative A) and the agency-preferred Alternative D would lead to 1,121 or 1,050 annual jobs in the oil and gas sector, respectively. Additionally, the livestock grazing and recreation sectors would create 186 and 158 annual jobs under both alternatives. From those jobs, Alternative A and Alternative D would generate, over the 20-year planning period, $5.5 billion total, which equals $5.1 billion, $202 million, and $115 million from the oil and gas, livestock grazing, and recreations sectors, respectively. Employment and economic numbers such as those previously disclosed are significant. The mission of the LGCA is to maximize resources uses compatible with resource protection so that employment and economic opportunities are plentiful in the Bighorn Basin.

1.3 STAKEHOLDERS

With the term “stakeholder” comes unique responsibilities. As a stakeholder, individuals or groups are granted standing to influence and shape land management decisions. The LGCA takes seriously the status of stakeholder and is ever cognizant of its importance. It is vital to the LGCA that individuals and/or groups do not abuse stakeholder-status and that it does not become a vehicle where anyone can gain the title and unduly influence land planning. Accordingly, the LGCA reached out to the BLM to strengthen the definition of stakeholder in the RMP/EIS. Presently, the definition of stakeholder in the RMP/EIS (Glossary-37) is as follows:

> An individual or group (such as local government) with a "stake" or interest in the success of delivering or maintaining the viability of a business's products and services. Stakeholders influence programs, products, and services (BLM 2009a).

On August 19, 2011, Caleb Hiner (Bighorn Basin RMP/EIS Project Lead) corresponded with the LGCA and propositioned the inclusion of a second definition of stakeholder in the RMP/EIS. The addition, which will become part of the current definition, reads as follows:

> Federal, state, or local governments and agencies, or other entities where a Memorandum of Understanding, Cooperative Agreement, Interagency Agreement, or other such agreement has been executed with the BLM, or an applicant for a BLM authorization or permit.

Appreciation is extended to Mr. Hiner for offering to strengthen the definition of stakeholder in the RMP/EIS that will ensure that the LGCA has a seat at the table in land planning decisions. Further, the

revised definition will inhibit individuals or groups with ill-intent and no reasonable or rational "stake" in land planning decisions from gaining stakeholder-status. Such individuals or groups prefer engaging in litigious activities meant to hamstring land planning actions than compromise and honest debate. The LGCA supports the revised definition of stakeholder and finds that the BLM shall update the RMP/EIS with the new definition. Stakeholder is used throughout this comment document. It use and meaning is compatible with Mr. Hiner's proposed revision, with one exception.

Record #6268, commensurate with Goals/Objectives LR:10.1 and LR:10.3, in the RMP/EIS (2-160) states the following:

> In cooperation, consultation, and coordination with permittees/lessees, cooperators, and other stakeholders, develop and implement appropriate livestock grazing management actions to enhance rangeland health, improve forage for livestock, and meet other multiple use objectives by using the Wyoming Guidelines for Livestock Grazing Management, other appropriate BMPs (see Appendices L and W), and development of appropriate range improvements.

The LGCA strongly urges the BLM to delete the word "stakeholder" from this Record #6268 and add the words "interested public." Interested public is an established term used in the livestock grazing portions of the Code of Federal Regulations (CFR) and this RMP must be consistent with existing regulations. CFR 4100.0-5 includes a specific definition for interested publics. It is important to cite these regulations in the RMP:

> CFR 4100.0-5 Interested public means an individual, group, or organization that has:(1)(i) Submitted a written request to BLM to be provided an opportunity to be involved in the decision making process as to a specific allotment, and(ii) Followed up that request by submitting written comment as to management of a specific allotment, or otherwise participating in the decision making process as to a specific allotment, if BLM has provided them an opportunity for comment or other participation; or(2) Submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

Even though there is a definition of stakeholders in the glossary, stakeholders are not included in the grazing portion of the regulations and cannot be used in this RMP. The definition of stakeholders in the glossary can include anyone holding U.S. citizenship. The CFR regulations cited above require U.S. citizens to actively request involvement before being consulted on grazing management decisions and allotment management plans (AMP).

1.4 THE RMP/EIS PUBLIC PROCESS

On October 17, 2008 the BLM issued a NOI to prepare the Bighorn Basin RMP/EIS. Recognizing the importance of the RMP revision, individual members of the LGCA became involved in the process early to ensure that their interests would be well-served by the BLM. The eleven members of the LGCA entered into a Memorandum of Understanding (MOU) with the BLM previous to or shortly after the release of the NOI. The MOU granted LGCA members "cooperating agency" status in the RMP/EIS process and established procedures through which each county and conservation district and the BLM can participate on the BLM interdisciplinary team to conduct the analyses and develop the EIS.

The requirements for a public participation process are clear and unambiguous. FLPMA, NEPA, Council on Environmental Quality (CEQ), BLM Planning Handbook, Final Land Use Planning Rule in the FR (Vol. 70, No. 55), and the BLM Contractor's Public Participation Plan all provide varying degrees of guidance to include the public, especially cooperating agencies, in the planning process. In addition, the BLM has MOU with the cooperating agencies for this planning process. In essence, the BLM is to "solicit" comments and input on the planning process, or as the BLM contractor states "solicit diverse community participation."

1.4.1 Cooperating Agency Status

CEQ provides regulatory guidance for the implementation of the NEPA. CEQ 1501.6 is the cooperating agencies section and states:

> The purpose of this section is to emphasize agency cooperation early in the NEPA process. Upon request of the lead agency, any other Federal agency which has jurisdiction by law shall be a cooperating agency. In addition any other Federal agency which has special expertise with respect to any environmental issue, which should be addressed in the statement may be a cooperating agency upon request of the lead agency. An agency may request the lead agency to designate it a cooperating agency.
>
> (a) The lead agency shall:
>
> 1. Request the participation of each cooperating agency in the NEPA process at the earliest possible time.
> 2. Use the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible consistent with its responsibility as lead agency.
> 3. Meet with a cooperating agency at the latter's request.
>
> (b) Each cooperating agency shall:
>
> 1. Participate in the NEPA process at the earliest possible time.
> 2. Participate in the scoping process (described below in Sec. 1501.7).
> 3. Assume on request of the lead agency responsibility for developing information and preparing environmental analyses including portions of the environmental impact statement concerning which the cooperating agency has special expertise.
> 4. Make available staff support at the lead agency's request to enhance the latter's interdisciplinary capability.
> 5. Normally use its own funds. The lead agency shall, to the extent available funds permit, fund those major activities or analyses it requests from cooperating agencies. Potential lead agencies shall include such funding requirements in their budget requests.
>
> (c) A cooperating agency may in response to a lead agency's request for assistance in preparing the environmental impact statement (described in paragraph (b)(3), (4), or (5) of this section) reply that other program commitments preclude any involvement or the degree of involvement requested in the action that is the subject of the environmental impact statement. A copy of this reply shall be submitted to the Council.

Acknowledging the importance of multi-party participation in the land use planning process, the Land Use Planning Handbook H-1601-1 was revised by the BLM in 2005 to reflect the integral role of cooperating agencies (FR, Vol. 70, No. 55):

> The rule is necessary to emphasize the importance of working with Federal and state agencies and local and tribal governments through cooperating agency relationships in developing, amending, and revising the Bureau's resource management plans. BLM's current planning regulations do not mention the cooperating agency relationship.

Quite early in the process the BLM alerted the LGCA (January 29, 2009 meeting in Cody, Wyoming) that it was unnecessary for cooperating agencies to review and understand NEPA, FLPMA, CEQ regulations for implementing NEPA, the BLM Planning Handbook H-1601-1, and the BLM NEPA Handbook H-1790-1. Now, as then, the LGCA disagrees with that premise. Not only does the preceding help define and outline the role given cooperating agencies and the lead agency, but provide essential rules for how the planning process should be conducted.

As cooperating agencies, the LGCA has participated ardently in the review and development (when a participatory role was granted by the BLM) of documents related to the RMP/EIS. Although there have been disagreements between the two parties throughout the development of the RMP/EIS, and the LGCA does not believe they were fully involved in every step of the process, we do acknowledge and appreciate the relationship that has developed over the course of two and a half years with the BLM. The BLM Land Use Planning Handbook H-1601-1 states that "planning is inherently a public process." Without question the LGCA believes that planning is a public process and have done everything necessary to meet the obligations granted cooperating agencies.

1.4.2 **Public Meetings**

Interest in the Bighorn Basin RMP/EIS is evident by the voluminous number of comments expected to be received during the comment period and the number of public meetings conducted by the LGCA, BLM, and non-governmental organizations (i.e. Greater Yellowstone Coalition). During the two and a half year process, the LGCA has been involved in 37 interagency/interest group meetings spanning 2,739 hours. This figure only includes meetings up to the release of the Draft RMP/EIS. Since then the LGCA has accumulated significantly more hours of involvement in the process. When the BLM announced that it would conduct six public meetings throughout the Bighorn Basin in early June to discuss the RMP/EIS with the public, the LGCA determined it would conduct a separate set of meetings prior to the agency-sponsored forums. Holding a set of meetings sponsored by local government entities would not only provide citizens an additional setting to review and understand the RMP/EIS, but also afford the BLM an opportunity to attend meetings regarding their planning efforts in an alternate setting where they would not have to be facilitators, only participants or spectators.

Discussions at the public meetings revolved around the importance of future viable multiple uses, the balance needed between energy development and conservation, and the economic sustainability of local

communities. Concerns that were repeatedly expressed were associated with how additional restrictions would affect grazing leases and how reducing AUMs on BLM allotments would affect local wages. Key points and concerns were also raised in relation to what characteristics contribute to Wild Land designations. Additional comments vocalized focused on energy development and how the BLM would address advances in technology throughout the term of the planning period and how new restrictions would affect the economy of the Bighorn Basin.

Regrettably, in the seven meetings held by the LGCA (attended by 360 individuals (meeting sign-in sheets available upon request)), beginning May 24th in Thermopolis and ending June 1st in Cody, at only one meeting (Worland May 25th) did one BLM employee (Mr. Hiner) attend. Only recently has it come to the LGCA's attention that BLM employees were instructed by the BLM Regional Director Eddie Bateson to not attend any of the meetings sponsored by the LGCA (pers. comm. Shockley Siggins). By intentionally not attending the Cooperating Agency public meetings on the Draft RMP and EIS review, the BLM has breached much of the inclusive guidance in the manuals and regulations (e.g. FLPMA, NEPA, CEQ, BLM Planning Handbook, Final Land Use Planning Rule in the FR (Vol. 70, No. 55), and the BLM Contractor's Public Participation Plan).

The signed Cooperating Agency MOUs state under the "responsibilities of the BLM" (5), "the BLM will utilize the (County or Conservation District name) input and proposals to the maximum extent possible consistent with legal requirements and its responsibility as lead agency." By intentionally ignoring the seven public meetings (Thermopolis, May 24th, 58 attendees; Ten Sleep, May 25th, 41 attendees; Worland, May 25th 32 attendees; Greybull 78 attendees; Powell May 31st, 51 attendees; Meeteetse, June 1st, 26 attendees; and Cody, June 1st, 74 attendees) sponsored by the LGCA to review the RMP/EIS, the BLM violated the intent if not the letter of the MOUs. Section 6 of the MOU states:

> parties will cooperator in the development and *review* (emphasis ours) of any operating guidelines or agreements between (County or Conservation District name) or BLM and other entities involved in the EIS for Bighorn Basin RMP effort which might affect the environmental analysis and writing of the EIS. BLM and (County or Conservation District name) agree to meet on issues concerning the EIS at the request of either party.

The BLM was invited to attend the LGCA meetings with several commissioners extending a personal invitation. The BLM's blatant disregard of the local governments sponsored meetings is inexcusable. The BLM Planning Handbook (H-1601-1, p.2-3) identifies the importance of public and intergovernmental involvement in the planning process by defining and describing the four important elements: 1) coordination, 2) cooperation, 3) consultation, and 4) collaboration. By deliberately neglecting public concerns discussed at the local government sponsored meetings, the BLM violated the coordination, cooperation, consultation, and collaboration requirements.

It would have been in the best interest of the agency and the public if the BLM would have attended, as the meetings were highly objective, informative, and civil. The 360 attendees of the LGCA meetings had and have valid interests and concerns unlikely captured in the BLM content and comment analysis. The

fundamental planning concerns by interested attendees were dismissed by the BLM and clearly articulated by the Regional Director's decision to forbid BLM from observing and listening to stakeholders in local meetings. The fact that the BLM sponsored meetings were round table discussions, without the benefit of presentations or available forums to publically comment, made the BLM meetings unnecessarily confusing. One participant in the Worland meeting, while waiting for BLM personnel to finish a non-stakeholder discussion, left a note which read "this is confusing."

The LGCA believes that portions of the process have allowed effective participation, while other steps in the public planning process have been woefully inadequate. As local County Commissioners and Conservation District staff and Supervisors, the LGCA has continually stated opposition to the closed planning meetings. The BLM's perspective is understandable, that closed meetings are necessary to allow open and forthright discussion. However, many members of the LGCA have participated in other federal public land planning efforts that have been open to the public and benefited from the openness. While these meetings are occasionally chaotic, they do offer a transparent view of the public land planning process.

Undeterred by the lack of participation by the BLM in the cooperating agency-sponsored meetings, the LGCA enthusiastically attended meetings held by the BLM in early to mid-June. Total attendance for the seven BLM public meetings was 252 (total includes BLM employees). To the LGCA's disappointment, the meetings were lacking in depth. Rather than discussing the elements of the plan and alternatives in a group setting, the BLM instead set up several informational booths where different components of the plan were outlined by agency employees. Such a format was not conducive to group discussion and participation. As formatted, the BLM-sponsored meetings offered no opportunity to compare alternatives, which would have afforded participants the ability to understand how the action alternatives would alter management. Given the size of the RMP/EIS (1,851 pages), it is fundamentally inaccessible to the general public. The BLM did a disservice to the public, and in fact the agency, by not conducting open forum meetings utilizing multimedia platforms and active participant interaction to disclose accurately the impacts of the EIS by alternative and in comparison to current management. It marginalized opinions and in no way facilitated a greater understanding of public sentiment toward the RMP/EIS. FLPMA, Section 103(d), states:

> The term "public involvement" means the opportunity for participation by affected citizens in rule making, decision making, and planning with respect to the public lands, including public meetings or hearings held at locations near the affected lands, or advisory mechanisms, or such other procedures as may be necessary to provide public comment in a particular instance.

Further, Section 202(f) of FLPMA, states:

> The Secretary shall allow an opportunity for public involvement and by regulation shall establish procedures, including public hearings where appropriate, to give Federal, State, and local governments and the public, adequate notice and opportunity to comment upon and participate in the formulation of plans and programs relating to the management of the public lands.

It is the contention of the LGCA that the format of the public meetings sponsored by the BLM, while meeting the minimum requirements of the law, did not provide adequate opportunity to participate in the formulation of the RMP/EIS.

1.5 FEDERAL LAWS, POLICIES, REGULATIONS

Federal laws, policies, and regulations are emplaced by Congress to ensure that federal agencies involved in land use planning documents produce quality work and release documents that will stand up to legal challenge. These laws and policies enable public involvement and participation in public land use planning documents and set the guidance for procedures to be followed by federal agencies. BLM handbooks, CEQ, FLPMA, and NEPA set precedence for compliance with federal laws, policies, and regulations. The following section will document how the BLM has neglected to adequately comply with multiple federal laws, policies, and regulations.

1.5.1 BLM Handbooks, CEQ, Data Quality Act, FLPMA, and NEPA

In accordance with FLPMA, the BLM is currently revising and combining three RMPs for the Cody and Worland Field Offices in Wyoming. NEPA, guided by CEQ regulations, mandates that the BLM prepare an EIS to analyze the impacts of the proposed RMP in the Planning Area. The BLM Land Use Planning Handbook H-1601-1 guides BLM personnel in the development of planning documents, while the BLM NEPA Handbook H-1790-1 works to ensure that the agency is compliant with both NEPA and CEQ regulations. It is the opinion of the LGCA that the RMP/EIS, and the development process leading up to the release of the draft version, has inadequately followed guidance and regulations found within BLM Handbooks, CEQ, FLPMA, and NEPA. As outlined in preceding sections, the LGCA asserts that the role and authority given to cooperating agencies in guidance documents and federal regulations has not been fulfilled. Section 1.5 of this document discloses a failure of the BLM to meet the requirements of CEQ 1502.15 Affected Environment and 1502.22 Incomplete or Unavailable Information.

1.5.1.1 *Data Quality Act*

In reviewing the RMP/EIS, as well as maps and data disseminated by the BLM during the RMP revision process, it is clear that there are several issues with data and information presented as fact by the BLM. The hierarchy of federal requirements, as existing in statutes, rules and regulations, case law, and agency handbooks and manuals was reviewed and, in fact, corroborates that the BLM inaccurately used and presented data and information. It is for this reason that the LGCA asserts that the BLM must recognize and correct factual errors as required by the Data Quality Act (DQA) of 2000. The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information (See Appendix F for formal DQA Request for Action).

The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information. The uncodified DQA, as it amends the Paperwork Reduction Act of 1980, is intended to

prevent harm from the dissemination of inaccurate information. Public Law 106-544 Section 515 led to the publication of DOI and BLM guidelines for data quality and integrity. DQA guidelines (FR Vol. 67 No. 36) required all federal agencies to provide the following:

- By October 1, 2002, issue its own information quality guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information that it disseminates.
- Establish administrative mechanisms to allow affected persons to seek and obtain correction of information maintained or disseminated by the agency that does not comply with OMB or agency guidelines.
- Report periodically to OMB the number and nature of complaints received by the agency regarding the accuracy of its information and how such complaints were resolved.
- Ensure that influential information, such as that used in the preparation of resource management plans, be characterized by reproducibility and transparency.

Specific examples of incorrect or inaccurate data in the RMP/EIS that fail to meet the requirements of the DQA include:

- Improper or incomplete inventory of LWCs as is illustrated in Appendix A. Note that the LWC inventory and maps have been presented during public meetings. There are numerous specific references to incorrect information provided by the BLM in Appendix A.
- The BLM LWC Inventory is flawed. The BLM did not include any GIS data for structures detracting from wilderness characteristics in inventory forms or on maps. Refer to Appendix A for more detail on this issue.

It is not possible to recreate maps and information based on information provided in the RMP/EIS. Therefore, the BLM must better describe and disclose methodologies and correct GIS data issues. Additionally, the following databases distributed to the LGCA have several problems and apparent conflicts with data presented:

- Travel Management: Blank records in the GIS attribute table for Alternative D. RMP vs. GIS acres do not match.
- Mineral Constraints: Alternative D Mineral Constraints is missing all records for the “Standard Constraints”.
- Withdrawals: Alternative A GIS files contain blank records in the GIS attribute tables. Acres do not match those in the RMP.
- Rights-of-Way Avoidance and Exclusion: GIS file contained overlapping areas resulting in conflicting management in the same areas. This also results in incorrect acres.
- Recreation Management Areas (RMAs): Both Alternative A and D GIS files do not show a complete data set of all RMAs included in the RMP.

- Geothermal Constraints: GIS files contain overlapping polygons resulting in conflicting management in those areas and double counting of acres in GIS.

It is for the highlighted examples of data quality issues in the RMP/EIS provided above that the LGCA asserts that the BLM must recognize and correct factual errors as required by the DQA. The DQA was enacted by Congress to ensure that federal agencies disseminate and use accurate information. In preparing the RMP/EIS, the BLM failed to follow the requirements of the DQA.

1.6 RESOURCE AREAS ANALYSIS

Plainly stated, the LGCA is disappointed with the lack of depth provided by the BLM in analyzing the resource areas discussed below. It is our contention that the RMP/EIS in its present iteration is incomplete in numerous capacities. Chapter 3 – Affected Environment describes the current condition in such general terms it leaves the LGCA questioning the existing state of the natural environment. Is it above average with minor problems or below average condition with significant issues? The stated problem with Chapter 3 is that it lacks critical scientific substantiation through data and research. This is true for both current and historic conditions. The many unanswered questions, as well as overwhelming skepticism regarding statements advanced in Chapter 3, continue into Chapter 4 – Environmental Consequences.

Following a brief introduction, Chapter 4 discloses methods and assumptions for each respective resource. To be factual and accurate, the RMP/EIS should title the sections "Assumptions" and remove "Methods." The term method suggests that it is a standard operating procedure carried out numerous times previously in the biological, physical, and social sciences for deriving an end point. As such, the method has been published, tested by researchers and scientists, and substantiated as a "best" method. In the case of the RMP/EIS, the end point should be an effects conclusion. Yet, the supposed methods in the RMP/EIS are not clear, referenced, or appreciably used to make effects determinations. A concurrent dilemma with having insufficient methods is that Chapter 4 does not divulge measurement indicators. Both methods and measurement indicators are indispensable in an EIS. Measurement indicators define the variable(s) most likely to impact, negatively or positively, a resource upon plan implementation. Sans methods and measurement indicators, an EIS is ineffectual.

The previously outlined issues regarding lack of data and analysis to support management actions in the RMP/EIS, which are based on lack of baseline or historical conditions, violate CEQ Section 1502.15 Affected Environment which states:

> The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues. Verbose descriptions of the affected environment are themselves no measure of the adequacy of an environmental impact statement.

The RMP/EIS does not adequately describe the environment of the area. Baseline and historical condition descriptions are not found within the RMP/EIS. Data, analysis, and references supporting major management action decisions are negligent and not commensurate with the importance of the impacts resulting from such management actions.

Information missing from the RMP/EIS is extensive and varying in degrees of absence (from wholesale nondisclosure of historic, baseline, and existing conditions and quantitative effects analysis to repeatedly not referencing with citation(s) what is portrayed as statement of fact). CEQ regulations speak directly to the inclusion or exclusion of "incomplete or unavailable information" in Section 1502.22:

> When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.
>
> (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

Part B of CEQ 1502.22 covers the necessary steps to be taken if overall cost would be exorbitant to obtain incomplete or unavailable information. Because cost to obtain a significant majority of the missing information in the RMP/EIS would not be exorbitant, Part A of CEQ 1502.22 is relevant. By violating CEQ1502.22, the BLM produced a NEPA document out of compliance and ineffectual in guiding management action in the Planning Area.

As such, the LGCA is gravely concerned that management actions in the future will unduly restrict or prohibit multiple uses in the Planning Area for the next 20 years. In the preceding subsections the LGCA summarizes the most egregious findings and conclusions for each resource area. Following discussion of resource areas, the LGCA offers mitigations that work to protect multiple uses, local government, stakeholders, and citizens in the Bighorn Basin.

1.7 MITIGATIONS

Each of the resource areas discussed previously, and in more detail in the full comment document, is substantially devoid of critical information. As such, the LGCA has formulated a set of mitigations to address inadequacies in the RMP/EIS. This is a proactive approach to inhibit the BLM from implementing management actions derived from the RMP/EIS that are groundless in fact and validation. Legitimately the LGCA has serious reservations that the BLM will in the future use the finalized RMP to impose restrictions and prohibitions on multiple uses in the Bighorn Basin that afford both economic well-being and recreational enjoyment to citizens and stakeholders. Numerous protections are granted to wildlife species through constraints on oil and gas development, road designations, ROW avoidance/mitigation areas, and domestic livestock grazing. While protective measures for wildlife or

other resources may be warranted, it must be based on factual information derived through established scientific means. For instance, page 2-13 of the RMP/EIS states:

> Management actions include maintaining or improving important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of applicable guidance.

The preceding excerpt is overly general and open-ended to what "livestock grazing strategies" may be implemented to maintain or improve important wildlife habitats. This is but one example of many found in the RMP/EIS that either explicitly or implicitly leads the LGCA to believe that the BLM, through an imprecise, incomprehensive, and inaccurate finalized RMP will minimize multiple uses in the Bighorn Basin under the auspices of resource protection. To counteract such from happening, mitigations are included in comments for each resource. For instance, the following mitigation was devised by the LGCA for wildlife and grazing:

> Prior to any proposed modification of AMP or elimination of livestock grazing allotments in the Planning Area as a protective measure for greater sage-grouse and/or other wildlife species, the BLM must design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of livestock grazing in the Planning Area. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

It is critical that the mitigations developed by the LGCA are carefully reviewed and understood by the BLM as they will be an integral step that the BLM must incorporate into any management decision that limits resource uses, both traditional and non-traditional, in the Bighorn Basin upon implementation of the Final RMP.

2. GIS DATA

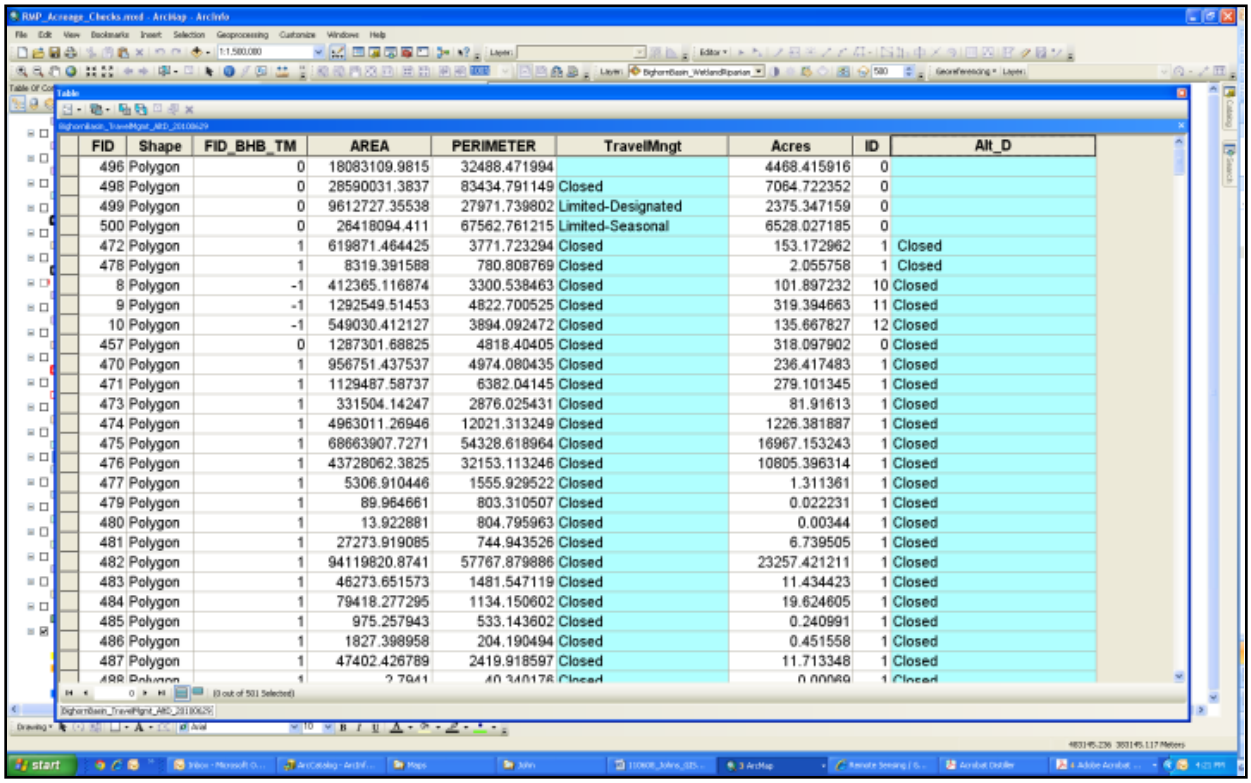
For the purposes of this comment document, the LGCA consulted with GIS personnel who reviewed Alternative A (current management) and Alternative D (agency preferred alternative). Alternatives B or C are considered side boards by the BLM in the range of alternatives. Inconsistencies were found in GIS shapefiles related to the Recreation Management Areas (RMA), Travel Management, Withdrawals, Geothermal Constraints, Rights-of-Way (ROW) Avoidance and Exclusion Areas, and Mineral Constraints. When dealing with differences in acreages in GIS there are some allowable inconsistencies. Due to the non-coincidental line work of shapefiles it is possible to have slivers (gaps or overlaps) in line work especially when running analytical processes such as intersections, unions, erases, etc. Five, 10, or 15 acre-differences here and there can be accounted for by slivers in a 5.6 million acre landscape. When differences are in the hundreds and thousands of acres, these differences reflect mistakes and demonstrate that the results of the RMP/EIS cannot be duplicated. For the purposes of this landscape, inconsistencies of less than 100 acres will not be discussed herein.

2.1 TRAVEL MANAGEMENT

Under Alternative A, Travel Management GIS data document 1,052 acres of 'open to motorized use.' This figure does not match the 1,320 acres reported in Table 2-2 of the RMP. There is a second Alternative A Travel Management GIS file that the LGCA received from Mr. Caleb Hiner, BLM RMP Project Lead, named Travel Management A1. Based on cursory review it appears to be associated with Wild and Scenic Rivers designations. This data should have been incorporated into the Travel Management Alternative A file. Additionally, Travel Management A1 reports 56,661 acres of 'closed to motorized use.' This figure is inaccurate because acres were not recalculated when creating this file. The actual addition of 'area closed to motorized use' under Travel Management Alternative A1 is 2,379 acres. The Travel Management GIS data documents 2,332,505 acres "limited to existing roads and trails" which does not match the reported 2,332,355 acres in the RMP.

The Alternative D Travel Management GIS data contains two attribute columns of interest to resource specialists: the TravelMngt column and Alt_D column. Both delineate the categories of travel limitations. The TravelMngt column contains one blank record of 4,468 acres. The Alt_D column matches the 'closed to motorized use' restriction for all records except one, where the 'closed' designation in the TravelMngt column was not transferred to Alt_D column. There are four blank records in the Alt_D column totaling 13,908 acres with no direction as to their relevance in Alternative D Travel Management decisions. The total acreage of 'closed' records in the TravelMngt column is 61,001 acres and the total of 'closed' records in the Alt_D column is 53,396 acres. Neither description of closure matches the reported acres of 'closed to motorized use' reported in Table 2-2 in the RMP of 60,681 acres. GIS data for areas where motorized use is 'limited to designated roads and trails' covers 1,057,318 acres which does not match the 1,055,257 acres reported in Table 2-2 of the RMP. There is one blank record in the Alt_D

column for the 'designated roads and trails' designation that contains a designation under the TravelMngt column. When removing the blank record, the total is reduced to 1,054,942 acres, which still does not match the RMP reported acres.



FID	Shape	FID_BHB_TM	AREA	PERIMETER	TravelMngt	Acres	ID	Alt_D
496	Polygon	0	18083109.9815	32488.471994		4468.415916	0	
498	Polygon	0	28590031.3837	83434.791149	Closed	7064.722352	0	
499	Polygon	0	9612727.35538	27971.739802	Limited-Designated	2375.347159	0	
500	Polygon	0	26418094.411	67562.761215	Limited-Seasonal	6528.027185	0	
472	Polygon	1	619871.464425	3771.723294	Closed	153.172962	1	Closed
478	Polygon	1	8319.391588	780.808769	Closed	2.055758	1	Closed
8	Polygon	-1	412365.116874	3300.538463	Closed	101.897232	10	Closed
9	Polygon	-1	1292549.51453	4822.700525	Closed	319.394663	11	Closed
10	Polygon	-1	549030.412127	3894.092472	Closed	135.667827	12	Closed
457	Polygon	0	1287301.68825	4818.40405	Closed	318.097902	0	Closed
470	Polygon	1	956751.437537	4974.080435	Closed	236.417483	1	Closed
471	Polygon	1	1129487.58737	6382.04145	Closed	279.101345	1	Closed
473	Polygon	1	331504.14247	2876.025431	Closed	81.91613	1	Closed
474	Polygon	1	4963011.26946	12021.313249	Closed	1226.381887	1	Closed
475	Polygon	1	68663907.7271	54328.618964	Closed	16967.153243	1	Closed
476	Polygon	1	43728062.3825	32153.113246	Closed	10805.396314	1	Closed
477	Polygon	1	5306.910446	1555.929522	Closed	1.311361	1	Closed
479	Polygon	1	89.964661	803.310507	Closed	0.022231	1	Closed
480	Polygon	1	13.922881	804.795963	Closed	0.00344	1	Closed
481	Polygon	1	27273.919085	744.943526	Closed	6.739505	1	Closed
482	Polygon	1	94119820.8741	57767.879886	Closed	23257.421211	1	Closed
483	Polygon	1	46273.651573	1481.547119	Closed	11.434423	1	Closed
484	Polygon	1	79418.277295	1134.150602	Closed	19.624605	1	Closed
485	Polygon	1	975.257943	533.143602	Closed	0.240991	1	Closed
486	Polygon	1	1827.398958	204.190494	Closed	0.451558	1	Closed
487	Polygon	1	47402.426789	2419.918597	Closed	11.713348	1	Closed

Figure 1 Alternative D travel management attribute table

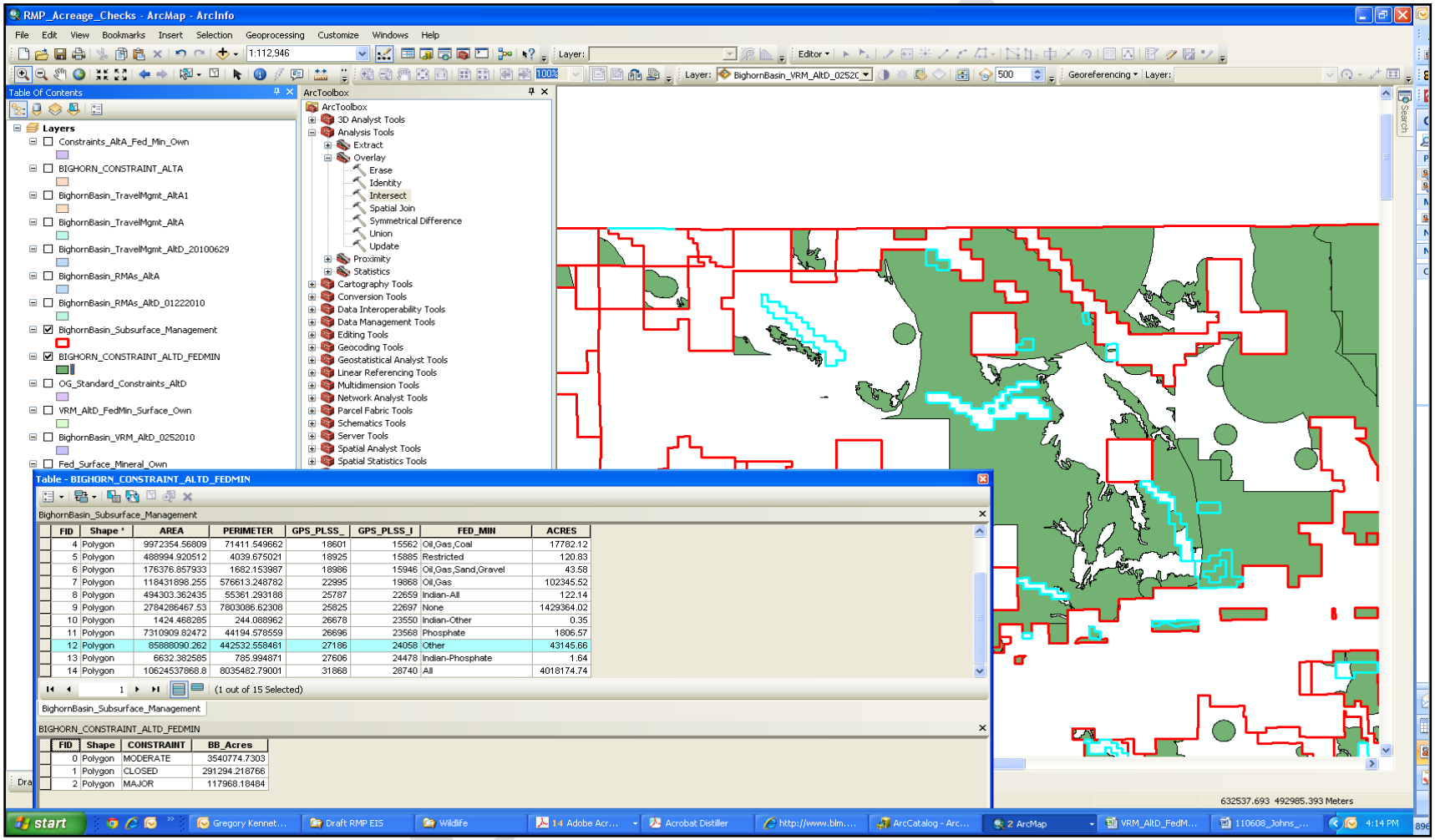
Seasonal restrictions on travel management are only briefly discussed in the Travel Management section of Chapter 3 and acres of changes to seasonal restrictions are not reported in Tables 2-2 or 2-5 in the RMP. A list of the areas in which the seasonal restrictions will apply is the only detail reported.

2.2 MINERAL CONSTRAINTS

The Alternative D GIS shapefile for Mineral Constraints does not include the standard constraint restriction category. This was discussed with Mr. Hiner and he directed the LGCA to the process in which to complete the file, which there was already familiarity with. The LGCA set the definition query on Federal mineral ownership provided by Mr. Hiner of "Fed_Min = All, Oil-Gas, Oil-Gas-Coal, and Oil-Gas-Sand-Gravel" to select for the proper federal mineral ownerships in relation to the mineral constraints. The Alternative D Mineral Constraints was then erased from the queried Federal Mineral Ownership layer and the results were the standard constraints as reported in the RMP tables and Map 20. The shapes on Map 20 closely, but not exactly, matched the resulting analysis performed by the LGCA

for the standard constraints. The acreage reported in the RMP Table 2-5, record number 2024, of approximately 257, 000 acres did not match the resulting GIS acres of approximately 200,000.

An issue with the definition query given to the LGCA by Mr. Hiner has arisen during the GIS data review and acreage analysis. The definition query provided by Mr. Hiner is Fed_Min = All, Oil-Gas, Oil-Gas-Coal, and Oil-Gas-Sand-Gravel. The Alternative D Mineral Constraints GIS shapefile was cut to the Federal Mineral Ownership GIS file to disclose acres of constraints only on BLM administered minerals for oil and gas development. The red outlines and blue highlights on the following map are the federal mineral ownerships for the BLM. The green polygons are the Alternative D Mineral Constraints that were cut to the Federal Mineral Ownership according to Mr. Hiner. The map shows that the polygons are not coincidental and boundaries do not align. The Alternative D Mineral Constraints migrate in and out of the "Other" mineral ownership category in the Federal Mineral Ownership layer. The "Other" category was not included in Mr. Hiner's query for federal mineral ownership in relation to mineral constraints. The conclusion drawn is that the LGCA received an inaccurate Federal Mineral Ownership layer or that the layer has been edited in such a way that the edits are unbeknownst to anyone other than the BLM. Due to this issue, the LGCA will be unable to accurately verify any analysis related to federal mineral ownership or reporting of related acreages in the RMP.



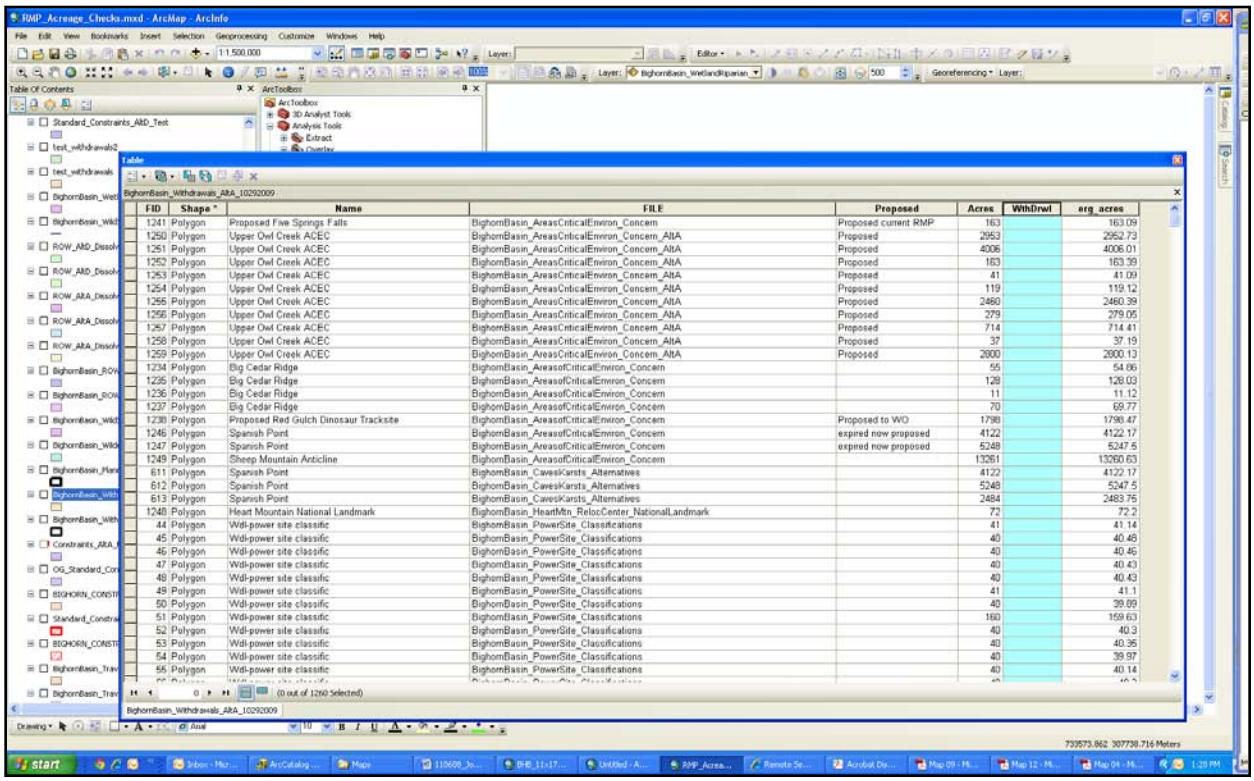
FID	Shape *	AREA	PERIMETER	GPS_PLSS_	GPS_PLSS_I	FED_MIN	ACRES
4	Polygon	9972354.56809	71411.549662	18601	15562	Oil,Gas,Coal	17782.12
5	Polygon	488994.920512	4039.675021	18925	15885	Restricted	120.83
6	Polygon	176376.857933	1682.153987	18986	15946	Oil,Gas,Sand,Gravel	43.58
7	Polygon	118431898.255	576613.248782	22995	19868	Oil,Gas	102345.52
8	Polygon	494303.362435	55361.293188	25787	22659	Indian-All	122.14
9	Polygon	2784286467.53	7803086.62308	25825	22697	None	1429364.02
10	Polygon	1424.468285	244.088962	26678	23550	Indian-Other	0.35
11	Polygon	7310909.82472	44194.578559	26696	23568	Phosphate	1806.57
12	Polygon	85888090.262	442532.558461	27186	24058	Other	43145.66
13	Polygon	6632.382585	785.994871	27606	24478	Indian-Phosphate	1.64
14	Polygon	10624537868.8	8035482.79001	31868	28740	All	4018174.74

FID	Shape	CONSTRAINT	BB_Acres
0	Polygon	MODERATE	3540774.7303
1	Polygon	CLOSED	291294.218766
2	Polygon	MAJOR	117968.18484

Figure 2 Alternative D mineral constraints GIS shapefile and attribute table

2.3 WITHDRAWALS

After review of the BLM-provided GIS data for Withdrawals, the LGCA has been unable to reproduce the acreage reported in Table 2-2 in the RMP. Several factors contribute to the irreproducible acreages reported in the RMP. The GIS attribute tables for both Alternative A and D GIS data are missing information. There are blank records in the attribute table. The selection process for identifying the lands carried forward as Withdrawals was not documented in the GIS data. Trial and error reviews of query selections and a review with Mr. Hiner, failed to resolve the issue of the selection process. The blank records contribute significantly to the difficulty of identifying the selection process and reconciling mismatching acreages. To date, Mr. Hiner at the BLM has not been able to resolve the Withdrawals issues. The LGCA will continue to seek resolution of these issues. The following screen shot documents the missing attribute data in Alternative A Withdrawals. The highlighted column is the Withdrawal classifications.



FID	Shape *	Name	FILE	Proposed	Acres	WithDrwl	arg_acres
1241	Polygon	Proposed Five Springs Falls	BighornBasin_AreasCriticalEnviron_Concern	Proposed current RMP	163		163.09
1250	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	2953		2952.73
1251	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	4006		4006.01
1252	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	163		163.39
1253	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	41		41.09
1254	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	119		119.12
1255	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	2460		2460.39
1256	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	279		279.05
1257	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	714		714.41
1258	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	37		37.19
1259	Polygon	Upper Owl Creek ACEC	BighornBasin_AreasCriticalEnviron_Concern_AltA	Proposed	2800		2800.13
1234	Polygon	Big Cedar Ridge	BighornBasin_AreasofCriticalEnviron_Concern		55		54.86
1235	Polygon	Big Cedar Ridge	BighornBasin_AreasofCriticalEnviron_Concern		128		128.03
1236	Polygon	Big Cedar Ridge	BighornBasin_AreasofCriticalEnviron_Concern		11		11.12
1237	Polygon	Big Cedar Ridge	BighornBasin_AreasofCriticalEnviron_Concern		70		69.77
1238	Polygon	Proposed Red Gulch Dinosaur Tracksite	BighornBasin_AreasofCriticalEnviron_Concern	Proposed to WO	1798		1798.47
1246	Polygon	Spanish Point	BighornBasin_AreasofCriticalEnviron_Concern	expired now proposed	4122		4122.17
1247	Polygon	Spanish Point	BighornBasin_AreasofCriticalEnviron_Concern	expired now proposed	5248		5247.5
1249	Polygon	Sheep Mountain Anticline	BighornBasin_AreasofCriticalEnviron_Concern		13261		13260.63
611	Polygon	Spanish Point	BighornBasin_CavesKarsts_Alternatives		4122		4122.17
612	Polygon	Spanish Point	BighornBasin_CavesKarsts_Alternatives		5248		5247.5
613	Polygon	Spanish Point	BighornBasin_CavesKarsts_Alternatives		2484		2483.75
1248	Polygon	Heart Mountain National Landmark	BighornBasin_HeartMtn_RelocCenter_NationalLandmark		72		72.2
44	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41		41.14
45	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.48
46	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.46
47	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.43
48	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.43
49	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41		41.1
50	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		39.69
51	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		160		159.63
52	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.3
53	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.36
54	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		39.97
55	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40		40.14

Figure 3 Alternative A withdrawals attribute table

2.4 RIGHTS-OF-WAY AVOIDANCE AND EXCLUSION AREAS

The LGCA discovered that the BLM Rights-of-Way (ROW) GIS files for both Alternative A and D contained overlapping polygons resulting in a double counting of acreages. Also the attribute table had

multiple miss-spellings for both ROW categories. Accordingly, the LGCA fixed the BLM datasets by spelling attributes correctly then dissolving based on the category of ROW. The dissolved file was then intersected with the surface management file to correctly compare acreages in GIS vs. RMP for BLM surface ownership.

The ROW Avoidance Areas acreage for Alternative A reported in the RMP Table 2-2 is 941,778. The acres in GIS are 973,467. The ROW Avoidance Areas for Alternative D in Table 2-2 is 2,512,202 and the GIS acres are 2,536,211. These differences cannot be rectified with the GIS data supplied by the BLM. The ROW Exclusion Areas for both Alternative A and D match between Table 2-2 and GIS.

2.5 RECREATION MANAGEMENT AREAS

The Alternative A and D GIS data supplied by the BLM for RMAs are incomplete. Shapes and records for Worland Caves Special Recreation Management Area (SRMA), Beck Lake Extensive Recreation Management Area (ERMA), and Newton Lake Ridge ERMA are missing from the Alternative A GIS data, but are listed in Table 4-15. The Bighorn Basin ERMA is the RMA that encompasses the lands remaining after all other SRMAs, ERMAs, and Recreation Management Zones (RMZ) has been accounted for. The Bighorn Basin ERMA is accounted for in Alternative D but not in Alternative A, which is a misrepresentation of current management. The SRMA portion of the South Bighorn's RMA, listed in Alternative D Table 4-15 as containing 14,668 acres, is missing from the Alternative D RMAs GIS files.

Maps 59–62 of the RMP do not display all SRMAs, ERMAs, and RMZs located on BLM lands in the Bighorn Basin. They only display selected RMAs, misrepresenting the on-the-ground management to the public. That may be due to the missing data in the RMA GIS Files. The Canyons RMZ is reported, in Table 4-15, as containing 141,793 acres. The GIS data reports the Canyons RMZ as containing 127,268 acres.

2.6 GEOTHERMAL CONSTRAINTS

Upon review of the constraints on leasing for geothermal development, the LGCA was unable to match the acreages of 'open to geothermal leasing' and 'administratively unavailable to geothermal leasing' for Alternative D. A dissolve process based on constraint designations was performed in an attempt to correct for any overlapping polygon or duplication of acres. This process failed to produce matching acreages between the GIS data and RMP Table 2-2. It appears that the geothermal leasing constraints still contain overlapping designations. Controlled Surface Use (CSU) designations overlap into areas with Timing Limited Stipulations (TLS), resulting in double counting of acreages. When reviewing the dissolved geothermal constraints file, the shapes match Map 16 in the RMP and no overlapping polygons were found. However, the acreage continues to disagree. The GIS data presents 387,699 acres as unavailable to geothermal leasing, contradicting the 324,737 acres reported in RMP Table 2-2. Given the

overlapping polygons for CSU and TLS stipulations, matching acres open to geothermal leasing between the RMP and GIS will be impossible without removing the overlapping constraints.

When creating GIS data it is mandatory to cut polygons to represent a change in designation. It appears that in the BLM GIS data, CSU polygons were simply drawn on top of existing TLS polygons. By cutting the CSU polygon into the larger TLS polygons, the data would not show overlapping polygons and double counting of acreages.

2.7 CORRESPONDENCE, RESOLUTIONS, AND SOLUTIONS

The LGCA has had multiple discussions with Caleb Hiner, BLM RMP Project Lead, about these issues. The latest occurred on June 9, June 10, June 13, and June 16 of 2011. A new GIS library that reflects the files used to create the RMP maps and would match the acres reported in the RMP was requested by the LGCA. Caleb assured the LGCA that if the requested was filled we would end up with the same files we have and noted the LGCA has the most current files that were used for analysis in the RMP. The LGCA is skeptical that ICF International (ICF), BLM contractor, would fill the request with original files from the BLM, as Mr. Hiner suggested. The point of the request is to gather the final analysis files and/or definition queries for the selection processes of original BLM GIS files to match acres and analyses performed by ICF to accurately disclose the impacts of the RMP to the LGCA.

2.7.1 Correspondence and Resolutions

Since the initial findings concerning the problems with the GIS were communicated to the BLM, webinar meetings, and emails have resolved some of these issues. The following sections document the meetings in which resolution to GIS data issues has occurred.

2.7.1.1 *June 9, 2011*

On June 9, 2011 Mr. Hiner and an LGCA representative (John Sanford) discussed the previous GIS issues. Mr. Hiner and Mr. Sanford reviewed the GIS data via webinar. The constraints for Alternative A and D may be wrong due to an incorrect federal mineral ownership layer. Mr. Hiner is unsure if the LGCA has the correct layer or if there is second layer analyzed by ICF and used to clip the Alternative D Mineral Constraints. Mr. Hiner acknowledged that the data reviewed via webinar with the LGCA led him to believe that in fact the data is wrong and there may be second mineral ownership GIS file. Mr. Hiner and Mr. Sanford discussed the possibility that the GIS file for mineral ownership used by ICF is incorrect and the file used by THE LGCA is correct.

Mr. Hiner and Mr. Sanford also discussed the Withdrawals GIS file. Mr. Hiner's initial impression of the Withdrawals GIS data was that it was not properly clipped to the mineral ownership layer either and that is why THE LGCA cannot get the acres to match. The issue of inconsistencies of correct mineral ownership GIS data also complicates the Withdrawals layer. Mr. Hiner acknowledged that the missing

attributes in the Alternative A and D Withdrawals GIS attribute table is a mistake and that would make the acreage irreproducible.

Travel Management GIS data conflicts with RMP reported acreages. There are two GIS files for Travel Management Alternative A, an Alternative A file and an A1 file. Mr. Sanford posed the question as to whether or not A1 was incorporated into A. Mr. Hiner did not know if it was incorporated or why A1 was created. A1 appears to be travel restrictions associated with the Wild and Scenic Rivers exclusively based on an on screen review of polygon shapes. There are missing attributes in the Travel Management Alternative D file which was acknowledged by Mr. Hiner to be a mistake. He noted that if the "seasonal" acres are added into the "designated" category, the acres should match for the category of "limited to designated" roads and trails. This solution is not a solution to the matter of the "closed to motorized use" GIS acres not matching the RMP acres and is involved in the missing attribute data problem.

2.7.1.2 ***June 10, 2011***

On June 10, 2011, Mr. Hiner and Mr. Sanford met via webinar to confirm the mineral ownerships and mineral constraints. Mr. Hiner resolved the data issues concerning the mineral constraints and the Federal mineral ownership. The definition query originally given to THE LGCA to use the mineral ownership layer correctly, was incorrect. The correct definition query to accurately use the Federal mineral ownership layer is Fed_Min <> None and Fed_Min <> Water. This resolved the mineral constraints GIS data issues.

Other issues that were discussed were the Withdrawals, Travel Management, and RMAs. Mr. Hiner noted that since the June 9, 2011 webinar he has not been able to replicate the Withdrawals acreages issues previously mentioned. The LGCA has not been able to recreate the acres either.

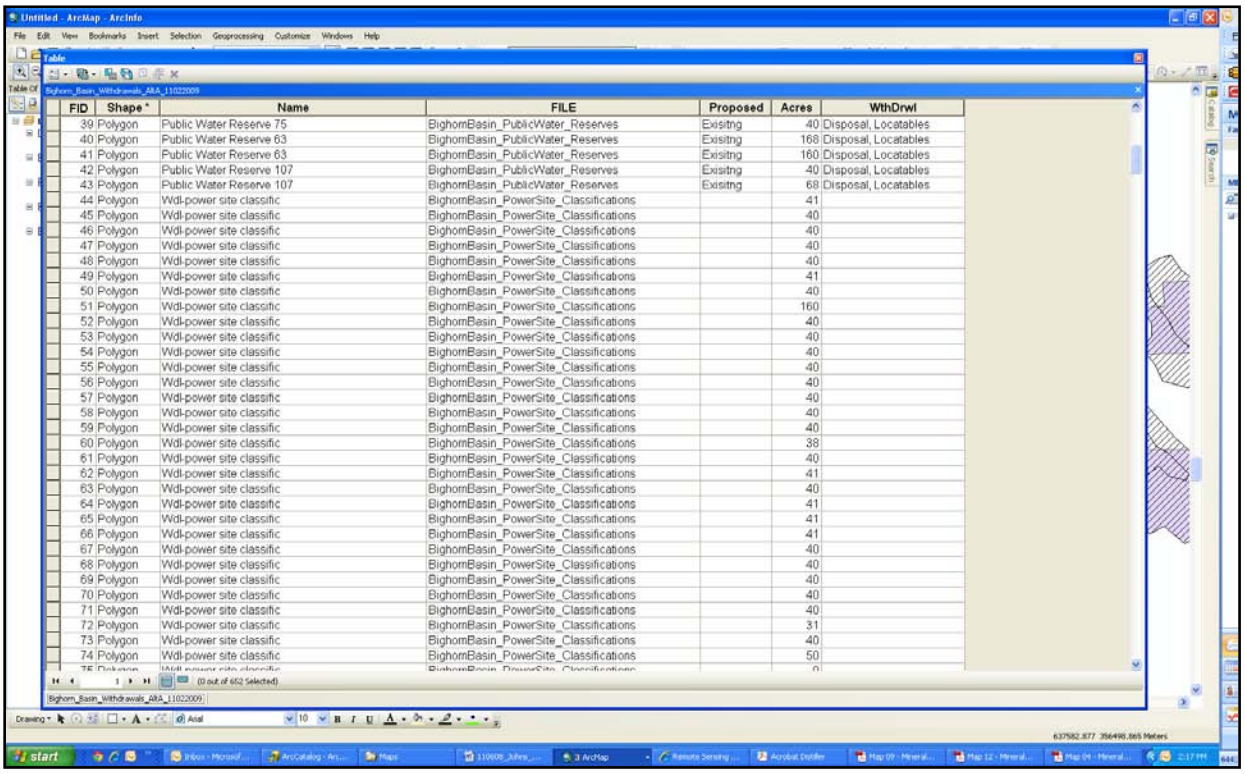
The issue of how to use Travel Management Alternative A1 in conjunction with Travel Management Alternative A was resolved. GIS file A1 is specific to the Wild and Scenic Rivers according to Mr. Hiner. A review by the LGCA confirmed this, and they were no conflicting management actions based on spatial locations found when comparing Alternative A and A1 GIS files. Travel Management Alternative A1 can be disregarded according to Mr. Hiner. The issue of incomplete Travel Management attributes for the Alternative D GIS file has not been resolved. The LGCA tried the solutions posed by Mr. Hiner on June 9, 2011, adding seasonal designation into "limited to designated" designation. This solution did not correct the acreage differences between the GIS and RMP Table 2-2.

The RMAs for both Alternative A and D are missing records and shapes for multiple RMA designations. Mr. Hiner acknowledged that in fact the files are incomplete and is attempting to track them down. He offered a solution as to how the LGCA can create the shapes and records. This is not the LGCA's responsibility. These shapes and records should have been completed before they were disclosed in the RMP and the RMP was released. The Worland Caves SRMA is sensitive data and cannot be released according to Mr. Hiner, which accounts for the missing data surrounding that particular SRMA only.

2.7.1.3 *June 13, 2011*

Through email on June 13, 2011 Mr. Hiner acknowledged that he sent the LGCA the wrong GIS file for Withdrawals. He sent a new file attached to his email. The LGCA will review this file for accuracy. Shortly after the original email from Mr. Hiner containing the correct GIS Withdrawals file a second email regarding this issue was sent. The second email contained instructions as to how one would complete the GIS processes to make the acres match GIS to RMP.

Review of the new Alternative A Withdrawals file has revealed blank records as well. This is not a solution to the problem of missing attribute data.



FID	Shape *	Name	FILE	Proposed	Acres	WthDrwl
39	Polygon	Public Water Reserve 75	BighornBasin_PublicWater_Reserves	Exisitng	40	Disposal, Locatables
40	Polygon	Public Water Reserve 63	BighornBasin_PublicWater_Reserves	Exisitng	168	Disposal, Locatables
41	Polygon	Public Water Reserve 63	BighornBasin_PublicWater_Reserves	Exisitng	160	Disposal, Locatables
42	Polygon	Public Water Reserve 107	BighornBasin_PublicWater_Reserves	Exisitng	40	Disposal, Locatables
43	Polygon	Public Water Reserve 107	BighornBasin_PublicWater_Reserves	Exisitng	68	Disposal, Locatables
44	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
45	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
46	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
47	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
48	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
49	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
50	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
51	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		160	
52	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
53	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
54	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
55	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
56	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
57	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
58	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
59	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
60	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		38	
61	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
62	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
63	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
64	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
65	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
66	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		41	
67	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
68	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
69	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
70	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
71	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
72	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		31	
73	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		40	
74	Polygon	Wdl-power site classific	BighornBasin_PowerSite_Classifications		50	

Figure 4 Alternative A withdrawals attribute table – revised

Although the instructions are useful, the point still remains that the LGCA should have received the final GIS product which contains GIS documentation of the acreages presented in the RMP. It is the LGCA's contention that the BLM should have sent the final product of ICF's completed analyses of GIS data that yielded the numbers produced in the RMP. These files would have included the appropriate metadata describing how the files were produced from the original BLM files supplied to ICF. These files are required as part of the administrative record.

2.7.1.4 *June 16, 2011*

Caleb Hiner, BLM RMP Project Lead, and Mr. Sanford, met via phone conversation concerning Bentonite BLM GIS data. Mr. Sanford requested the Withdrawals file for Alternative D in order to ensure that the most recent data has bent sent by the BLM to the LGCA. Mr. Sanford requested a GIS file for Areas Available for Locatable Mineral Entry as reported in RMP Table 2-2. Mr. Hiner responded that the file does not exist. Mr. Hiner discussed the GIS methods to create that file. Erasing the Withdrawals from Federal mineral ownership within the Planning Area will generate Areas Available for Locatable Mineral Entry. Mr. Sanford inquired about the reason that the BLM does not an Areas Available for Locatable Mineral Entry file available. Mr. Sanford also inquired if ICF could make the file, used by their GIS staff to perform the analysis presented in the RMP, available. Mr. Hiner responded that neither the BLM nor ICF has the file in question. Mr. Hiner noted that it is ICF's protocol to store and maintain only the BLM's original GIS data and they do not store or maintain final analysis GIS files used to analyze and report acreages listed in the RMP. Mr. Sanford questioned if ICF will return final analysis GIS files to the BLM containing the results of the analysis and final acreages reported in the RMP. Mr. Hiner responded that they will not receive final analysis files from ICF. Mr. Sanford asked that if the neither BLM nor ICF has the final analysis GIS files, where are they? Mr. Hiner responded that he does not understand the question. Mr. Sanford rephrased the question asking whether the BLM or ICF performed the GIS analysis for the RMP. Mr. Hiner responded that ICF performed the GIS analysis and calculated the reported RMP acres. Mr. Hiner noted that it is the BLM's responsibility to provide the original GIS data for the RMP analysis, nothing more.

It is Mr. Sanford's conclusion based on the above conversation that final analysis GIS files or specific definition queries had to be produced to accurately report RMP analysis acreages. If ICF performed the GIS analysis, then they must have final analysis files or definition queries.

2.7.1.5 *June 20, 2011*

Caleb Hiner and Mr. Sanford met via phone conversation and email instructions as to how to complete the new Alternative A Withdrawals file that was sent to the LGCA on June 13, 2011. The updated file contains missing data in the attribute table. Caleb's email discussed how to complete the GIS attribute table based on Table 3-40 in the RMP and how to clip the Withdrawals to the Federal mineral ownership layer. This should have been done by the BLM.

The LGCA pointed out a 42-acre parcel of Withdrawals for Alternative A and D located on private surface and private subsurface. This should not have been included in the Withdrawals for either alternative. Forty-two acres does not seem significant on a 4.2 million acre Federal mineral ownership scale. When the bentonite industries current operations are only 1,200 acres (4% of their operations), 42 acres becomes more significant.

Also discussed was bentonite is managed under the Federal subsurface not surface ownership.

2.8 SOLUTIONS

Solutions to these issues are as follows:

- The BLM provides updated and corrected GIS data to the LGCA for analysis and comment document.
- The BLM allows the LGCA to work directly with ICF (BLM contractor on the RMP) to resolve the issues at hand. ICF may have the correct files and other analytical files beneficial to the LGCA's analysis.
- The LGCA documents the incorrect data and adds the GIS data issues to its comment document.

2.9 SUMMARY

In today's world of technology, GIS has emerged at the forefront as one of the most important tools in land use planning. Analysis for all resources, spatial locations, and acreage calculations rely heavily on GIS. It is disconcerting to see the significant amount of inconsistencies and inaccuracies in GIS data in an RMP that will guide management on 5.6 million acres. This RMP will have major impacts to the local communities and stakeholders in the Bighorn Basin. These inaccuracies need to be acknowledged and fixed by the release of the Final EIS.

The analysis processes, shapes, and acreages contained within the RMP GIS data should be complete, accurate, and highly reproducible. They are not. In Attachment A, Statement of Work Bighorn Basin Resource Management Plan & Environmental Impact Statement BLM Cody and Worland Field Office, Wyoming in Section, Phase 1 Task 2: Data Management, page 21 it states:

> Contractor will supply BLM with all intermediate and final data, documentation, metadata, and other information that leads to conclusions in the RMP/EIS. The Contractor will provide complete and current geospatial data to include a spatial component attribute information and metadata. The metadata will include detailed process steps such that the process could be recreated from these steps if necessary.

Significant coordination between the LGCA and the BLM was required to work through the previously stated issues. Some were resolved but many major data issues remain unresolved. This mandatory coordination by the LGCA's highly skilled GIS staff should not be required to use the data to recreate acreages and analysis. The definition queries for selection processes should have been thoroughly tracked in GIS or in a text document. They were not.

GIS data sets and methodologies should be in the administrative record for the RMP, GIS files which match the acreages in the RMP need to be included. The files that the BLM supplied to the LGCA do not match information in the RMP. Proper documentation of GIS methodologies is required to recreate analyses and acreages reported in the RMP. Two options to document GIS analysis and definition query processes when conducting GIS analysis surrounding public land use policies and projects are as follows:

- A complete library of the original GIS data sets with completed geometry and attribute information is required. This library would be supplemented by a Word document clearly outlining the definition queries and selection processes documented in order to recreate the analysis processes performed by ICF to arrive at the acreages and conclusions reported in the RMP. All metadata for all GIS files should be complete according to the Federal Geographic Data Committee (FGDC) guidelines.
- A more common and simplistic approach is to set the definition queries or selection process, run the analysis processes, and export them into new, final analysis, GIS files and disseminate those to the public or cooperating agencies. All appropriate metadata needs to be completed under the FGDC metadata guidelines for all original and final analysis files.

At least one of the two options for documenting GIS analysis should be included in the project's administrative record. These methodologies are standard protocol for GIS professionals.

3. BIGHORN BASIN COUNTY AND CONSERVATION DISTRICT LAND USE PLANS

The LGCA members each have County and Conservation District Land Use Plans that address goals, objectives, and policies for lands within the counties. Policies and goals that are directly related to the issues associated with management of public land within these counties and conservation districts are summarized below by plan. CEQ mandates that the BLM identify and discuss areas in which the proposed action is inconsistent with local land use plans. Furthermore, where inconsistencies do exist, the BLM shall discuss the extent to which the BLM will reconcile these differences. CEQ Section 1506.2 – Elimination of Duplication with State and Local Procedures Part D states:

> (d) To better integrate environmental impact statements into State or local planning processes, statements shall discuss any inconsistency of a proposed action with any approved State or local plan and laws (whether or not federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law.

3.1 HOT SPRINGS COUNTY 2005 LAND USE PLAN

Under Chapter 3 Public Land

Local Controls, Local Benefits (p. 26):

> Hot Springs County will oppose material changes in land uses, which hamper or otherwise negatively impact traditional land uses. The County intends to avoid undue social distress, dislocation, and hardship brought on the community by such changes.
>
> The County will insist regulatory action cite the impacts to the local economy, local custom and culture, the human environment and provide how such action is consistent with new, revised or supplements to the County's land use plans (as required by the National Environmental Policy Act).

Multiple Use (p. 27):

> It shall be the policy of Hot Springs County to support multiple use of public land. The County opposes management initiatives which restrict or limit existing and potential uses. The County will inform public land managers of any negative impacts on the livelihoods and/or quality of life of Hot Springs County residents which arise from public land management mandates, regulations and laws.

Access (pp. 28 and 29):

> It shall be the policy of Hot Springs County that the County supports retention of existing access to public land, and will oppose management initiatives, which restrict or limit access or might impact the livelihoods and/or quality of life of Hot Springs County residents. Hot Springs County relies on its cooperative agreements, RS 2477, the Wyoming Wilderness Act, NEPA, ANILCA, and broad-based legal precedent, which all assure continued access of public land, and place the burden on State and Federal officials to prove by sound scientific means why access must be curtailed. As required by Federal statute, Hot Springs County expects and relies on State and Federal agencies to provide appropriate and timely notice of anticipated changes to access or management of public land that impacts access. This will allow the County the time to make an

informed decision on any proposed change. Hot Springs County intends to exert such influence allowed by law to maximize access to public land.

Agriculture (p.33):

Hot Springs County supports opportunities for enhancement of land stewardship. Good land stewardship assures public land continues to be productive for generations to come, as it has sustained the County's economy for several generations already. Any changes and/or restrictions proposed by Federal or State agencies must be based on objective and sound scientific data and in cooperation with the County as required by Federal Data Quality Act. As far as required by Federal statute, the County asserts State and Federal land use and management plans must comply with the County Land Use Plan and incorporate standards and objectives that maintain the health, safety and general welfare of agricultural interests culturally, historically, and economically.

Special Land Designations (pp. 49 and 50): Hot Springs County opposes attempts to create new *de facto* wilderness areas by using "roadless areas" or other restrictive management designations in and of themselves. Instead, the County supports the intent of the Wyoming Wilderness Act, which discourages efforts to promote additional roadless areas, and wilderness-like areas. The County opposes creation of the Cedar Mountain Wilderness Area and/or any other new wilderness area in the County. Hot Springs County acknowledges and opposes the existing ACEC designation and opposes new designations of ACEC and/or WSA areas on the Federals lands within the County. The County opposes restrictions placed on existing uses of the public lands due to wolf, grizzly bear, sage grouse or other species of wildlife.

3.2 WASHAKIE COUNTY 2009 LAND USE PLAN

Public Land (Chapter 3 under local controls/local benefits):

The County finds public land management practices are both relevant and substantive to its custom and culture; its economy; its environment; its quality of life; and its ability to protect and enhance local resources in spite of potentially detrimental outside influences.

While the County still recognizes the importance of public land to the quality of life in the community, the County intends that policies and practices established pursuant to the Revised Plan endeavor to maximize the County's influence on decisions made by State and federal land managers regarding public land for local public benefit. To that end, the Revised Plan identifies the issues, background, and action steps recommended by Washakie County related to land use planning on State and federal lands.

Washakie County expects to assert the maximum amount of influence allowed by law regarding any public land issues, and expects its contributions to management and regulatory decisions be accounted for and recognized as intended.

Washakie County expects State and federal authorities to either implement or allow augmentation of water resources, protect access, and educate the public on the contributions multiple use makes to the local economy, and its custom and culture.

Washakie County expects State and federal authorities to implement management policies and processes. Upon information and belief, Washakie County has concluded past management practices may have strayed from or otherwise ignored written management policies and processes. Washakie County cannot monitor compliance with various policies and processes, but it is the County's objective to review any deviations coming to its attention.

Washakie County expects to participate in State and federal actions impacting public land in a way best calculated to achieve optimum affect; including but not limited to, requests for cooperating agency status. If possible, the County will recommend how State and federal agency action might enhance and benefit local custom and the community's culture; thus providing sustainable continuity of local interests.

Washakie County expects State and federal officials need to respect private improvements as contributions to the sustainability of local custom and culture. To this end, the County's objective is to reduce vandalism, educate public land users regarding these improvements, and promote more efficient and effective regulatory schemes that allow owners of these improvements to make repairs and enhance the usability of these improvements.

Washakie County will support traditional land uses as a means to maintain continuity in the local economy, and assure the sustainability of existing agricultural, recreational, and industrial interests. By supporting traditional multiple uses, the County intends local custom and culture will be maintained and given continuity thereby mitigating potential negative social impacts on the community in the process. Washakie County will oppose material changes in land uses, which hamper or otherwise negatively impact traditional land uses. The County intends to avoid undue social distress, dislocation, and hardship brought on the community by such changes.

Washakie County will enforce mandates on State and federal authorities to consider the social, cultural, and economic needs of the local human environment in any regulatory action impacting local custom and culture. The County will insist regulatory action cite the impacts to the local economy, local custom and culture, the human environment and provide how such action is consistent with new, revised or supplements to the County's land use plans.

Under Chapter 3 Multiple Use:

The County defines multiple use of public land in terms of management of such land (and the land's intrinsic resources) in a combination of ways to best meet present and future public needs. Under law, real property is unique so each unit of land needs to be identified, its circumstances examined, and decisions on its uses made in light of the potential uses of that particular unit of land. In other words, multiple use is the judicious utilization of public land based on the ever-changing needs, conditions and desires of the public.

Washakie County supports multiple use of public land. The County opposes management initiatives which restrict or limit existing and potential uses. The County will inform public land managers of any negative impacts on the livelihoods and/or quality of life of Washakie County residents.

Under Chapter 3 Access:

Washakie County supports retention of existing access to public land, and will oppose management initiatives, which restrict or limit access or might impact the livelihoods and/or quality of life of Washakie County residents.

Under Chapter 3 Access: Washakie County relies on its cooperative agreements, RS 2477, the Wyoming Wilderness Act, NEPA and broad-based legal precedent, which all assure continued access of public land, and place the burden on State and federal officials to show why access must be curtailed.

Washakie County expects and relies on State and federal agencies to provide appropriate and timely notice of anticipated changes to access or management of public land that impacts access to

> make an informed decision of any proposed change. Washakie County intends to assert such influence allowed by law to maximize access to public land.
>
> Washakie County asserts State and federal officials need to respect access to public land as contributing to the sustainability of local custom and culture. Toward this end, the County supports efforts to identify and perfect stock trails, roads, and rights-of-way protected by law, education of public land users regarding access issues, and promotion of more efficient and effective regulatory schemes that allow continued access through repairs and other actions assuring such access.

Under Chapter 3 Agriculture:

> Washakie County has determined agriculture makes a substantive contribution to environmental and recreational uses of public land; for that reason, public purposes such as protection of endangered species, wildlife habitat, open space, and augmentation of water resources are all enhanced by continued support for agriculture.
>
> Washakie County asserts State and federal land use and management plans are incomplete and materially deficient unless they contain a thorough discussion and evaluation of agriculture. Each plan needs to incorporate standards and objectives that sustain agricultural interests season-by-season, year-by-year and generation-by-generation.

3.3 BIG HORN COUNTY 2009 LAND USE PLAN

The Big Horn County Land Use Plan does not have policies specifically related to public lands within the county. However, the vision statement in the plan is very clear about the views of the county and its residents as to what the county strives to be:

> Big Horn County will be a rural county of productive farms and ranches, unobstructed pastoral and mountain scenery, clean air and water, abundant open space, and well planned communities where people can live and work enjoying small town living.

Moreover, the plan specifically recognizes the importance of agriculture to the overall well-being of the county. The plan seeks to "do no harm" to the county's agricultural operations and practices. Should any question arise, the plan should be interpreted and construed in the way that is most positive and beneficial for agriculture. Another goal of the plan is to maintain existing access to public lands. This is commensurate with the fact that 72% of respondents to a public survey conducted prior to release of the Land Use Plan indicated that they considered loss of access to public lands to be a very important issue.

3.4 PARK COUNTY 1998 LAND USE PLAN

Like the Big Horn County plan, the Park County Land Use Plan did not specifically address how federal agencies should manage land under federal control but did include goals to retain the multiple uses of public lands and to sustain agricultural business. In addition, the plan included the goal that "local officials level of coordination with state and federal agencies should be increased with respect to the management and use of public lands to help meet the needs of county residents." The plan also encouraged the use of economic statistics and indicators to document the effects of land management changes on county residents.

3.5 MEETEETSE CONSERVATION DISTRICT LAND USE MANAGEMENT AND RESOURCE CONSERVATION PLAN

The Meeteetse Conservation District (MCD) recently completed their Land Use Management and Resource Conservation Plan. This plan, hereinafter referred to as the MCD Land Use Plan, is intended to be a guide for the citizens of the Meeteetse Conservation District (MCD), and others, for identifying and respecting the customs, culture, economic viability, social stability and quality of life found in this unique area, and then applying those values to resource conservation, planning, growth, development, and such changes as may occur in the MCD through time. One of the purposes of the MCD Land Use Plan is to "establish a more consistent and defensible position with regards to State and federal decision-making processes." To that end, one of the goals of the plan is to:

> support an agribusiness and agricultural science perspective for individual agricultural producers, agricultural communities and other agricultural entities, and other stakeholders involved with governmental agencies in the process of natural resource management and planning in order to provide for the economic and social stability of the MCD, the region, and the State of Wyoming.

One of the policies of the MCD Land Use Plan is to:

> facilitate efforts to bring together individual agricultural producers, agricultural communities and other agricultural entities, other stakeholders, and governmental agencies to view natural resource management and planning from an agribusiness and agricultural science perspective in order to provide for the economic and social stability of the MCD, the region, and the State of Wyoming.

With respect to more regional planning efforts, The MCD Plan also states that:

> Management and planning are often controlled by governmental entities that lack local connections, are unresponsive to local needs, or that do not desire local input. Local input may have improved stature when provided by a locally elected board. The MCD strives to be a governmental entity that provides a means of local involvement. The MCD, as an elected governmental entity, should provide a way for cooperators to express themselves in a forum that is otherwise inaccessible to them. Local landowners can be impacted by planning decisions at the local, State, and federal level. It is a reality that many landowners do not have the time or finances to review relevant documents, rules, and regulations or voice their concerns/opinions or attend meetings on a regular basis.

As such, the MCD is very interested in providing input and comment on the Draft RMP/EIS to ensure its goal that "The custom, culture, and economic stability of the MCD and its people are protected and served by appropriate and effective natural resources management and planning." This is especially important because nearly 70% of the land that makes up the MCD is public land. As such:

> The public lands and the rights and privileges residents have come to rely on in all of the public lands, are central to the custom and culture of the MCD. The MCD finds public land and natural resources management practices are both relevant and substantive to its custom and culture, its economy, its environment, its quality of life, and its ability to protect and enhance local resources in spite of potentially detrimental outside influences.
>
> Lands that have been identified under Federal Resource Management Plans as multiple use lands are subject to land uses that are critical to the performance of the District's duties regarding

grazing, water and erosion conservation.

3.6 CODY CONSERVATION DISTRICT LAND USE PLAN

The Cody Conservation District's (CCD) 2001-2005 Long Range Plan does not directly address how federal agencies should manage land within their district, but the plan does have one goal related to this issue. Goal E in the plan is that the:

> CCD will represent local interests in the planning and implementation efforts of local, state, and federal government agencies within the boundaries of the CCD.

Actions under this goal include working with government agencies to protect property and water rights, address Big Horn Basin water quality concerns.

3.7 HOT SPRINGS CONSERVATION DISTRICT LAND USE PLAN

The Mission Statement of the Hot Springs Conservation District Long Range Plan is to:

> Help stabilize the local economy and resolve conflicts in land use. Provide leadership for the conservation of Hot Springs County soil and water, protect the agriculture resource base, promote wise use of water and all other natural resources, preserve and enhance wildlife habitat, protect the tax base and promote the health, safety and general welfare of the citizens of this state and Hot Springs county through "a responsible conservation ethic.

One of the goals and strategies of the plan is to "continue to be an active participant in the revision of the …(BLM) RMP." In addition, the District will "support the sustainable use of natural resources on private and public lands in Hot Springs County."

3.8 POWELL-CLARKS FORK CONSERVATION DISTRICT LAND USE PLAN

The Powell-Clarks Fork Conservation District Long Range Plan 2006–2011 does not address management of federal land.

3.9 SHOSHONE CONSERVATION DISTRICT LAND USE PLAN

The Shoshone Conservation District's 2006–2011 Long Range Plan, like many of the other plans, does not directly address management of federal land. However, the notes that it is policy for the district to cooperate with state and federal agencies, as well as local governments, in sharing expertise in the field of natural resource conservation. Working in conjunction with the public landholding agencies, organizations, and individuals, the District attempts to develop a team effort to conserve the area's valuable natural resources. The District also works with the BLM to control erosion and range grass growth for improvement of range for wildlife and livestock grazing.

3.10 SOUTH BIG HORN CONSERVATION DISTRICT LAND USE PLAN

Over 80% of the land within the South Big Horn Conservation District (SBHCD) is federally owned, therefore, the SBHCD, whenever possible, will provide input to agencies on actions that will affect the landowners in the district. This may include oil and coal bed methane issues, Forest Service revision plans, BLM management plans, greater sage-grouse and other wildlife management plans, and residential or industrial development outside of urban areas. The SBHCD will strive to build relationships with the Forest Service and BLM in the future. Current issues include the soil surveys, sage grouse management, the implementation of the Big Horn National Forest Plan, and 303(d) listed streams located entirely on Forest Service lands. The District will continue to participate in the formation of management plans by these agencies where possible.

3.11 WASHAKIE COUNTY CONSERVATION DISTRICT LAND USE PLAN

The Washakie County Conservation District Natural Resource Land Use Plan speaks to federal laws that govern land management requiring coordination by the managing agency with local agencies such as the Washakie County Conservation District (WCCD). The federal agencies authorities provided or cited throughout this plan are given direction on cooperating with local government and other agencies. The Plan mentions several statutes and regulations requiring cooperation with local agencies such as the WCD. It is reasonable to assume that "meaningful involvement" refers to consultations and involvement throughout the planning cycle not merely at the end of the planning cycle. These statutes also distinguish the elevated status of local government officials from members of the general public or special interest groups of citizens in the decision making process.

43 U.S.C. § 1712 (c) (9) of FLPMA provides that the Secretary of Interior assure that the BLM's land use plan be "consistent with State and local plans" to the maximum extent possible under federal law and the purposes of FLPMA.

Additionally, the Plan mentions that the NEPA requires that all federal agencies consider the impacts of their actions on the environment and on the preservation of the culture, heritage, and custom of local government.

It is the stated policy of the WCCD to work to ensure local input on state and federal land management issues to promote multiple use of public lands (grazing – wildlife and domestic, logging, minerals, recreation) and protect private property rights. It is also stated policy to develop, promote, and defend viable alternatives to the proposed actions of other government agencies where the proposed action would adversely impact any of the resource bases of the WCCD. The WCCD shall provide comment(s), seek Coordination Status, or seek to become a Cooperating Agency, as is appropriate for the WCCD's purposes, for federal land use planning affecting the WCCD in order to effectively represent and protect the WCCD's custom, culture, economy, and general welfare.

3.12 SUMMARY OF LGCA ISSUES WITH RMP COMPATIBILITY

LGCA members believe that the BLM has ignored in the RMP/EIS numerous stated policies and goals included in the Big Horn, Hot Springs, Park, and Washakie County Land Use Plans and Meeteetse, Cody, Hot Springs, Powell-Clarks Fork, Shoshone, South Big Horn, and Washakie County Conservation District Land Use Plans. In not addressing inconsistencies between the RMP/EIS and County and Conservation District Land Use Plans, the BLM is in violation of CEQ Section 1506.2 – Elimination of Duplication with State and Local Procedures. The LGCA has consistently stated that they favored continued multiple use and are not in favor of reducing access to public lands for a variety of purposes. Nevertheless, the BLM-preferred alternative in the RMP/EIS includes LWCs that potentially reduce or eliminate significant acreage available for oil and gas leasing even though the BLM LWC inventory included lands that contained significant developments including roads, pipelines, wells and grazing improvements. The LGCA LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics.

The LGCA fully supports the goals of multiple use and sustained yield, balancing increasing and competing demands for resources on public lands while serving the best interests of the residents of the Bighorn Basin. The LGCA supports implementation of multiple uses through a combination of elements selected from Alternative A, C, and D, which would work to strike an appropriate balance between extractive resource use and recreational use/conservation. Alternative B and D, in particular, restrict certain multiple uses (e.g. resource extraction and grazing) across much of the Planning Area, which is contradictory to the stated goals of the BLM as well as the policies set forth in the County and Conservation District Land Use Plans.

With respect to projections of oil and gas development in the RMP/EIS, the LGCA believes that the BLM significantly underestimated the potential for recent and upcoming technologies to develop existing resources. This position is backed up by letters and comments from those in the industry. The number of acres administratively unavailable to oil and gas leasing increases from approximately 155,000 under current conditions (Alternative A) to over 290,000 acres under the BLM-preferred alternative (Alternative D). This is not consistent with the goals and policies of any of the County and Conservation District Land Use Plans.

The LGCA is concerned about potential impacts on grazing that are not explicit in the RMP. The RMP states that the current AUMs of 305,887 will only be reduced by 1–2% over the life of the Plan. However, according to the Plan, direct impacts to livestock grazing will result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 – 162) that state management must be consistent with "other resource objectives," but does not disclose which resources or objectives. Additionally, the affect

that the change from "restricted to roads and trails" to "restricted to designated roads and trails" will have on grazing may be significant. If access routes to their allotments are altered or eliminated, the financial burden could force the abandonment of grazing activities by one to many permittees. The LGCA is concerned that these other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. The County and Conservation District Land Use Plans are clear in that they are opposed to any reductions in grazing, particularly if they are not backed up by scientific data including monitoring of vegetation resources, trend analyses, etc.

4. AIR QUALITY

Introduction

The LGCA in interested in seeing that the BLM use reasonable planning measures for the protection of high-quality air resources and to maintain compliance with laws and regulations, while encouraging development of natural resources throughout the Basin. Without question, to do such the BLM will give the Wyoming Department of Environmental Quality (WDEQ) primacy over air quality monitoring in the Bighorn Basin. In its current incarnation, the RMP/EIS does not fulfill these goals. Generally, the LGCA requests that changes in the air quality monitoring process, administered by the WDEQ, be made in order to fully characterize the current and future air quality conditions.

2.4.1 Physical Resources (Air Quality)

On Page 2-12, the RMP/EIS states that "Certain management actions specify conformance with Wyoming DEQ regulations (e.g., smoke management rules for prescribed burns and meeting water quality standards), or specify enforcement and remediation actions." Please include a statement that these nondiscretionary laws and regulations are presented in Table 2-5.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

Within Table 2-5 Detailed Alternatives, Record 1000 states that Goal PR:1 is to "Minimize the impact of management actions in the Planning Area on air quality by complying with all applicable air quality laws rules, and regulations." Please expand Goal PR:1 and its associated management actions to include basic descriptions of all applicable air quality laws, rules, and regulations, as well as how compliance will be achieved. Management actions that are currently presented only specify compliance with Wyoming DEQ Air Quality District smoke-management rules and regulations.

3. Affected Environment

Monitoring of Air Quality, Visibility, and Deposition in the Planning Area

Page 3-5 states that air quality monitoring sites in the Bighorn Basin and relevant sties nearby are listed in Table 3-1. Please include a map of the air quality monitoring sites listed in Table 3-1.

The North Absaroka is described as one of two air quality monitors located in the planning area. The location provided in Table 3-1 places the site outside of the planning area. Please clarify this discrepancy.

The process for identifying relevant air quality monitoring sites is not described in the RMP/EIS. Please include the criteria used in selecting relevant sites. Along with descriptions of the site selection process, please include an expanded description of the relevant sites, particularly the differences in climate and topography from locations in the planning area.

Please include justification for not including air quality monitoring sites located to the southwest. For example, the Boulder monitoring station (NO_2, O_3, and PM_{10}) is located approximately 70 miles from the

planning area, and the Bridger Wilderness IMPROVE monitor is located approximately 58 miles from the planning area. Both are a shorter linear distance than Thunder Basin SPM and IMPROVE sites (100 miles).

Following expanded description of the process used to identify relevant air quality monitoring sites, please provide justification of their ability to accurately characterize the air quality in the Planning Area. If this justification cannot be provided, or is deemed insufficient by the cooperating agencies, then additional air quality monitoring stations should be established. Additional air quality monitoring sites distributed throughout the basin should be established to accurately represent the air quality in the Planning Area.

Trends

Table 3-3 presents applicable standards for criteria pollutants and current representative concentrations for the Planning Area. Beginning with page 3-8, the Trends section does not address all sources presented in Table 3-3. Please provide justification for selection of presented data.

Page 3-13 states that a WARMS monitoring site is currently operating northwest of Worland. Please present any relevant data from the Worland WARMS monitoring site, even though the three years of data required for determining compliance have not been collected. Observed concentrations of ozone at a site within the planning area would provide information that is more relevant than data from a site significantly removed from the planning area.

Figure 3-5 on page 3-14 does not include the NAQQS standard for ozone, which deviates from previous figures. Please show the 75ppb standard in Figure 3-5 in order to clearly represent the standard as compared to ozone concentrations at the Thunder Basin SPM Site.

Visibility

Names of Class I and Class II areas in or near the Planning Area are presented on page 3-19. Please provide a map of the Class I and Class II areas in or near the planning area.

The RMP/EIS asserts that visibility conditions are excellent at the North Absaroka site, and standard visual range values are presented. Please provide the metric, in standard visual range or otherwise, for designating the visibility conditions as excellent.

Atmospheric Deposition

The USFS and NPS have established Level of Concerns for total deposition of nitrogen and sulfur compounds in Class I Wilderness Areas. These Level of Concerns are 1.5 kilograms per hectare per year of total nitrogen deposition and 5.0 kilograms per hectare per year of total sulfur deposition. Please include the USFS/NPS Level of Concern guidelines on the graphs in this section.

4.1.1 Air Quality

The air quality environmental consequences section describes the expected impacts of each alternative using a qualitative analysis. In order to accurately determine impacts to air quality, comprehensive monitoring should be performed by the WDEQ. Limited monitoring data and inaccurate qualitative methods may result in decisions that negatively affect the Planning Area and management of its resources.

4.1.1.1 Methods and Assumptions

If estimates for activity data change (for example, if the reasonably foreseeable development projections are updated), impact analysis should be revised.

A method on page 4-6 states that 'only emissions from permitted activities that would occur on federal lands within the Planning Area' are included in the analysis. Please provide a reference that, while only emissions from permitted activities that would occur on federal land within the planning area are included, the cumulative effects of activities occurring off federal land and outside of the planning area will be considered and incorporated into the appropriate planning documents and project-specific assessments.

Please justify the exclusion of fugitive VOC and prescribed fire emissions from the analysis.

Please justify the exclusion of activities related to the management of cultural resources, paleontology, recreation, and fish and wildlife.

Impacts Common to All Alternatives

Please correlate the annual emissions summary presented in Table 4-2 to the applicable national and state primary air quality standards presented in Table 3-3. Quantitative air quality monitoring, by the WDEQ, using an expanded array of monitoring sites, is necessary to provide an accurate characterization of air quality impacts during the life of the Plan.

Air Quality

Please include measurements from the Worland monitor established in 2010.

Greenhouse Gases

Please justify only including carbon dioxide emissions in Tables 4-3 and 4-4, particularly when they are titled "Carbon Dioxide Equivalent Emissions" implying inclusion of other greenhouse gases.

4.9.1.2 Assumptions for Analysis

Please include calculations of air quality emissions from non-BLM activities in Appendix U alongside calculations for Chapter 4.

5. Mitigations

1. The BLM will give the WDEQ the lead role in regulating and monitoring air quality in the Bighorn Basin.
2. The BLM will develop detailed descriptions of the selection process in determining which air quality monitoring sites were included in the analysis of air quality impacts, including descriptions of the climatic and topographic characteristics of both selected and excluded sites.
3. The WDEQ will gather sufficient air quality data to accurately characterize air quality within the Planning Area. This will be achieved by establishing new air quality monitoring stations within the Planning Area, if determined necessary.
4. If a change in estimates of activity data occurs, the WDEQ will increase monitoring in order to appropriately reflect the air quality impacts of a change in emissions estimates.
5. The WDEQ will determine expected exceedance probability of applicable national and state primary air quality standards based on emissions estimates from expected activity data.

5. GEOLOGIC RESOURCES

Given that management of geologic resources primarily focuses on the preservation of unique features such as paleontological resources, fragile easily eroded features, and scientifically important strata and that these features are evaluated in Sections 4.5 *Heritage and Visual Resources* and 4.7 *Special Designations* of the RMP/EIS, the LGCA offers any pertinent comments in the corresponding sections of this document.

6. WATER

Regarding water resources, the LGCA has several concerns with the RMP/EIS. First, the AMS listed three indicators for water: (1) chemical characteristics, (2) physical characteristics and (3) biological characteristics. Yet none of the indicators is mentioned in the RMP/EIS and no baseline information regarding the indicators is provided in Chapter 3 of the RMP/EIS. Furthermore, in order for there to be adverse impacts to water resources, there must be demonstrated negative impacts as measured by indicators. Without the presence of baseline data pertaining to chemical, physical, and biological characteristics, it cannot be demonstrated that adverse or positive impacts would occur as a result of any alternative action.

Accordingly, the BLM will give water quality monitoring responsibilities to the WDEQ. During the life of the Plan, the WDEQ will collect and analyze baseline data related to the indicators for water of physical, chemical, and biological characteristics of surface and groundwater in the Planning Area. Following collection of baseline data, the WDEQ will actively monitoring water quality in the Bighorn Basin and compare and contrast current findings with baseline data.

- With the exception of the WEPP model, “assumptions and methods” section only includes assumptions, not methods.
- No actual water quality data is presented in Chapter 3. Although it is not expected that the RMP/EIS document the quality of surface water in all drainages throughout the Big Horn Basin, more data should be provided in the RMP to document baseline water quality.
- Indicators for water according to the Final AMS are chemical, physical, and biological characteristics (Page 2-19 of the AMS). No data are presented to provide a baseline for these indicators.

7. MINERAL RESOURCES

It is imperative to the LGCA that the occurrence and development potential, and impacts analysis for mineral resources in the Planning Area are accurately and fully disclosed in the RMP/EIS. In particular, it is important that the projected oil and gas development potential be accurately characterized, as this will allow for effective long-term management and planning. Given the high level of importance concerning both the beneficial and detrimental impacts associated with energy development, the RMP/EIS should thoroughly address the likely increase in demand over the 20-year planning period and the increase in development that recent advances in technology will yield. Unfortunately, the RMP/EIS fails to do so.

The RMP/EIS states under Section 4.2.5 Leasable Minerals – Oil and Gas (pg. 4-55) the following:

> The potential for oil and gas occurrence in the Planning Area ranges from high to low, depending on location, as documented in the Reasonable Foreseeable Development Scenario (RFD). The RFD for oil and gas in the Planning Area analyzed the potential for anticipated drilling activity over the next 20 years. Lands in the Planning Area are classified as having moderate to no potential for development of oil and gas resources, depending on location and based on projected drilling densities (BLM 2009u). Drilling in existing fields accounts for a large proportion of the growth, with a lesser share attributed to additional new discoveries in both conventional and unconventional reservoirs.

However, it is documented in Figure 40 of the Draft Bighorn Basin RFD (cited in the RMP) that 92 percent of the Planning Area is classified as high occurrence potential for oil and gas (USDI 2009a). While it is appropriate to use past drilling densities in part to establish a baseline for development potential and associated impacts analysis, it is incorrect to disregard the high occurrence potential throughout the Planning Area.

It is further stated under RMP/EIS Section 4.2.5.1 Methods and Assumptions (pg. 4-56) that:

> The unconstrained baseline RFD for oil and gas in the Planning Area is based on a set of reasonable geologic, engineering, and economic assumptions about resource occurrence only, and past and present activity, without management constraints on future activities….In addition, because the RFD is a snapshot in time, it cannot capture how future advances in technology may make it possible to exploit certain oil and gas plays in the future that are currently not economical or commercially exploitable.

Yet, recent oil and gas discoveries and comparisons of past assessments indicate that advances in technology should be accounted for. For example, in 1995 the United States Geological Survey (USGS) reported that the Williston Basin contained 150 million barrels of recoverable continuous-type oil accumulations (Attanasi 1998). In 2008, the USGS estimated continuous oil reserves at a total mean resource of 3.65 billion barrels of oil for the Williston Basin Province (USDI 2008b).

The RMP/EIS posits that management direction for energy development be based on past drilling densities disclosed in the RFD and, in doing so, may significantly underestimate the development potential of recoverable oil and gas resources within the Bighorn Basin. Therefore, the impacts to oil and gas resources are most likely miscalculated and understated in the RMP/EIS.

Relevant Regulatory Guidelines

In regards to mineral resources in the Bighorn Basin Planning Area, the following are the major relevant regulatory guidelines the BLM must be in compliance with when making planning decisions:

- Domestic Minerals Program Extension Act
- Energy Independence and Security Act
- Energy Policy Act (P. L. 109–58)
- Executive Order 10355 – Delegating to the Secretary of the Interior the Authority of the President to withdraw or reserve lands of the United States for public purposes
- Federal Land Policy and Management Act
- General Mining Law of 1872, as amended
- Lode Law Act of 1866 (14 Statute 251)
- Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351 et seq.)
- Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et seq.)
- Mining and Mineral Policy Act of 1970 (30 U.S.C. 181 et seq.)
- Mining Claim Rights Restoration Act (30 U.S.C. 621-625)
- National Environmental Policy Act
- National Materials and Minerals Policy, Research and Development Act of 1980 (Pub. L. 96-479, 94 Stat. 2305)
- O&C Lands Act of 1937 (62 Stat. 162)
- Oil Pollution Act (33 U.S.C. 2701 et seq.)
- The Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.), as amended
- The Materials Act of July 31, 1947 (30 U.S.C. 601-604), as amended
- The Mining and Minerals Policy Act of 1970
- The Multiple Mineral Development Act (30 U.S.C. 521-531 et seq.)

2. Resource Management Alternatives

2.4.2 Mineral Resources

In the management actions common to all alternatives description the RMP/EIS states (pg. 2-12) "Mineral resources management defines the scope of mineral development and applies measures such as BMPs to protect other resources and resource uses." The LGCA supports the use of BMPs in the exploration, development, production, and abandonment of oil and gas resources to avoid undue degradation to other

resources. Further, it is requested that additional mitigation measures be implemented for project-specific impacts when necessary, rather than an increase in stipulated restrictions across a larger area.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

After reviewing the goals, objectives, and management actions provided in RMP/EIS Table 2.5, the LGCA offers the following comments on mineral resources in Table 1.

Table 1 Mineral Resources Comments for Table 2-5 of the RMP/EIS

Record Number	LGCA Comment
2007	Any management decision implemented through the guidance outlined in record #2007 must be based on sound science and monitoring/field data at the project level. In addition, when considering drilling densities, please consider the projected timeline for each project activity.
2011	Stipulated restrictions should only be updated when necessary and based on sound science, monitoring and field data.

3. Affected Environment

3.2.1 Locatable Minerals

The RMP/EIS (pg. 3-40) discloses "Disturbed areas must be reclaimed after exploration and mining activities are completed." Please clarify this statement by adding that comprehensive reclamation plans are required for all project-level activities that exceed casual use and result in surface disturbance. Additionally, include guidance from the BLM Solid Minerals Reclamation Handbook and state that reclamation plans will fulfill federal, state, county, and other local agencies requirements.

If there are known commercially viable minerals associated with rare earth elements in the Planning Area, please provide an inventory per FLPMA Sec. 201. An evaluation of economically viable quantities should include fluvial placer deposits.

Management Challenges

It is stated in the RMP/EIS (pg. 3-42) that:

> Critical thresholds relevant to continued development of locatable minerals in the Planning Area have not been specifically determined under the existing management scenario. However, using the Geographic Information System (GIS), the BLM might be better able to determine threshold levels of disturbance in relation to locatable mineral (primarily bentonite) mining, and be better able to make future decisions because of these capabilities.

The LGCA requests that if future thresholds are considered, that they are made available for review and discussion.

3.2.2 Leasable Minerals – Coal

The RMP/EIS (pg. 3-43) states "Coal production in the Planning Area is generally not considered economically feasible due to the relative thinness of the coal beds, thickness of the overburden, and low

quality of the coal." Yet there is a record of historical mining activity in the Planning Area and the USGS named eight important coal fields within the Bighorn Basin (USDI 2009b). Please remove or modify the statement in the RMP/EIS in order to accurately portray the affected environment.

3.2.5 Leasable Minerals – Oil and Gas

Exploration

The RMP/EIS states (pg. 3-46) that "oil and gas reservoirs can be discovered by direct or indirect exploration methods. Direct methods include mapping of surface geology, observing seeps, and gathering information on hydrocarbon observed in drilling wells. Indirect methods often use geophysical methods such as gravity and magnetic and seismic surveys to delineate subsurface features that might contain oil and gas resources not directly observable". The RMP/EIS goes on to state that two specific areas where limited exploration has occurred in the Planning Area are the Southeastern Beartooth Front and the Bighorn basin-center gas play. It also states that the Wyoming State Geological Survey is investigating three major types of natural resources in Wyoming-tight-sand gas (basin-center gas or deep basin gas), shale gas, and under-pressured gas (RMP/EIS pg. 3-46).

The LGCA agrees with the premise that there are undiscovered oil and gas reservoirs in the Planning Area. According to the Wyoming Oil and Gas Commission, the Bighorn Basin is the largest oil producing basin in the Rocky Mountains and 78 percent of the basin has never been drilled (Wyoming Oil and Gas Commission 2011) . In addition, it is thought that a review of the regional geology provides opportunities for discovering new oil and gas reserves along the western boundary of the basin that were not adequately evaluated or had understated potential (i.e. low to no potential) in the Bighorn Basin RFD.

It has been established that Phosphoria formation oil in Bighorn Basin reservoirs migrated from the Idaho-Wyoming thrust belt and eventually charged the large traps that ring the basin (Stone 1967). While moving through the western and central basins area, some of these hydrocarbons were certainly diverted into intervening structural and stratigraphic traps. These traps have not yet become the target of explorationists because there have always been cheaper, shallower targets to drill (Herrod 2010a). In at least 16 Bighorn Phosphoria fields, stratigraphic variation contributes greatly to the structure of the Phosphoria trap and is essential in at least three fields (Cottonwood Creek, Manderson, and Water Creek) (Stone 1967). Considering this stratigraphic variation and that one petroleum system in the basin is sourced from the Phosphoria Formation, it is probable that there are opportunities for discovering new reserves in this formation (USDI 2008a).

Further, one of the understated areas that may have potential for new discoveries is the Mowry Fractured Shale as defined by the USGS (USDI 2008b). Interest in the Mowry Fractured Shale play in the Bighorn Basin has increased due to the recent boom in production from the Bakken Shale in the Williston Basin. Success in the Bakken came from analysis of geologic data on a decades-old producing area, identification of untapped resources, and application of the new drilling and completion technology

(horizontal wells and fracture stimulation) necessary to exploit the resource (Energy Information Administration 2006).

The Mowry Fractured Shale shares many of the characteristics of the Bakken Shale and other successful fractured shale reservoirs in the United States. These characteristics include a significant thickness of source-rock quality shale (upwards of 700 feet in the Bighorn Basin), adequate maturation, the capacity to maintain open fractures, and susceptibility to fracture stimulation (Herrod 2010b; Herrod 2010c). Only limited production has been reported from the Mowry Shale in the Bighorn Basin (primarily because it has never been specifically targeted) but it is known to produce from several fields in the Powder River Basin (Herrod 2010c).

Recent drilling has successfully targeted the Mowry Shale in the Bighorn Basin (Figure 5). In March 2008, a horizontal well (USDI 2010) was drilled in the Manderson field (a field with known Mowry Shale production). The well was completed in Ocht Louie sandstone at the base of the Mowry Shale. In the northwest corner of the basin, near the Absaroka Range Front, two wells (Crosby 25-2 and Crosby 25-3 in the Terry Field) were completed in the Mowry Shale in 2007. Cumulative production from Crosby 25-2 from June 2007 to November 2009 was 14,766 barrels (Bighorn Basins) oil and 291,841 thousand cubic feet (Mcf) gas. Cumulative production from Crosby 25-3 from May 2007 to November 2009 was 13,217 Bighorn Basins oil and 582,982 Mcf gas. These successful Mowry Shale completions will likely lead to additional development and drilling of Mowry Shale targets in the basin.

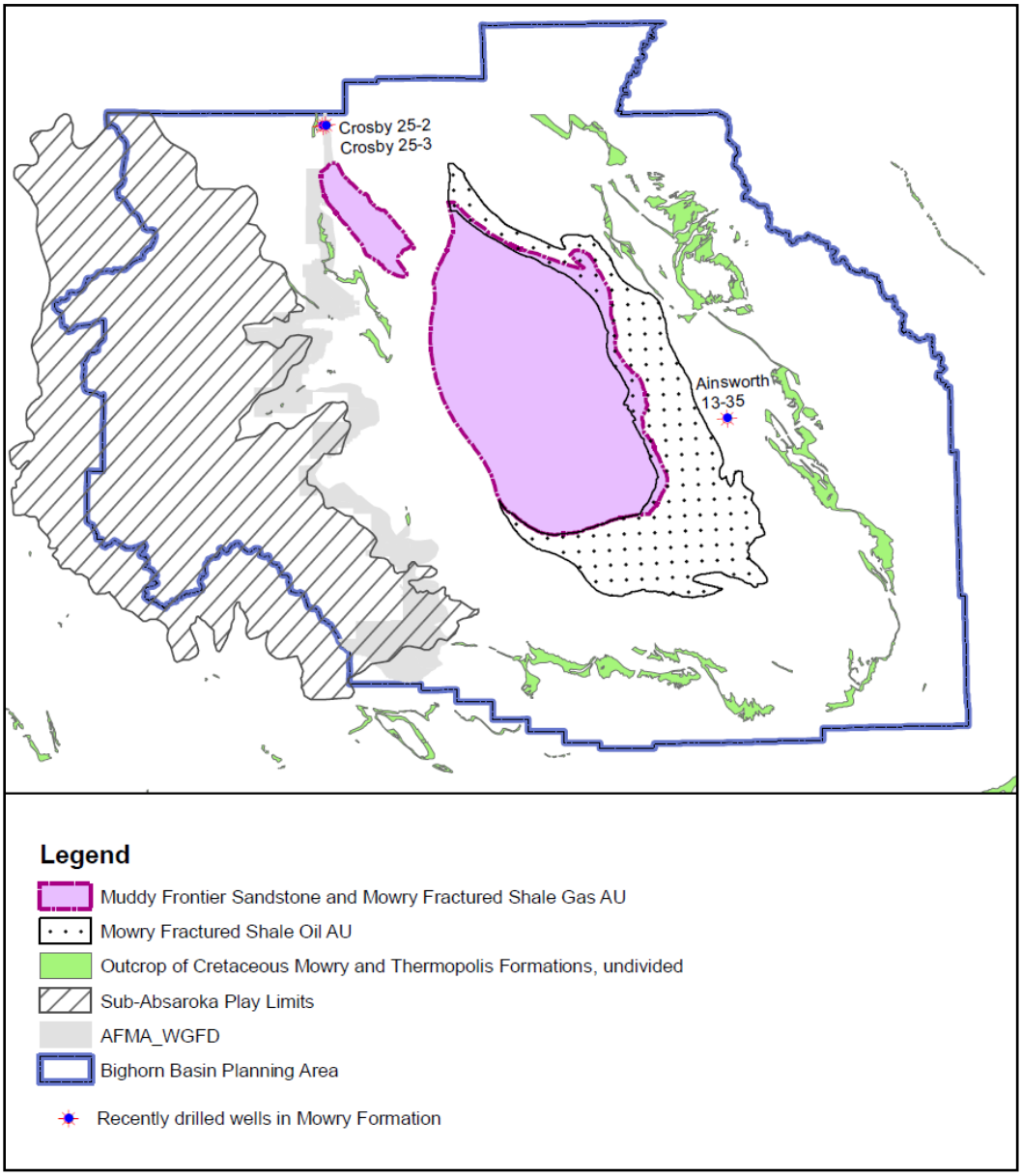


Figure 5 Mowry Shale Assessment Units

The USGS evaluated the Mowry Fractured Shale play in their recent assessment of undiscovered oil and gas resources of the Bighorn Basin (USDI 2008b). The Mowry Fractured Shale was included in the Cretaceous-Tertiary Composite Total Petroleum System Muddy-Frontier Sandstone and Mowry Fractured Shale Continuous Gas assessment unit (AU) and was also evaluated separately as the Mowry Fractured Shale Oil AU. The extents of the two assessment units are shown in Figure 5. Estimated undiscovered continuous oil and gas reserves were five million barrels of oil in the Mowry Fractured Shale AU and 348 billion cubic feet of gas in the Muddy-Frontier-Mowry AU. It is interesting to note that the Crosby 25-2,

Crosby 25-3, and the Ainsworth 13-35 wells discussed above were drilled outside both AU boundaries, therefore indicating Mowry production throughout the basin cannot be overlooked.

In a letter to the BLM from Marathon Oil, it is stated that "based on new technologies and the potential of the Mowry Shale play, the RFD may be 25–50 times understated (Marathon Oil Company 2010)." However, owing to the lack of industry data for the USGS Mowry Shale/Muddy Frontier Sandstone AUs, it was impossible to predict the areas that will be leased for certain over the planning period. In order to qualitatively understand how restrictions in the RMP/EIS would affect future development, and by using Alternative 4 as an example, the LGCA conducted a risk analysis for the total area of the USGS Mowry Shale/Muddy Frontier Sandstone AUs that do not directly correlate to the RMP/EIS mineral constraints. The LGCA used the management actions such as NSO, CSU, and TLS associated with WSAs, Wild Lands, ACECs, Historic Trails, VRM Classes, ROW Avoidance and Exclusion Areas, sage grouse lek and core areas, antelope, mule deer, and elk crucial winter ranges, elk parturition areas, and wild and scenic rivers (Table 2). The area overlain with restrictions is depicted in Figure 7, Figure 8, Figure 9, and Figure 10.

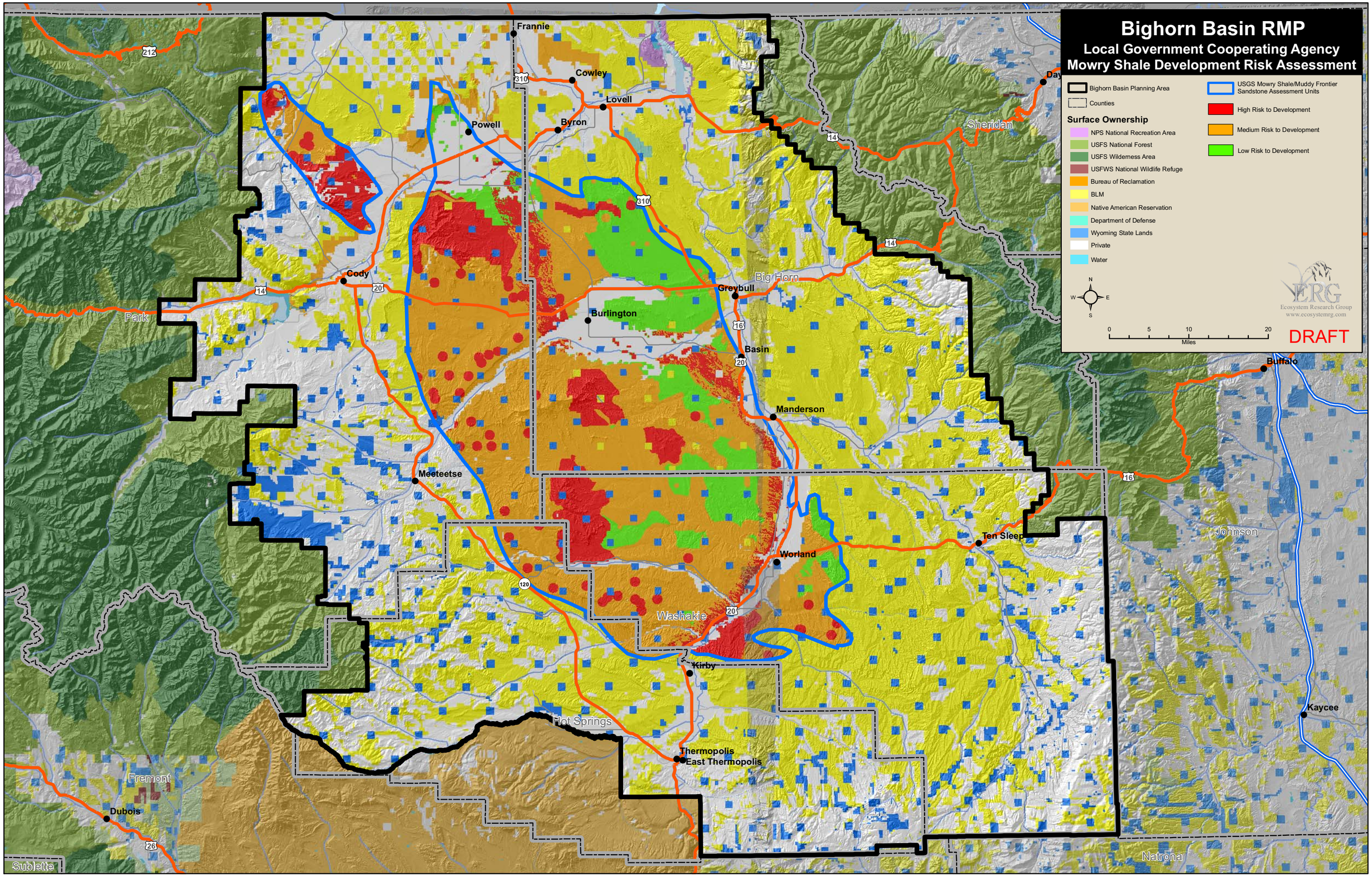
Not having a complete characterization of the development of the BLM RMP/EIS mineral constraints, the LGCA classified their own risk levels into high, medium, and low categories within the USGS Mowry Shale/Muddy Frontier Sandstone AUs. The categories of risk to development are not exclusively mineral constraints, but a combination of multiple resource constraints that will affect exploration and development of the Mowry Shale Formation in the Bighorn Basin. The LGCA has developed a map and GIS shapefile to address this issue. The analysis determined that of the 1.2 million acres in the Mowry Shale Formation, 60 percent is threatened by medium to high risk constraints (Table 3) (Map 1).

Table 2 Levels of Risk and Risk Factors in Mowry Shale AUs

Risk Level	Resource Areas
Low	Parturition Habitat, VRM Class IV
Medium	Antelope, Mule Deer, and Elk Crucial Winter Range, Greater Sage-grouse Core Areas, VRM Class III, ROW Avoidance Areas, and LWCs
High	WSAs, Greater Sage-grouse Leks, ACECs, VRM Classes I & II, National Historic Landmarks and Trails, ROW Exclusion Areas

Table 3 LGCA Risk Analysis in the Mowry Shale Formation

LGCA Mowry Shale Risk Analysis	Acres
Low Risk	224,616
Medium Risk	777,792
High Risk	238,094
Total	1,240,501


Bighorn Basin RMP
Local Government Cooperating Agency
Mowry Shale Development Risk Assessment
Bighorn Basin Planning Area
Counties
Surface Ownership
NPS National Recreation Area
USFS National Forest
USFS Wilderness Area
USFWS National Wildlife Refuge
Bureau of Reclamation
BLM
Native American Reservation
Department of Defense
Wyoming State Lands
Private
Water
USGS Mowry Shale/Muddy Frontier Sandstone Assessment Units
High Risk to Development
Medium Risk to Development
Low Risk to Development
N
W
E
S
0
5
10
20
Miles
ERG
Ecosystem Research Group
www.ecosystemrg.com
DRAFT
Frannie
Cowley
Lovell
Byron
Powell
Cody
Greybull
Burlington
Basin
Manderson
Meeteetse
Worland
Ten Sleep
Kirby
Thermopolis
East Thermopolis
Buffalo
Kaycee
Dubois
Park
Big Horn
Sheridan
Johnson
Washakie
Hot Springs
Fremont
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120
26

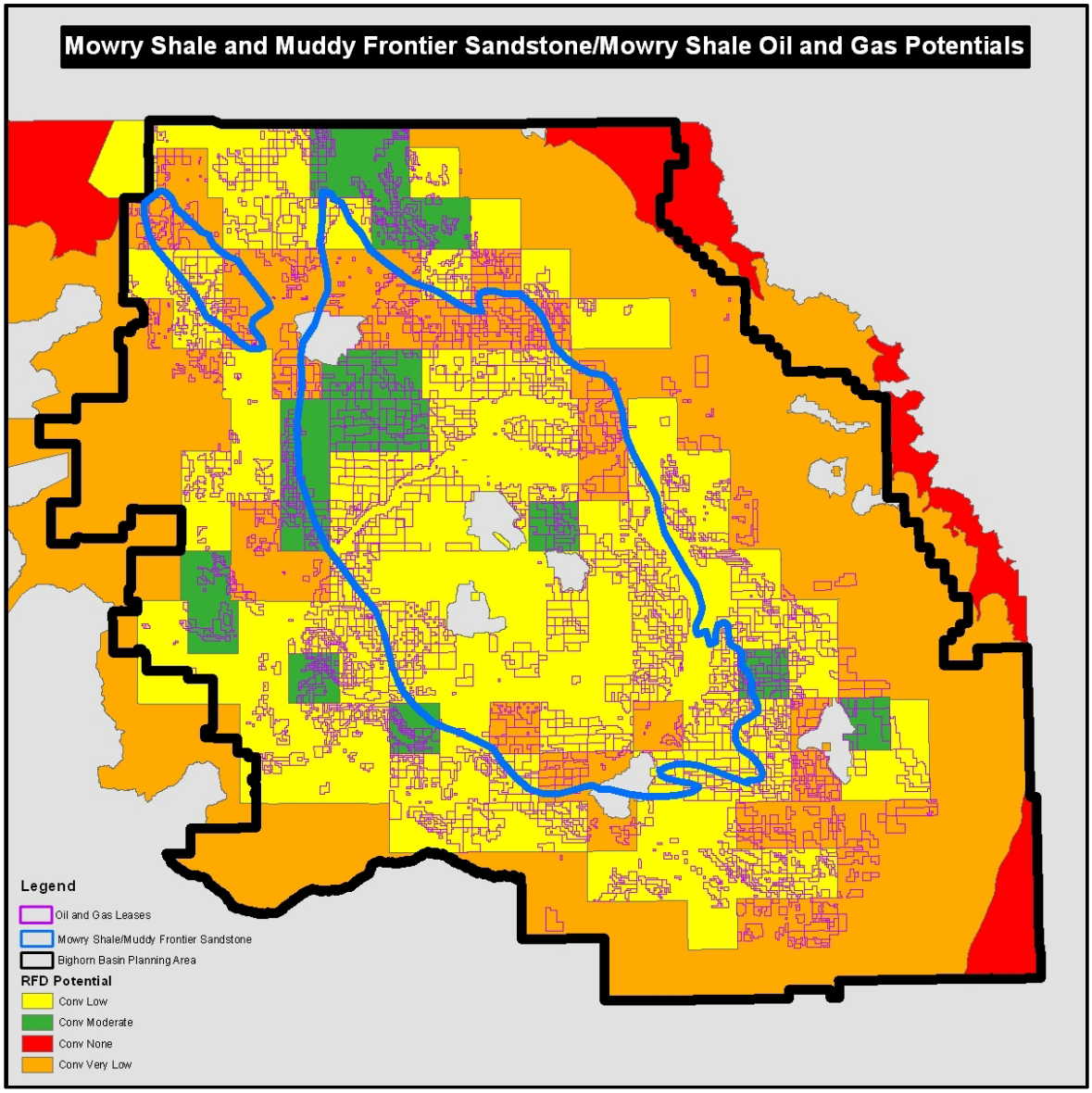


Figure 6 Mowry Shale and Muddy Frontier Sandstone/Mowry Shale oil and gas potential (modified from USGS 2008)

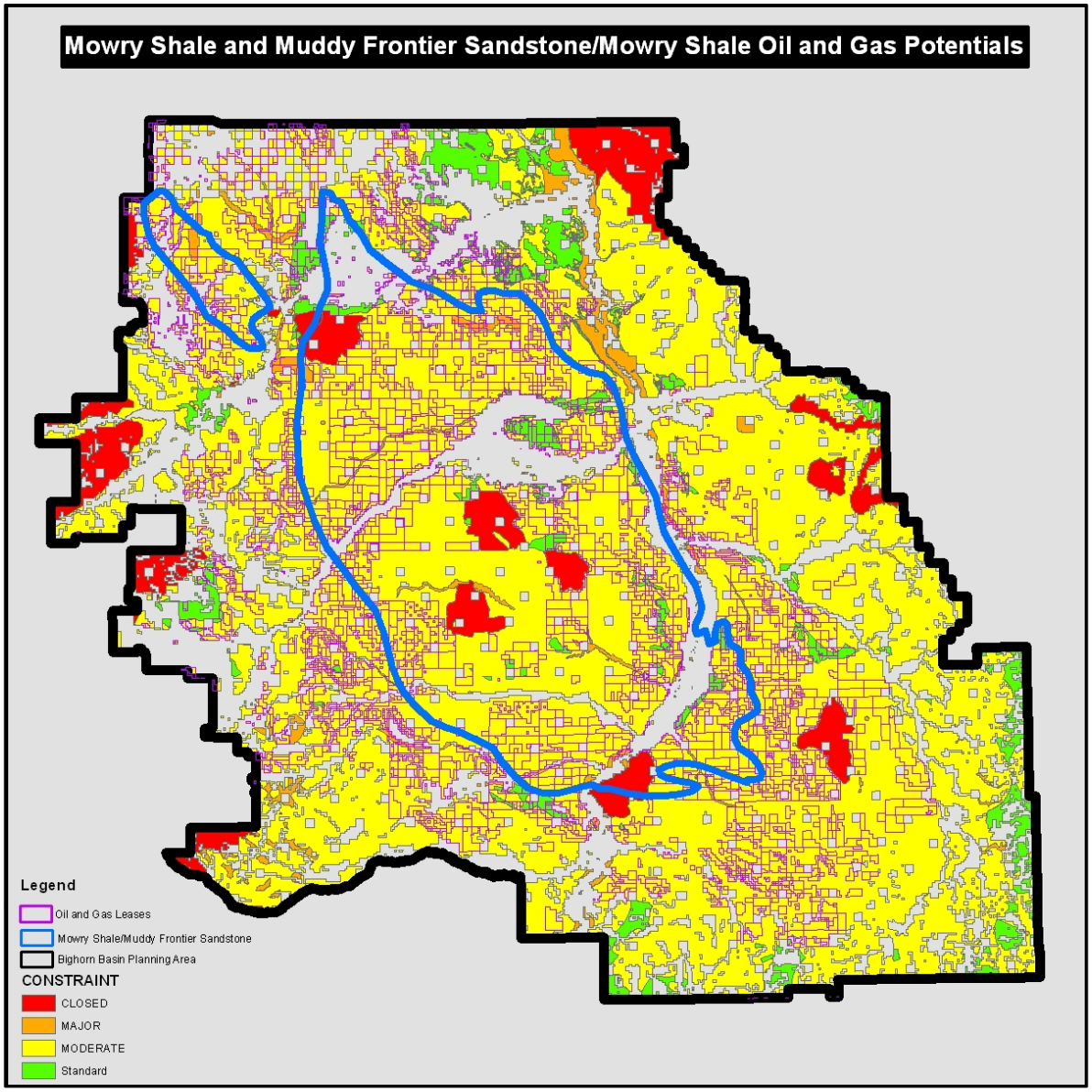


Figure 7 Assessment Units overlain with major and moderate constraints

In further support of the RMP/EIS being understated, according to Marathon Oil Company (Marathon Oil Company 2010):

> Table 4 of the RFD (the U.S, Geological Survey's Undiscovered Reserve Estimates) understates the probability of significant discoveries in these resource plays. For example, the Mowry-fractured shale continuous oil play has a mean estimate of only 5,000,000 barrels and 2 BCFG. Once a Mowry oil play is unlocked, there could easily be 50 times that amount of oil recovered, or approximately 250,000,000 barrels and 100 BCFG. Likewise, the Cody continuous gas play is currently given a mean estimate of only 38 BCF, the Mesdaverde sandstone continuous gas play

with a mean estimate of only 32 BCF, the combined Muddy-Frontier sandstone and the Mowry-fractured shale continuous gas play with mean estimate of only 348 BCF. Upon there being a successful discovery of these gas plays, the recovery for each could easily be between 25 to 50 times the projected mean amounts. For planning purposes, it would be best to include the potential of each of these plays, since a successful discovery would generate activity and a significant positive economic impact on the affected county(ies) and the state.

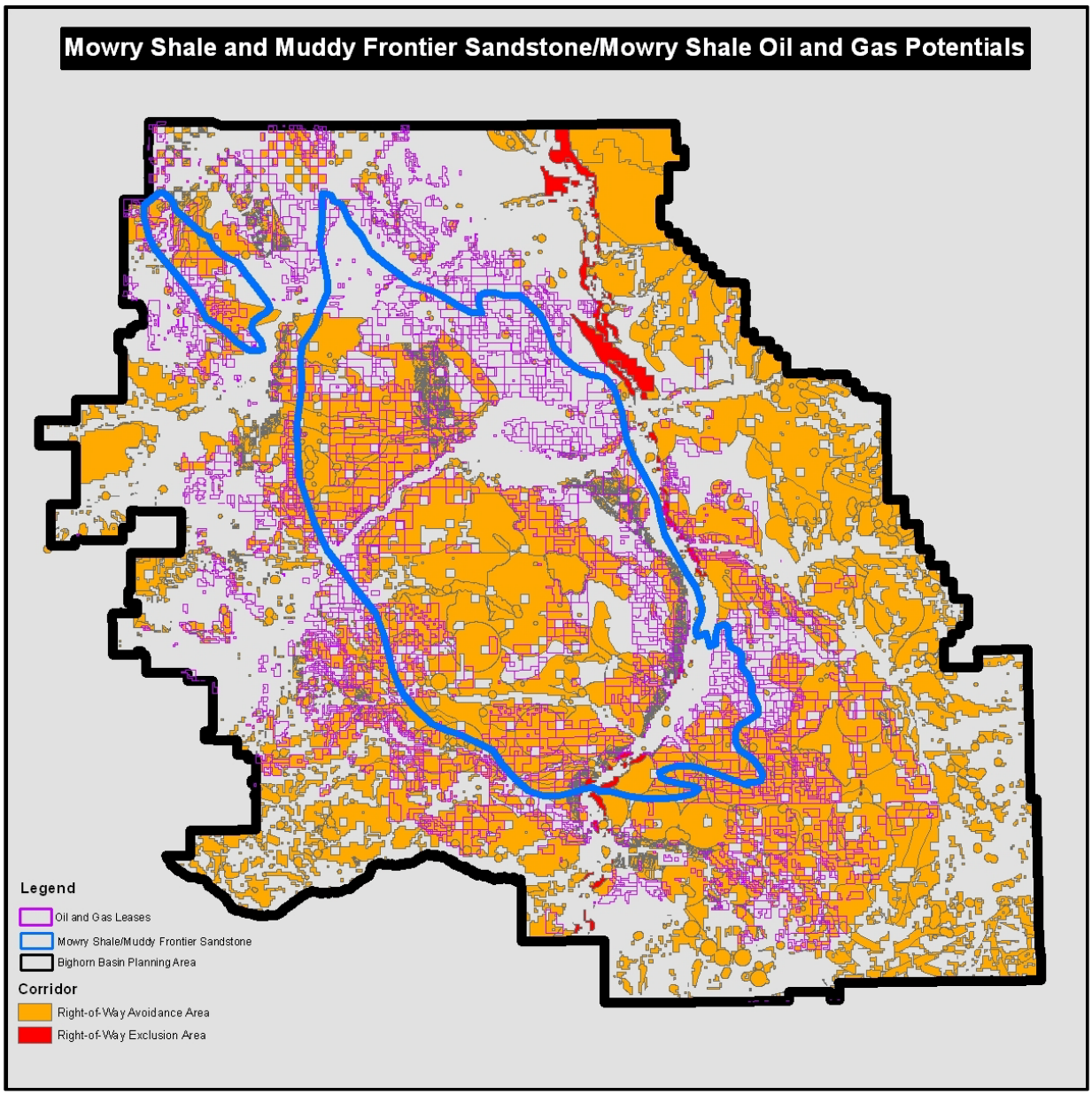


Figure 8 Assessment Units and ROW Avoidance Areas

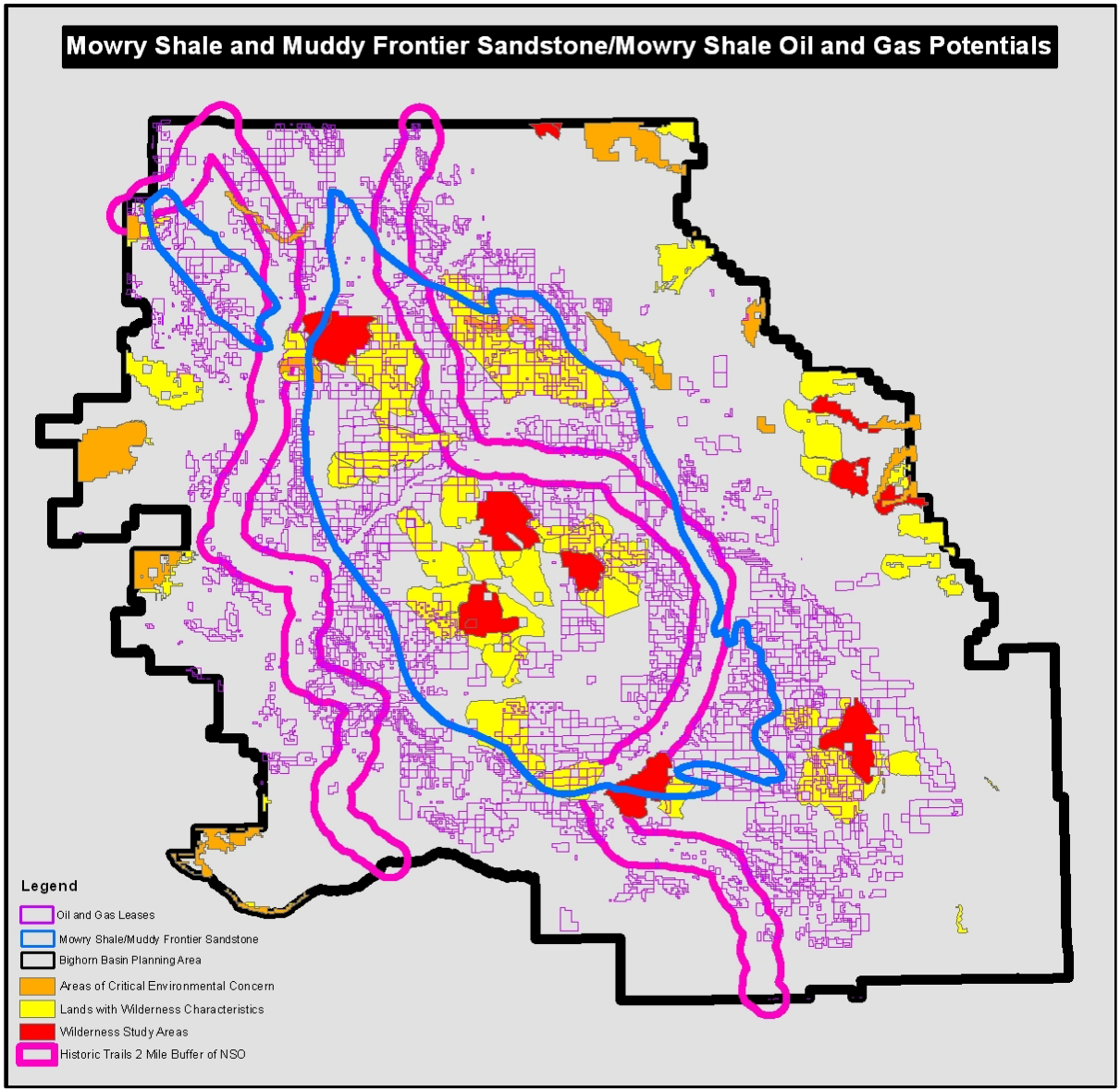


Figure 9 Assessment Units and Special Management Areas

Another area that may have been overlooked in the RMP/EIS is the Sub-Absaroka play. The Sub-Absaroka play was evaluated by the USGS in their 1995 national assessment of oil and gas resources (Fox and Dolton 1995) but it was not included in their more recent 2008 assessment of undiscovered oil and gas potential for the Bighorn Basin. It was also not included in the 2009 draft BLM's Bighorn Basin RFD analysis. According to the 1995 USGS assessment, the Sub-Absaroka is a "demonstrated" oil play located along the western side of the basin beneath Eocene-age volcanic rocks. That study stated that the potential for significant new field discoveries was considered to be "good". Oil was predicted to be

trapped in Laramide-age anticlines and domes, similar to producing structures successfully developed elsewhere in the basin. In the 2009 RFD, this area is considered to have low or no potential.

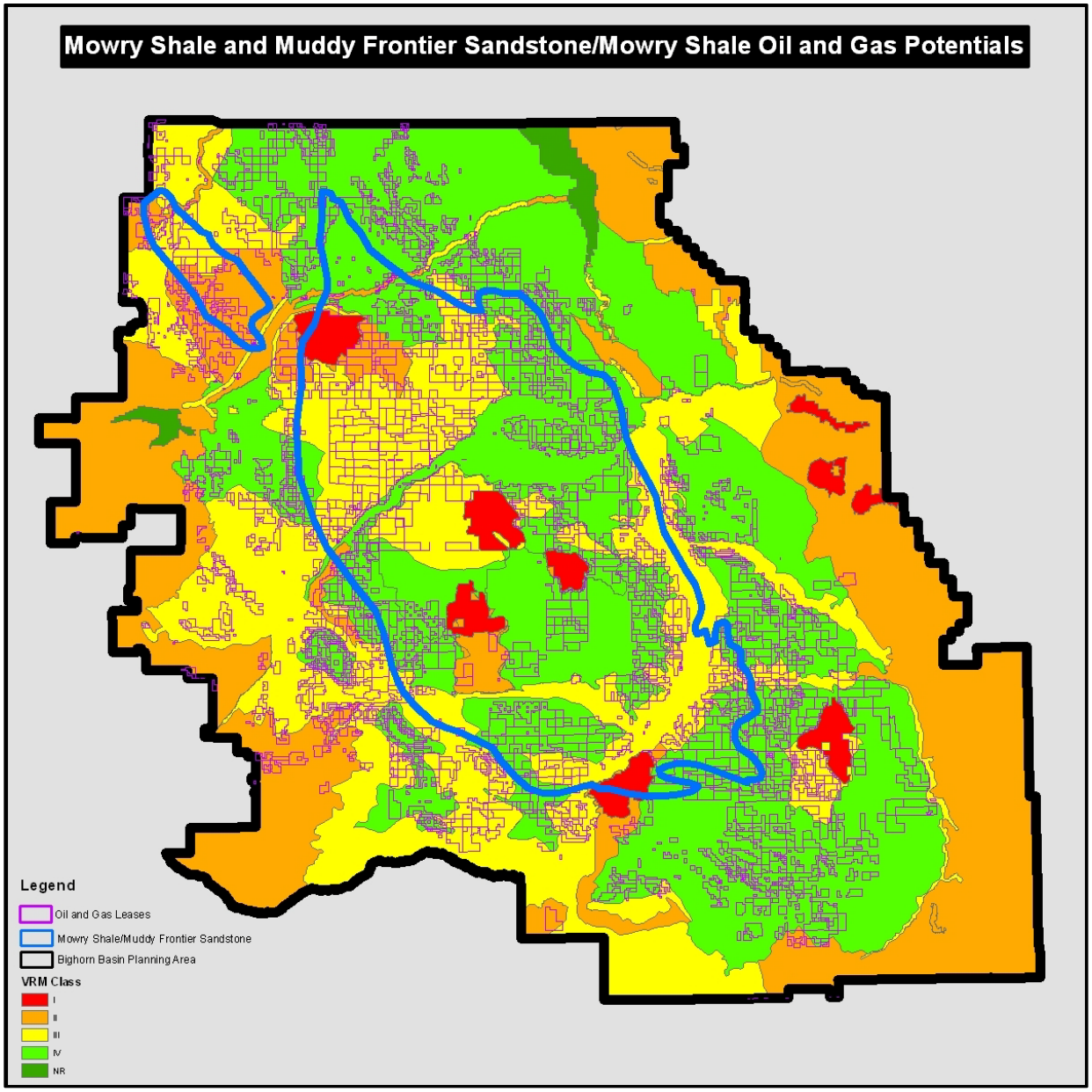


Figure 10 Assessment Units and VRM Classes I and II

Exploration of the Sub-Absaroka play has been limited because of the difficulty of exploring beneath the volcanic rocks, especially the challenge of predicting the depth range of the drilling objectives due to the rugged topography of the Absaroka Mountains. However, industry has recognized structures beneath the volcanic rock and six small fields (Aspen Creek, Baird Peak, Dickie, Prospect Creek, Prospect Creek

South, and Skelton Dome) have been developed in this play. Production has been from the Permian Phosphoria and the Triassic Curtis (Crow Mountain) Formations. With recent advances in exploration technology (for example 3-D seismic) and with access to public lands for exploration, it should be possible to look beneath the volcanic cover at the underlying structures and evaluate what could be significant hydrocarbon reserves (Fidelity Exploration and Production Company 2010). Loss of leasing opportunities, closure to exploration, or NSO restrictions would effectively end future exploration of this possible significant shale gas and oil resource play.

Review with Shoshone National Forest RFD

The oil and gas potential within the Bighorn Basin Planning Area is shown in Figure 40 of the Bighorn Basin RFD. A similar projection for oil and gas potential in the western portion of the planning area was forecast in the Shoshone National Forest (Shoshone) RFD (Figure 9 of (USDA 2011)). Those two potential projections were overlain and discrepancies were observed. As shown in Map 1, there are several areas where the Shoshone RFD projects a high potential for the occurrence of oil and gas and the Bighorn Basin RFD projects a very low to low potential. There are also areas where the Shoshone RFD projects moderate potential and the Bighorn Basin RFD projects very low potential. The BLM should reevaluate the discrepancies observed on overlapping areas of the Shoshone and BLM RFD and incorporate this information into the RMP/EIS if determined necessary.

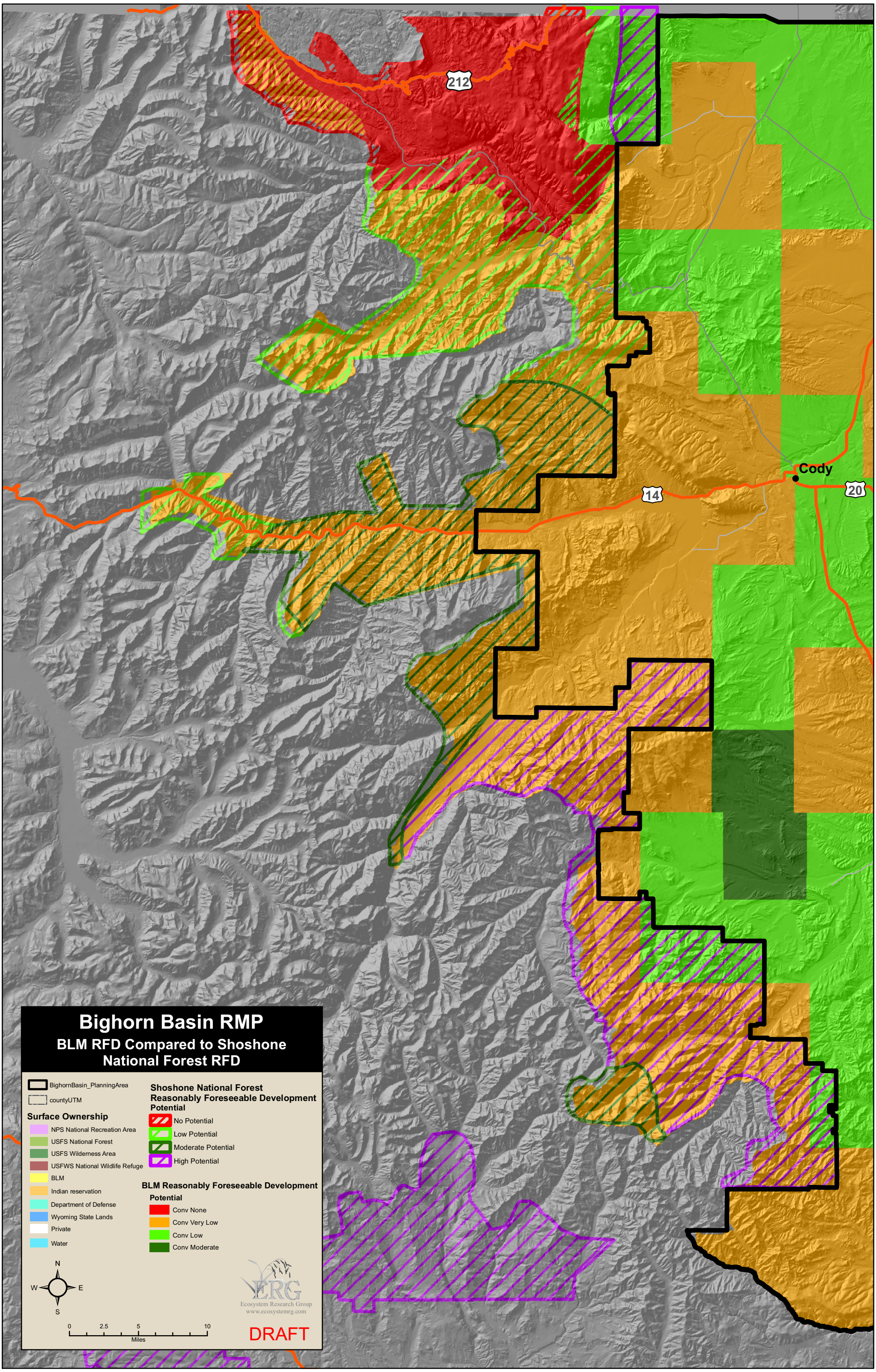
Oil and Gas Leasing Procedures

Current Leasing Policy versus IM 2010-117

The RMP/EIS (pg. 3-46 to 46) states "the BLM is responsible for authorizing and administering geophysical explorations on all public surface lands…. At the leasing stage, the BLM applies appropriate stipulations on federal oil and gas lease via Sundry Notice approval if the applicant of the geophysical Notice of Intent (NOI) is the federal oil and gas lessee/operator (43 CFR 3150). At the leasing stage, the BLM applies appropriate stipulations on federal oil and gas leases, including standard oil and gas stipulations (Appendix I), and special stipulations identified in the RMP.

In the BLM's Instruction Memo 2010-117 Oil and Gas Leasing Reform, Section II Master Leasing Plans (www.blm.gov/wo/st/en/info/regulations/Insruction_Memos_and_Bulletins/national_instruction/2010/IM_2010_117.pdf), it is stated:

> RMPs identify oil and gas planning decisions, such as areas closed to leasing, open to leasing, or open to leasing with major or moderate constraints (lease stipulations) based on known resource values and reasonably foreseeable oil and gas scenarios." It goes on to say in some areas, however, additional planning and analysis may be necessary prior to new oil and gas leasing because of changing circumstances, up-dated policies, and new information. This analysis would be done using a Master Leasing Plan (MLP) concept. This MLP process would be conducted through the NEPA process using an interdisciplinary team that will coordinate and/or consult with the public and stakeholders that may be affected by the BLM's MLP decisions. This process may


Bighorn Basin RMP
BLM RFD Compared to Shoshone National Forest RFD
BighornBasin_PlanningArea
countyUTM
Surface Ownership
NPS National Recreation Area
USFS National Forest
USFS Wilderness Area
USFWS National Wildlife Refuge
BLM
Indian reservation
Department of Defense
Wyoming State Lands
Private
Water
Shoshone National Forest Reasonably Foreseeable Development Potential
No Potential
Low Potential
Moderate Potential
High Potential
BLM Reasonably Foreseeable Development Potential
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Conv Very Low
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2.5
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Miles
ERG
Ecosystem Research Group
www.ecosystemrg.com
DRAFT
212
14
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Cody

> be instituted if all of the following criteria are met: 1) A substantial portion of the area to be analyzed in the MLP is not currently leased; 2) There is a majority Federal mineral interest; 3) The oil and gas industry has expressed a specific interest in leasing, and there is a moderate or high potential for oil and gas confirmed by the discovery of oil and gas in the general area, and; 4) Additional analysis or information is needed to address likely resource or cumulative impacts if oil and gas are to occur where there are multiple-use or natural/cultural resource conflicts, impacts to air quality, impacts on the resource or values of any unit of the National Park System, National Wildlife Refuge, or National Forest Wilderness area, or impacts on other specially designated areas.

Appendix Y of the Draft RMP contains an analysis of the MLP conducted in the Planning Area for the RMP/EIS. The BLM reviewed proposals for three areas nominated for MLP reviews: Absaroka-Beartooth Front, Fifteen Mile, and Bighorn Front. After review, the BLM stated none of the areas met the criteria necessary for MLP analysis; however, they did identify resources of concern within those areas. They also stated additional MLP areas may be identified and analyzed at the BLM's discretion at any time.

The LGCA is concerned that future lease sales and therefore exploration and production may be slowed significantly if MLPs are required in other sections of the Planning Area, or if the BLM identifies additional resources of concern in the three MLPs analyzed to date. Further, if either of those issues arises in the future and the BLM requires a MLP to be conducted, it is possible oil and gas companies will become discouraged and will not pursue leasing in the Planning Area.

Oil and Gas Activity in the Planning Area

In order to accurately characterize oil and gas activity in the Planning Area, the LGCA requests that data and trends be provided for the following comments:

- The RMP/EIS states (pg. 3-47) "There are 82 operators actively exploring for or producing oil and gas resources in the Planning Area." Please disclose the number of operators actively holding leases that are not conducting active operations in the Planning Area.
- The RMP/EIS discloses (pg. 3-48) "At the close of 2008, there were 4,544 active oil and gas wells in the Planning Area (BLM 2009c)." Provide the start date of operations for all active wells in the Planning Area in order to determine an increase or decrease in activity.
- The RMP/EIS states (pg. 3-48) "There has been an overall upward trend in the number of APDs approved on federal oil and gas leases in the Planning Area since 2002, particularly after passage of the National Energy Policy of 2001 and the Energy Policy Act of 2005. However, starting in 2008 there was a decrease in APD submissions, which was primarily driven by market conditions for oil and natural gas." Provide data by year for these trends in order to portray how changes in policy and market conditions have affected oil and gas activity in the Planning Area.

Oil and Gas Production in the Planning Area

The RMP/EIS states (pg. 3-55) in the description of oil and gas production rates in the Planning Area:

> Since a production high during 1978, the rate of oil production in the Planning Area has steadily declined, with only a few short periods when production rates were flat. The rate of gas production declined from 1974 to 1983 and essentially flattened until 1989. The overall rate then increased until 1998, after which there was a decline in production rates. In 2008, oil production was at its lowest rate for the period from 1974 through 2008, and gas production was near its lowest rate for the same period (BLM 2009e).

The above statement acknowledges that there are cycles when it comes to oil and gas production, yet the RMP/EIS completely dismisses the fact that there could be an upward trend in production during the 20-year planning period. Characterizing the affected environment to be in a constant decline or static state limits the impact analysis and prevents successful planning and management.

Oil and Gas Reserve/Resource Estimates

Table 3-16 in the RMP/EIS lists the projections of the amount of oil, gas and natural gas liquid resources in the Planning Area. The list does not include an estimate of the Sub-Absaroka play. As discussed previously, the Sub-Absaroka play was evaluated by the USGS in their 1995 national assessment of oil and gas resources (Fox and Dolton 1995), but it was not included in their more recent 2008 assessment of undiscovered oil and gas potential for the Bighorn Basin or the 2009 draft BLM's Bighorn Basin RFD analysis. According to the 1995 USGS assessment, the potential for significant new field discoveries (greater than 1 million barrels) was considered to be "good." Oil was predicted to be trapped in Laramide-age anticlines and domes, similar to producing structures successfully developed elsewhere in the basin. In the Bighorn Basin RFD, this area is considered to have low or no potential.

With recent advances in exploration technology (for example 3-D seismic) and with access to public lands for exploration, it should be possible to look beneath the volcanic cover at the underlying structures and evaluate what could be significant hydrocarbon reserves (Fidelity Exploration and Production Company 2010).

Projected Oil, Gas, and Coaled Natural Gas Drilling Activity

The RMP/EIS states that oil and gas drilling activity is projected to be concentrated in existing fields with some minor activity occurring beyond field boundaries. Over the 20-year planning period the RMP/EIS predicts up to 1865 wells to be drilled (pg. 3-56 to 58). As discussed above, the LGCA believe there is significant upside in the future oil and gas drilling activity in the Bighorn Basin. As compared to other basins, it is the industry's perception that the Bighorn Basin is lightly drilled with approximately 9,000 wells drilled to date as compared to other similar Rocky Mountain basins such as the Williston Basin at 34,600 wells drilled and the Powder River Basin at 71,800 wells drilled (Fidelity Exploration and Production Company 2010). Since the Bighorn Basin shares many geologic characteristics with these basins, it is thought that a number of stratigraphic and structural plays remain to be found in the under-explored central and far west portions of the Bighorn Basin (Herrod 2010a). As such, the future drilling activity may be much greater than that predicted in the RFD.

Also, the methods used to calculate surface disturbance from projected new-well counts in the RFD are insufficiently described and the LGCA supports the following comment provided by the State of Wyoming:

> …the BLM is not as clear on how impacts are treated and how disturbance is calculated from these well counts. It is my understanding that disturbance and impacts projected using the RFD well counts is also provided solely for the purposes of comparing impacts between alternatives and that it is not BLM's intention that any of the estimates of disturbance or impacts provided in the RMP or EIS represent "analysis thresholds" for determining what actions may require a plan amendment. The relationship between disturbance estimates and impacts and what constitutes an analysis threshold is not clear in the Draft RMP and DEIS and BLM needs to provide a clear statement that exceeding the estimates of disturbance or impacts in the EIS will not result in the need for an RMP amendment.
>
> For instance, in Appendix T of the draft RMP/EIS BLM calculates short- and long-term surface disturbance from leasable oil and gas for each of the alternatives. Short-term disturbance during the 20-year projection period ranges from 1,527 (Alternative B) to 3,771 acres (Alternative C) on public lands. The projection for fee and state surface is 1,533 acres for all alternatives. BLM needs to clarify in the Final RMP and EIS that these estimates are provided for analysis purposes only to demonstrate the difference between alternatives and that disturbance or impacts beyond the analysis assumptions does not require a plan amendment.

Eight of the largest twelve oil fields developed in Wyoming are located in the Bighorn Basin. Cumulative oil production from the basin through 2010 totals over 2 billion barrels of oil through primary and secondary processes. This equals approximately 28 percent of the more than 7 billion barrels of oil that have been produced in the state of Wyoming. The mechanism for achieving maximum recovery of oil reserves for the Bighorn Basin fields will probably involve the use of carbon dioxide (CO_2) injection into the currently producing reservoirs and into residual oil zone (ROZ) reservoirs that could not be historically produced because the oil saturation was not sufficiently high enough. Sixty three Bighorn Basin reservoirs pass the screening criteria for miscible CO_2 flooding and forty two reservoirs pass the screening criteria for immiscible CO_2 floods (Wyoming Enhanced Oil Recovery Institute 2011). The Wyoming Enhanced Oil Recovery Institute (WEORI) estimates that another 1.3 to 2 billion barrels of oil can be recovered from the Bighorn Basin as a result of enhanced oil recovery (EOR) operations using CO_2 to displace stranded oil (Wyoming Enhanced Oil Recovery Institute 2011).

WEORI (2011) stated "Implementation of EOR will utilize a majority of the estimated 2,000 existing wells drilled through the Tensleep and Madison formations in the Bighorn Basin. Existing infrastructure including roads, well pads, and production and injection facilities will be used to implement the EOR projects. Additional facilities will be required for implementation of CO_2 EOR, including regional CO_2 transmission lines, gas compression facilities, construction of additional injection and production wells, injection and production lines, and gas treatment facilities" (Wyoming Enhanced Oil Recovery Institute 2011).

The LGCA agree with WEORI's position that large reserves of oil will be realized with the implementation of CO_2 EOR in the Planning Area, and as such, the need for additional infrastructure. In

agreement with the State of Wyoming, the LGCA request that the BLM fully evaluate the potential for significant EOR development in the Final EIS to facilitate and expedite EOR. It is anticipated that the Final RMP/EIS will provide sufficient analysis and candid public disclosure to allow EOR development to proceed using EAs, rather than lengthy EISs with significant Plan Amendments. Accordingly, the LGCA supports the proceeding statement provided by the State:

> "…the State request BLM adopt Alternative C for oil and gas management areas. In addition, we request BLM modify the description of Alternative C in Record # 2029 (Table 2-5) as follows: "Delineate Oil and Gas Management Areas (Map 21) (~~568,164~~ 592,983 acres) around intensively-developed existing fields and existing fields with potential for enhanced oil recovery, using a buffer zone of up to 2 miles from the outer boundary of the existing field (Map 23) and incorporating all Federal surface and minerals within the boundaries of ROZ Potential Sites. Within these areas, manage primarily for oil and gas exploration and development (including EOR) and carbon sequestration; consider all other surface uses secondary."

Management Challenges

Management challenges to oil and gas exploration and development are listed in the RMP/EIS (pg. 3-58). It is agreed that these will all be challenges, however, the LGCA requests an addition to that list: the additional challenges resulting from NEPA processes that may be necessary if the IM 2010-117 is implemented prior to the letting of leases in the Planning Area, as discussed above. It is thought that the execution of a MLP will detrimentally impact oil and gas exploration and development and could ultimately force oil and gas companies to spend their exploration budgets elsewhere.

4.2 Mineral Resources

4.2.1 Locatable Minerals

Alternative D

Alternative D Withdrawals and VRM Class II encompass the Sheep Mountain Anticline ACEC and the VRM Class II east and west boundaries are coincident with the BLM-developed potential for bentonite Alternative 4 GIS layer boundaries. The VRM Classes are definitive boundaries on the map and management of the VRM boundaries should take place strictly within the area boundaries, not on areas outside the boundaries or on a view shed basis. For example, do not conclude operations in Class IV detract from the visual resources of the adjacent Class II because the operation can be viewed from within the Class II. This conclusion would result in an inaccurate determination of undue environmental degradation for a Plan of Operations in the adjacent class boundary.

Therefore, the boundaries of the Alternative D VRM Class II encompassing the Sheep Mountain Anticline ACEC should be modified to provide an additional ¼-mile buffer of the adjacent Alternative D VRM Class IV to more fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.

Special Designations

The RMP/EIS (pg.4-51) states "Under Alternative D, withdrawals are pursued on the second-fewest acres of ACECs, after Alternative C, but the alternative includes the most acreage that can be withdrawn in ACECs on a case-by-case basis for resource protection." Yet it is unclear if the aforementioned ACEC acres are included in the already disclosed areas or if they would be additive. Please clarify this statement and identify proposed ACECs that would be withdrawn on a case-by-case basis.

4.2.5 Leasable Minerals – Oil and Gas

It is stated in the RMP/EIS (pg. 4-55) "The potential for oil and gas occurrence in the Planning Area ranges from high to low, depending on location, as documented in the RFD." Yet, the calculated percentages for each classification category (high, medium, and low) are not disclosed in the RMP/EIS. A review of Figure 40 (Potential for occurrence of oil and gas within the Bighorn Basin Planning Area) presented in the RDF shows that approximately 92 percent of the Planning Area is depicted as having high potential for oil and gas occurrence.

This suggests that the impact analysis is based on an RFD that does not take into account the potential for high oil and gas occurrence and the known geologic and engineering assumptions associated with the Bighorn Basin. Please disclose the percent for high potential occurrence in the Planning Area in the RMP/EIS.

4.2.5.1 Methods and Assumptions

The RMP/EIS states (pg. 4-56) "because the RFD is a snapshot in time, it cannot capture how future advances in technology may make it possible to exploit certain oil, and gas plays in the future that are currently not economical or commercially exploitable." The LGCA believes this to be a flawed premise considering the probable advances in technology over the 20-year life of the plan; technological advances are a reasonable assumption that should have been used in forming the baseline unconstrained projection in the RMP/EIS.

4.2.5.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

According to the RMP/EIS (pg. 4-63):

> Under all alternatives, management actions for ROWs would allow, limit, or prohibit facilities and infrastructure necessary for the development and extraction of oil and gas resources including access roads, powerlines, and pipelines. This would impact oil and gas development. Federal regulations require ROW grants for access roads, powerlines, or pipelines that cross one lease to access another. Avoiding or excluding these authorizations could limit or prohibit legal access and infrastructure to well pads. Management that limits or prohibits ROW authorizations (ROW avoidance/mitigation and exclusion areas) would result in adverse impacts to oil and gas development. Designating ROW corridors up front could eliminate or reduce land use conflicts and beneficially affect oil and gas development and pipelines.

The LGCA agrees that management actions for ROWs would limit or prohibit facilities and infrastructure necessary for the development and extraction of oil and gas resources. Accordingly, the LGCA supports designating ROW energy corridors as defined under Alternative C in order to eliminate or reduce land use conflicts. This will provide ROW corridors that parallel existing pipeline infrastructure and will allow for feeder pipelines to access new development and exploration areas.

Additionally, the LGCA is in agreement with the State of Wyoming's request that ROW avoidance/mitigation areas be removed from areas designated as oil and gas management areas and corridors under all alternatives. Therefore, it is requested that the BLM reevaluate the criteria used to delineate ROW avoidance/mitigation areas with a goal toward balancing other resource uses of public lands. Recommendations include segregating avoidance and mitigation areas into two separate analyses so that it is clear to the public which areas should be avoided and which areas will require mitigation.

Alternative D

Resources

The RMP/EIS (pg. 4-75 to 4-76) states "As a result of specific stipulations for ferruginous hawks, lands where greater sage-grouse and raptor habitats overlap could be subject to development restrictions for most of the year (9 months)." Without population data on raptors, coupled with the fact that golden eagle and osprey "appear to be increasing throughout the Planning Area," the TLS and CSU restrictions are too restrictive (see Wildlife Corrective Actions).

4.2.7 Salable Minerals

4.2.7.1 Methods and Assumptions

The RMP/EIS (pg. 4-77) states "However, because sand and gravel are the principal salable minerals found in commercial quantities in the Planning Area, wherever possible, this analysis describes specific impacts to the disposal of sand and gravel. Acreages of occurrence potential of other mineral materials were not available at the time of analysis." There is a discrepancy between this statement and what has been included in the findings (ex. limestone occurrence potential) of the Bighorn Basin Solid Mineral Occurrence and Development Potential Report. Please disclose occurrence potential acreages when possible in order to ensure that the impacts analysis for salable minerals materials is correct.

5. Mitigations

Prior to issuing a final RMP/EIS, the BLM should perform the following mitigations for the Mineral Resources sections:

1. The RMP/EIS (pg. 3-43) states "Coal production in the Planning Area is generally not considered economically feasible due to the relative thinness of the coalbeds, thickness of the overburden, and low quality of the coal." However, there is a record of historical mining activity in the Planning Area and the USGS has named eight important coal fields within the Bighorn Basin (USDI 2009b).

Therefore, the BLM shall remove or modify the statement in the RMP/EIS in order to accurately portray the affected environment.

2. In regards to interim and final reclamation, the BLM shall include guidance in the RMP/EIS from the Solid Minerals Reclamation Handbook H-3042-1 and state that reclamation plans will fulfill federal, state, county, and other local agencies requirements.

3. If there are known commercially viable minerals associated with rare earth elements in the Planning Area, please provide an inventory per FLPMA Sec. 201.

4. Correct the boundaries of the Alternative D VRM Class II for the Sheep Mountain Anticline ACEC to provide a ¼-mile buffer of the adjacent VRM Class IV to fully encompass the bentonite potential areas depicted in the BLM-developed bentonite potential GIS file.

5. The RMP/EIS states (pg. 3-41) "The six mines in the Bighorn Basin employ 132 persons, and another 360 persons are employed at the milling-processing facilities at six different mills (one in the Worland area, two near Greybull, and three near Lovell, Wyoming)." The stated number of employees in the Bighorn Basin provided from the bentonite industry is higher than the number disclosed in the Plan. For example, Bentonite Performance Minerals, LLC has four full-time contractors (stripping overburden, hauling bentonite, drilling/blasting and conducting environmental activities) totaling over 60 employees (Scott pers. comm.). The number stated in the Plan is the number of employees who work "in-house" for the bentonite companies, i.e. not contractors. Please include the number of people employed as contractors for the bentonite industry in the RMP/EIS.

6. On Page 3-42 under Management Challenges it is disclosed that "Approximately 30,000 acres of land has been disturbed in the Bighorn Basin due to bentonite mining, along with approximately 4,000 acres of road and haul-road disturbance (BLM 2008c)." These disturbance acres are in conflict with calculations provided by representatives from the bentonite industry (Scott pers. comm.). Please review for accuracy the 4,000 acres of reported road and haul-road disturbance in the RMP/EIS.

7. The LGCA agree with WEORI's position that large reserves of oil may be realized with the implementation of CO_2 EOR in the Planning Area, and as such, the need for additional infrastructure, including additional wells, may have been greatly underestimated in the RMP/EIS. The LGCA agrees that this is a significant oversight and also encourages the BLM to develop a management plan that encourages and facilitates delivery, utilization, and sequestration of CO_2 in the Planning Area related to EOR operations. Thus, please update and include information pertaining to EOR implementation, including the effects of ROW constraints on CO_2 delivery, and incorporate those revised projections in the RMP/EIS.

8. In accordance with the State, the LGCA request the BLM to adopt Alternative C for oil and gas management areas. Moreover, it is requested that BLM modify the description of Alternative C in Record # 2029 (Table 2-5) as follows: "Delineate Oil and Gas Management Areas (Map 21) (592,983 acres) around intensively-developed existing fields and existing fields with potential for EOR, using a buffer zone of up to 2 miles from the outer boundary of the existing field and incorporating all Federal surface and minerals within the boundaries of ROZ Potential Sites. Within these areas, manage primarily for oil and gas exploration and development (including EOR) and carbon sequestration; consider all other surface uses secondary. The oil and gas management areas would be allowed to be developed at the well spacing and surface densities (for all surface disturbing activities) of the existing fields.

9. The RMP/EIS understates unconventional oil and gas potential in the Mowry Shale and the Muddy Frontier Sandstone/Mowry Shale, and therefore, the potential reserves are not accurately depicted in the baseline development projections in the RMP/EIS. The BLM should include additional discussion in the RMP/EIS to accurately reflect unconventional oil and gas potential in the Mowry Shale and the Muddy Frontier Sandstone/Mowry Shale.

10. The correlation between RFD surface disturbance estimates and what constitutes an impacts analysis threshold is not clear in the Draft RMP and DEIS. The BLM needs to provide a clear statement that exceeding the projected new-well counts and estimates of disturbance or impacts in the EIS will not result in the need for a Plan Amendment. Given the concern that the projected new-well numbers disclosed in the RMP/EIS could be perceived as a limit, the LGCA requests the following addition provided from the Wyoming Rawlins Field Office RMP Record of Decision: "The number of wells projected in the RFD scenario for oil and gas does not limit or cap the number of wells that can be drilled, nor the amount of surface disturbance that will be allowed during the period covered by the Proposed RMP/Final EIS. This clarification reaffirms that the RFD is intended for analysis purposes only. Individual implementation level project proposals will be subject to site-specific NEPA analysis to ensure conformance with the Approved RMP."

11. Given the importance of the baseline unconstrained projection for oil and gas in the Planning Area, the BLM should reevaluate the discrepancies observed on overlapping areas of the Shoshone and BLM RFD.

12. The LGCA is concerned that future lease sales and therefore exploration and production may be slowed significantly if MLPs are required in other sections of the Planning Area, or if the BLM identifies additional resources of concern in the three MLPs analyzed to date. Further, if either of those issues arises in the future and the BLM requires a MLP to be conducted, it is possible oil and gas companies will become discouraged and will not pursue leasing in the Planning Area. Please reevaluate these consequences before accepting Instruction Memo 2010-117 as permanent direction.

13. The LGCA supports designating Alternative C ROW energy corridors in order to eliminate or reduce land use conflicts. In agreement with the State, it is also requested that the BLM modify Record # 6033 in Table 2-5 (p. 2-111) as follows: "Designate ROW corridors as shown on Map 53. No limit will be placed on the width of these corridors as long as new linear facilities are constructed adjacent to existing linear facilities recognizing the need for adequate separation for operating system integrity, safety (construction and operations), appropriate federal, state and local statutes, regulations and policies, and land use constraints. Where BLM determines that a linear facility should be moved away from an adjacent utility to avoid a resource conflict, the new linear facility will still be considered to be within the RMP corridor." Also, following any updates to the oil and gas development potential in the Planning Area the BLM shall reevaluate the indirect impacts from ROW management actions.

14. The LGCA supports the State of Wyoming's request that ROW avoidance/mitigation areas be removed from areas designated as oil and gas management areas and corridors under all alternatives. Therefore, it is requested that the BLM reevaluate the criteria used to delineate ROW avoidance/mitigation areas with a goal toward balancing other resource uses of public lands. Recommendations include segregating avoidance and mitigation areas into two separate analyses so that it is clear to the public which areas should be avoided and which areas will require mitigation.

15. In further support of Alternative C management direction for ROW energy corridors, it is requested that the BLM adopt Alternative C for CO_2 sequestration and dismiss Alternatives B and D from the final EIS.

6. Conclusion

It is of great importance to the LGCA that the aforementioned mitigations be implemented, because only an accurate prediction of likely energy development and exploration will lead to proper and effective management and planning. It is also essential that the impacts to mineral resources be analyzed thoroughly and accurately, especially since the disclosed impacts for many other resource areas are coupled with these results.

8. FIRE AND FUELS

Introduction

The Draft RMP presents actions common to all alternatives that include prescribed burning, hazardous fuel reduction in WUIs and protection of facilities and habitable structures from wildfire. The LGCA supports these actions to the extent that the economic value of marketable timber or goods is not lost to prescribed wildfire. The LGCA does question the long-term viability of suppressing fire in greater sage-grouse habitat since sagebrush systems have evolved with fire. Also as noted in the RMP, the long-term effects of suppressing fire would likely result in higher fuel loadings and increased fire severity and behavior. The fire and fuels analysis could benefit from a better explanation or quantification of fuels conditions. In its current form, there is only a cursory discussion of the existing condition of fuels.

Relevant Regulatory Guidelines

As it pertains to wildlife in the Bighorn Basin Planning Area, the following are relevant regulatory guidelines the BLM must be comply with when making planning decisions:

- DQA
- Endangered Species Act (ESA)
- FLPMA
- NEPA and CEQ Regulations
- 2001 Federal Wildland Fire Management Policy

The Draft RMP presents actions common to all alternatives that include prescribed burning, hazardous fuel reduction in WUIs and protection of facilities and habitable structures from wildfire. The LGCA supports these actions to the extent that the economic value of marketable timber or goods is not lost to prescribed wildfire. Similarly, it is necessary to change Goal FM:2 because the goal is over-reaching. It is not feasible to restore fire regimes to entire landscape. Add “where feasible and where it does not impact threaten economic value on lands suitable for commercial timber harvest or private properties. This change should apply to all alternatives.

Affected Environment

The LGCA does question the long-term viability of suppressing fire in sage-grouse habitat since sagebrush systems have evolved with fire. Also as noted in the RMP, the long-term effects of suppressing fire would likely result in higher fuel loadings and increased fire severity and behavior.

In the description of the affected environment, Table 3-19 on page 3-65 should be re-titled. It displays fire regime groups not the fire regime condition classification system. The bottom of page 3-65 needs references to support the rationale for not allowing fires to burn in cheatgrass invaded sage-grouse habitats. The assumption is that cheatgrass will expand and damage sage-grouse habitat. This is a statement of fact that needs to be supported by scientific evidence. We do not necessarily disagree, but some explanation or reference should be provided.

On page 3-67, the sentence stating, "Upslope from the basin bottom, fuel types and fire regimes are similar to those found in the physiographic areas, and nearly all wildfires and prescribed fires occur in these areas," needs to be corrected. The use of "physiographic" in this sentence is awkward and confusing.

The fire and fuels analysis could benefit from a better explanation or quantification of fuels conditions. Right now there is only a cursory discussion of the existing condition of fuels. Of the lands that are classed in FRCC 2 and 3, what vegetation types that are most changed? Table 3-21 identifies acres of fires burned. It would be helpful to know the cover types these wildfires occurred.

In Section 3.2.2 (prescribed fires), there is no quantification. Please include the acreage of fuel treatments per year by cover type.

Environmental Consequences

No analysis methods are identified in the environmental consequences, only assumptions and definitions are given. What are the indicators? How are alternatives being compared? Without this discussion, much of the following analyses are meaningless. It seems much of the subsequent analysis is based on speculation because it is difficult to predict fire behavior, weather, etc. While this is understandable, there should probably be a discussion here about the nature of the unpredictability of variables and outcome.

Several issues are identified as potentially "adversely impacting wildfire management" but there is no indication to the context or intensity. Are these impacts significant? Why or why not? If these can't be quantified they at least have to be explained in more detail to explain more about significance. This needs to be addressed throughout the majority of the fire and fuels section.

Under the discussion in the last paragraph of page 4-90 in Section 4.3.1.3, quantitative figures are finally given. Unfortunately the context and intensity is not adequately discussed. It appears here that the analysis is using acres of treatment as an indicator. What do these numbers mean? Are they significant? Are they discountable? How does this help someone make a decision on the best alternative? Please frame this discussion with better interpretation of the differences and how this would help the decision maker decide on an alternative. This needs to occur wherever numbers are presented.

Please use comparative tables to display differences between alternatives. Also include discussion to interpret those differences to better describe the context and intensity of impacts.

9. VEGETATION

It is essential to the LGCA that the vegetative resources in the Planning Area are accurately and fully disclosed in the RMP/EIS. The vegetation sections of the Draft Bighorn Basin RMP/EIS are consistently incomplete, contradictory, and unclear. An Affected Environment chapter should comprehensively disclose resources, spatially and tabularly, describe historic vegetative processes and conditions, and then make the case for management affecting current conditions. With this foundation set, the Environmental Consequences section can clearly describe how management will direct resources towards desired conditions. This is not the case with the Draft Bighorn Basin RMP/EIS. The LGCA feels very strongly that the RMP is inadequate as a basis for making management decisions with far-reaching, both spatial and temporal, ramifications.

3.4 Biological Resources

It is stated that Wyoming Gap data are suitable for RMP/EIS level planning. The LGCA argues that these data are not sufficient and other available vegetative datasets were not investigated or analyzed. Gap only provides cover type, and does not provide size/height or percent cover. LANDFIRE offers a nationally standardized and comprehensive dataset of vegetation cover types, canopy cover, canopy height, fuels, and fire regimes. The Bighorn Basin is covered by LANDFIRE version 1.1.0 that portrays the basin for 2008. Version 1.1.0 was released in early 2011. Besides presenting more current information than Gap data, the LANDFIRE data offers increased detail of the Planning Area's vegetative components.

Statewide Gap data was modified for the Worland Field Office during the planning process, but this modification was not identified in the Biological Resources section. The LGCA has compared statewide Gap data to the layer presented in the RMP/EIS revision, and the two datasets are inconsistent. The Cody Field Office matches the statewide Gap layer, but not in the Worland Field Office. It is misleading for the BLM to state that the Wyoming Gap Analysis data were used, when, in fact, it is a modified dataset. We request a discussion of the data used to update Gap, as well as an accuracy assessment of the modified data.

The RMP/EIS mentions increases in bark beetle activity but provides no numbers to support this statement. The USFS, since 1994, has maintained an Aerial Detection Survey providing spatial data of insect damage by year. These aerial surveys extend past the USFS boundary to the lower tree line, thus covering a majority of the forested areas in the Bighorn Basin Planning Area. These data could have been incorporated to better illustrate the insect activity in the basin.

3.4.1 Vegetation – Forests, Woodlands, and Forest Products

Forest Communities

The description of the existing conditions of forested communities is completely inadequate. Each of the three forest community descriptions are nearly identical and portray the communities in very broad and

vague metrics. For example, the RPM/EIS states that lodgepole pine "stand ages are between 1 and 150 years." Not only is this statement vague, but it is contradictory to the best available science. The biophysical setting description for the Rocky Mountain Lodgepole Pine Forest presents fire return intervals of 100 to 200 years. The LGCA requests a breakdown of acres by early-, mid-, and late-successional stages, percent cover, and departure from historic fire regimes. The discussion of historic fire regimes is inadequate and no quantification of departure was provided. Table 4 below is an example of how LANDFIRE data can be combined to quickly analyze forest conditions. LANDFIRE does not provide size (diameter breast height (DBH)) classes, but does provide canopy height, which can be used as a surrogate for age classes. A brief review of forest ages within the Planning Area shows that there are miniscule amount of early-seral forests when compared to mid- and late-seral stands.

Table 4 Forest Type and Height Classes (USDA and USDI 2010)

Existing Vegetation Type	Extent of Varied Forest Height (Acres)		
	0 to 5 meters	5 to 10 meters	10 to 25 meters
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	808.9	1,063.5	11,512.5
Pseudotsuga menziesii Forest Alliance	196.5	1,365.1	34,315.8
Middle Rocky Mountain Montane Douglas-fir Forest and Woodland	1,576.5	17,026.1	57,026.7
Rocky Mountain Lodgepole Pine Forest	40.9	293.6	5,699.1
Southern Rocky Mountain Ponderosa Pine Woodland	1,500.7	10,465.7	24,969.9

Woodland Communities

Similar to the Forest Communities section, this section has a lack of citing literature and no presentation of quality and quantity of the woodland communities located within the Planning Area.

Forest Products

The LGCA requests that the BLM further address the decline in the forest products infrastructure in the Bighorn Basin and present the potential of new technologies to revive production at closed mill operations while providing forest health treatment opportunities. There is significant potential to use dead and dying forest products, combined with green woody material, for a myriad of uses. The economics of such activities improves with contribution from appropriated fuel reduction funding sources. Long term landscape scale contracts, such as stewardship contracting, can provide small business flexibility to meet changing market conditions and supply stability to obtain financing to make important capital investments.

Management Challenges

This section speaks to the recent insect outbreak and provides no quantification. The USFS Rocky Mountain Region, in cooperation with the Wyoming State Forestry Division, conducts annual flights

mapping insect damage (USDA 2008). These data are readily available online and cover a majority of the forested portions of the Planning Area. The LGCA requests that the BLM incorporate these data into the Forest Communities section of the RMP/EIS.

Table 5 Aerial Detection Survey Data for the Bighorn Basin 2008

Damage Agent	Acres
Mountain pine beetle	6,526
Douglas-fir beetle	4,370
Spruce beetle	254
Pine engraver	8
Fire	384
Total	11,543
Percent of Forested/Woodland (from BLM's Gap data)	2.4%

3.4.2 Vegetation – Grassland and Shrubland Communities

This section states that Gap data are appropriate for analysis in the RMP/EIS. The LGCA argues that Gap is not adequate and that the BLM did not investigate any other sources, nor did they incorporate vegetation monitoring performed following the most recent RMP revisions.

Shrublands

The RMP/EIS states that shrublands represent approximately 2,690,284 acres of BLM administered land. Using BLM supplied Gap data and surface ownership GIS layers, the LGCA cannot recreate this number. BLM GIS files display 2,662,057 acres of shrublands. The LGCA requests that the BLM explain this discrepancy. The source of this inconsistency could be generated by the designations of shrublands and barren types. RMP/EIS Table 3-22 presents barren lands as 43,114 acres, and BLM-provided GIS files present 71,314 acres. This 28,000-acre discrepancy can be traced to a single Gap polygon located southwest of Burlington, which is attributed as Basin exposed rock/soil type in the Description field in the BLM Gap data, but is displayed as 'Shrubland-Sagebrush' on Map 29 of the RMP/EIS. Additionally, the BLM-supplied Gap data had three blank records, totaling 1,340 acres. These areas are classified as forests/woodlands and riparian/wetlands on Map 29. We request justification for these assignments.

Table 6 presents successional classes for the Inter-Mountain Basins Big Sagebrush Shrubland - Wyoming Big Sagebrush biophysical setting. This analysis shows that there is a buildup of late-seral stands of sagebrush, uncharacteristic of historic plant communities (USDA and USDI 2010).

Table 6 Successional Classes in the Inter-Mountain Basins Big Sagebrush Shrubland - Wyoming Big Sagebrush Biophysical Setting (USDA and USDI 2010)

Succession Classes	Acres	%
Succession Class A (Early Development - All Structures)	42.5	0.00%
Succession Class B (Mid Development 1 - Open)	720.3	0.00%
Succession Class C (Late Development 1 - Open)	1,730,262.1	85.20%
Succession Class D (Late Development 1 - Closed)	129,675.2	6.40%
Uncharacteristic Native Vegetation Cover / Structure / Composition	79,837.7	3.90%
Uncharacteristic Exotic Vegetation	90,954.2	4.50%
Total	2,031,492.0	100.00%

Reference conditions for the Wyoming Big Sagebrush type show a historical presence of 15% and 5% in Class A and B respectively (Barret et al. 2010). This distribution of early- and mid-seral stands was driven by the mean fire return interval of 54 years for the Wyoming Big Sagebrush type (Barret et al. 2010). The departure from historic conditions provided in Table 6 can be further examined by analyzing the fire regime condition classes (FRCC) in these shrubland habitats. Landscapes determined to fall within the category of FRCC 1 contain vegetation, fuels, and disturbances characteristic of the natural regime; FRCC 2 landscapes are those that are moderately departed from the natural regime (34-66% departure); and FRCC 3 landscapes reflect vegetation, fuels, and disturbances that are uncharacteristic of the natural regime (67-100% departure) (USDA 2007). Table 7, below, presents the FRCC of the major shrubland existing vegetation types.

Table 7 Fire Regime Condition Class by Existing Vegetation Type (USDA and USDI 2010)

Existing Vegetation Type	Extent of FRCC (Acres)		
	1	2	3
Inter-Mountain Basins Big Sagebrush Shrubland	198,351	1,864,660	91,463
Inter-Mountain Basins Mat Saltbush Shrubland	214,648	629,514	208
Inter-Mountain Basins Montane Sagebrush Steppe	61,845	121,165	98,861
Artemisia tridentata ssp. vaseyana Shrubland Alliance	32,296	185,780	16,893
Inter-Mountain Basins Big Sagebrush Steppe	10,673	145,826	22,239

The buildup in late-seral sagebrush stands, presented in Table 6, can be explained by the increase in FRCC 2 presented in Table 7. The major driver of this increase can be attributed to missing one or more burn cycles, or an increase in non-native vegetation.

Table 8 Fire Regime Condition Classes by Fire Regime Groups (USDA and USDI 2010)

Fire Regime Groups	Extent of FRCC (Acres)				Total (Acres)
	1	2	3	Other	
<= 35 Year Fire Return Interval, Low and Mixed Severity	35,180.2	29,634.4	31,598.6	578.2	96,991.5
<= 35 Year Fire Return Interval, Replacement Severity	32,235.1	32,146.8	70,459.7	1,847.3	136,688.9
35 - 200 Year Fire Return Interval, Low and Mixed Severity	110,877.2	328,893.0	42,757.1	128,193.8	610,721.1
35 - 200 Year Fire Return Interval, Replacement Severity	318,940.6	2,472,349.4	271,370.6	102,211.8	3,164,872.4
> 200 Year Fire Return Interval, Any Severity	74,798.2	292,208.2	21,694.1	21,054.4	409,754.9
Other	246,748.1	840,886.4	1,118.1	141,514.9	1,230,267.5
Total	818,779.3	3,996,118.3	438,998.2	395,400.4	5,649,296.2

Resource Condition

The Resource Condition section presents differing descriptions of fire's role in the sagebrush/grassland communities. It is discussed that lack of fire has lead to an increase in juniper and a loss of age class and structural diversity, and it is stated that areas experiencing multiple wildfires have been converted to cheatgrass monocultures. There needs to be a more in-depth discussion of the role of fire, which should be accompanied with tabular and spatial data.

3.4.3 Vegetation – Riparian/Wetland Resources

Riparian/Wetland Communities

Existing conditions and acres are lacking.

Riparian/Wetland Inventory

It is stated that, "Based on PFC assessments, many riparian/wetland areas in the planning area have improved over the last 15 to 20 years in response to implemented changes in grazing and other management actions." Table 3-23 presents a current PFC inventory for wetlands. Data to show the PFC ratings from 15-20 years ago are not presented. If the BLM cannot show two inventories with an improvement, the LGCA asks that the above-mentioned sentence be removed or rewritten.

Management Challenges

In the Management Challenges section it is stated that, "Allotments can fail standard #2 for many reasons. If failure to meet the standard is attributable to existing livestock grazing management or utilization level, then the BLM must make management changes to correct the issue." It is the assertion of the LGCA that

the BLM have a minimum of two data points with a temporal range showing a downward trend before any grazing management decisions are made.

3.4.4 Invasive Species and Pest Management

This section presents that in 2007, "...the WFO estimated that approximately 57,000 acres in the field office were infested with nonnative annual bromes." This inventory is stated to only cover 10% of the Bighorn Basin so, "actual infested acreage might vary." We argue that this acreage could be substantially higher. The 57,000-acre figure is contradictory to table 3-22 in the RMP/EIS, which presents acres for non-native annual bromes at 37,505 for BLM surface estate and 46,875 for BLM mineral estate.

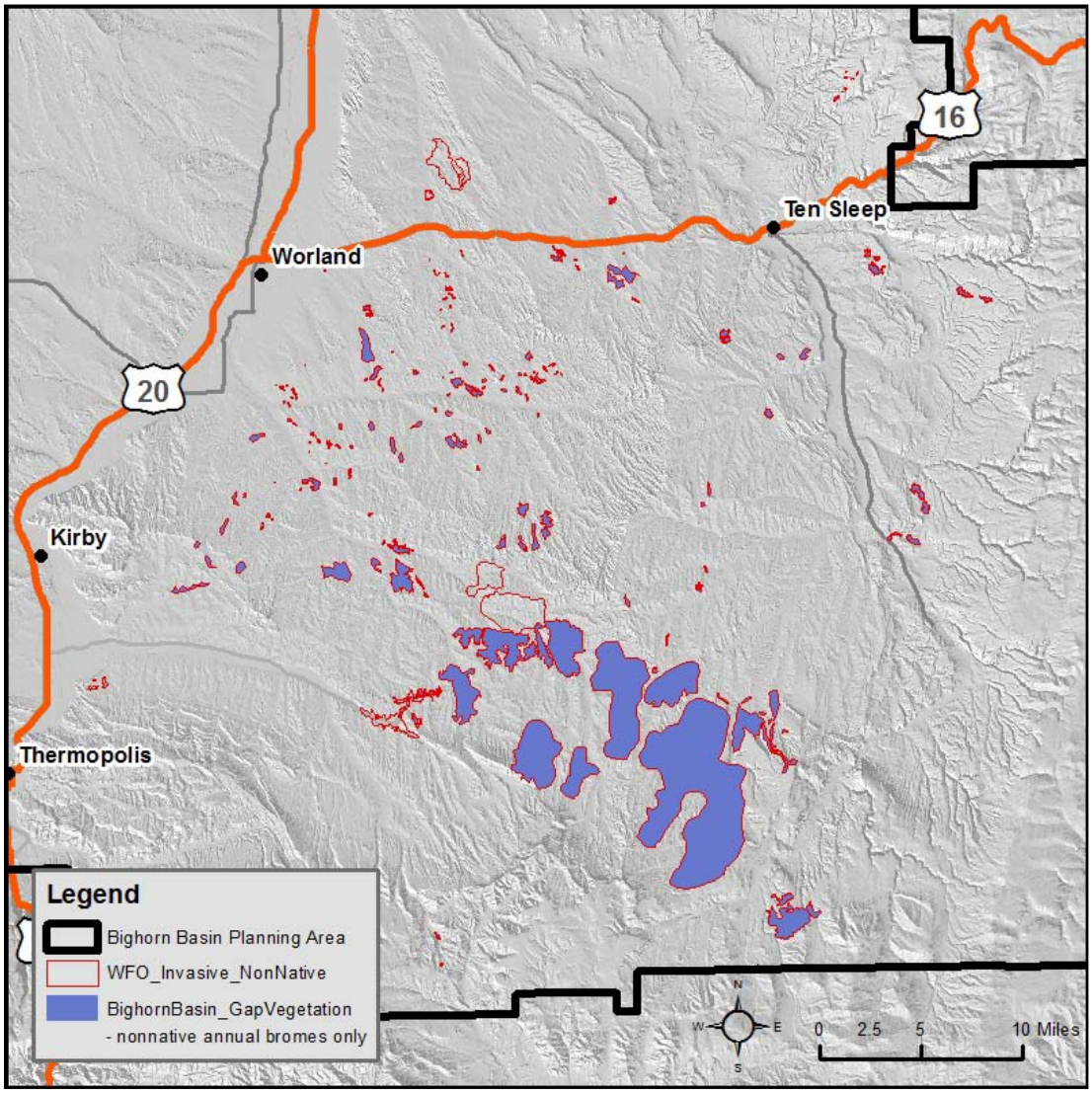


Figure 11 Spatial comparison of BLM's 'BighornBasin_GapVegetation' and 'WFO_Invasive_NonNative' GIS layers

The discrepancy seems to lay in the GIS data provided by the BLM. A GIS layer entitled 'WFO_Invasive_NonNative' totals 57,413 acres, which approximates the 57,000 acres presented in section 3.4.4. The issue seems to be that not all of the shapes in the 'WFO_Invasive_NonNative' GIS layer were incorporated into the 'BighornBasin_GapVegetation' GIS layer. Figure 11 below presents a comparison of the BLM's 'BighornBasin_GapVegetation' and 'WFO_Invasive_NonNative' GIS layers. Notice how only some of the shapes from 'WFO_Invasive_NonNative' were captured by the 'BighornBasin_GapVegetation' layer. The LGCA requests that this issue be explained and corrected, and a complete vegetation and noxious weed inventory be completed for the basin.

Cooperative Management in Invasive Species and Pest Control

In this section it is stated, "The goal is to contain and reduce densities of known invasive species populations." This sentence needs to be introduced to state that only very small portions of the Bighorn Basin have been inventoried for weeds and the sentence in question needs to be added to account for newly identified populations.

3.4.7 Special Status Species – Plants

The special status species section vaguely describes the species that may, or are confirmed to exist in the Bighorn Basin. This affected environment section lacks the quantity and distribution information needed to adequately portray the existing condition for these species. Each of the 11 species is first discussed in a table and second in a short paragraph that describes general accounts of physiology, growth requirements, associated species, and occasionally a general locality of presence. The Wyoming Natural Diversity Database contains 252 presence locations for special status plants in the Bighorn Basin, this dataset could have been used to portray a generalized distribution of these species. As it presently stands, this affected environment section is inadequate for readers or decision makers to quantify effects described in Section 4.

4. Environmental Consequences

Impacts Common to All Alternatives

Many of the vegetation goals and objectives deal with the desired plant community without adequate discussion of ecological sites or a breakdown of the existing conditions across the basin. The LGCA requests that a full description of ecological sites and the methods used to calculate percent similarity to historic climax plant community are provided.

The figures presented in Record #4031, in Table 2-5, under the Alternative A column, need to specify if they are goals for percent composition by weight or by cover.

Summary of Impacts by Alternative

Table 4-8 in this section does not present totals by alternative. Upon migrating these data into Excel and calculating totals by alternative, it was noted that very few of the totals matched the acreages provided in

RMP/EIS Table 2-2. The LGCA requests that this table be reworked, with totals added, to match Table 2-2.

4.4.1.1 Methods and Assumptions

The RMP states, "No current forest or woodland inventory or age and species classifications are available for the Planning Area." The LGCA argues that there are data sources readily available that would portray the current forest conditions. LANDFIRE data and the national inventory system called Forest Inventory and Analysis were not investigated.

In this section it is stated that, "Aspens generally are declining due to advancement of ecological conditions and succession. The advancement of ecological conditions also leads to encroachment of evergreen species into aspen stands; for example, shade-tolerant conifers invade and eventually shade out aspen stands, contributing to their decline." The LGCA argues that this statement is incorrect and not tied to best available science. Aspen are in decline due to lack of fire, which would equate to a degradation of ecological condition (Bradley et al. 1992). The LGCA requests that this section be rewritten to take into account best available science and to fully describe the ecological dynamics and fire regimes of these communities.

4.4.2 Vegetation – Grassland and Shrubland Communities

The adverse and beneficial impacts need to be better explained. The RMP/EIS states that grazing and fire could be adverse or beneficial, and no reasoning or explanation is provided. Neither the role of fire in these vegetative systems nor a discussion of the benefits of proper grazing are presented.

4.4.2.1 Methods and Assumptions

The RMP/EIS states, "Current trends in plant succession and vegetation health would continue." This does not account for the recent drought or the anticipated effects of climate change. The LGCA encourages the BLM to add a discussion with recent climatic and vegetative trends.

The RMP/EIS states that disturbed shrublands will regain "pre-disturbance structure and density for more than 20 years." This statement is grossly underestimated, not referenced, and is in direct contradiction to the RMP/EIS. On page 3-87 the RMP/EIS states, "Many reclamation efforts performed 20 or more years ago still do not have shrubs established..." There is a wealth of research available concerning this issue. The LGCA requests that the following be incorporated into the RMP/EIS: removal of the 20-year figure, citation of literature, and reanalysis of the environmental consequences.

Following intense fire or other disturbances that completely remove canopy cover, herbaceous species will dominate the ecological site, and recovery to 20% big sagebrush canopy cover may take 40 years (Young and Evans 1989) or longer (West and Yorks 2002). Canopy cover is defined as the percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants, including small openings within the canopy (Butler et al. 1997). Evidence of long-term stable

grass communities for sagebrush sites in Wyoming are illustrated by models developed for the LANDFIRE project (USDA and USDI 2010). Model R2SBWY is designed for a Wyoming big sagebrush semi-desert site and it estimates that it will take 20 years for natural succession after a fire for shrubs to achieve 10% cover. Model ROSBDW (Low sagebrush shrubland) estimates that following fire it will take 20 years for shrubs to have greater than 5% cover (USDA et al. 2011). Watts and Wambolt (1996) estimated that it will take approximately 30 years for big sagebrush cover to reach 13.5% in southwestern Montana after fire. In Montana, Eichhorn and Watts (1984) did not find seedling recruitment in a former Wyoming big sagebrush /bluebunch wheatgrass site 14 years post-fire. Similarly, Wambolt and Payne (1986) found less than 2% canopy cover of Wyoming big sagebrush 18 years post-fire (Watts and Wambolt 1996). Blaisdell et al. (1982) noted the effective use of prescribed fire could reduce cover for 25 to 50 years.

The RMP/EIS states, “Grassland and shrubland communities would be maintained with a mix of species composition, cover, and age classes." The RMP/EIS does not disclose these data. The LGCA requests that the RMP/EIS present a table outlining the current cover type, cover, and age classes. LANDFIRE data suggest that the current conditions across the Bighorn Basin are not well distributed, but are instead dominated by late-seral stands of shrubs (USDA and USDI 2010).

Impacts Common to All Alternatives

The LGCA appreciates the discussion of the benefits of grazing and fire to rangeland resources. This section presents the same discussion on reestablishing grassland and shrubland communities, stating that they "... would not reestablish to predisturbance structure and density for more than 20 years." The LGCA requests that this section be reworked to account for all relevant scientific research on this matter.

4.4.3 Vegetation – Riparian/Wetland Resources

The riparian/wetland resource section loosely describes the implications of management actions on this resource. This environmental consequences section lacks the quantity and distribution information needed to adequately portray the anticipated effects on this resource. As it presently stands, this environmental consequences section is inadequate for readers or decision makers to quantify effects or to compare alternatives.

4.4.3.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

This section states, "In addition, efforts at conserving species, such [as] the Ute ladies’-tresses (a wetland species), can directly benefit riparian condition." Section 3.4.7 of the RMP states that Ute ladies’-tresses could occur, but are not know to occur within the Planning Area. It is unclear how management actions can focus on conserving species that are not known to occur in the Bighorn Basin. The LGCA requests that this section be reworked and updated to contain acres affected by alternative.

4.4.7 Special Status Species – Plants

The special status species section vaguely describes the implications of management actions on species that may, or are confirmed, to exist in the Bighorn Basin. This environmental consequences section lacks the quantity and distribution information needed to adequately portray the anticipated effects on this resource. As it presently stands, this environmental consequences section is inadequate for readers or decision makers to quantify effects or to compare alternatives.

5. Mitigations

1. Prior to any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area as a protective measure for vegetation protection, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates vegetation cover type, percent cover, age/size classes, structure, habitat quality and quantity, and the effects of livestock grazing in the Planning Area. At the conclusion of the study, the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.
2. Prior to any proposed modification of AMPs, elimination of livestock grazing allotments, or adjustments to fire use plans in the Planning Area as a protective measure for vegetation protection, the BLM will design and implement a comprehensive noxious weed inventory. A complete awareness of the noxious weeds in the Bighorn Basin is necessary for proper management of the vegetative, and wildlife habitats, in the Bighorn Basin.
3. The vegetation discussions will be updated by reviewing available science and incorporating the research, complete with citations, in the Final RMP/EIS. The vegetation discussions, as they stand now, do not offer the reader a full understanding of the resources, existing conditions, or how they differ from historic conditions. Prior to any project level NEPA analyses, the BLM shall update the vegetation dataset for the Bighorn Basin. This dataset will include vegetative components (vegetation cover type, percent cover, age/size classes, and structure), ecological site, fuels, and fire regime information. New LANDFIRE data that provides the aforementioned data requirements is available and is more detailed than GAP data, which is currently employed by the BLM.
4. The BLM shall provide baseline data when disclosing sensitive plants, especially when sensitive plants are rationale for management actions. The BLM shall use the Wyoming Natural Diversity Database (WYNDD) GIS data for plant Species of Concern as baseline occurrence/presence data, but not as proof of absence. The BLM shall conduct a full inventory, providing field verified occurrences of sensitive plants to substantiate any future management actions.

6. Conclusion

Overall, the vegetation discussion in the RMP/EIS is significantly flawed; there is insufficient data, incomplete inventories of existing conditions, generic effects analyses, and discrepancies in acreages both within the RMP/EIS and between the RMP/EIS and BLM provided GIS data. Throughout the RMP/EIS, there is a lack of best available science and citations are very scarce. The lacking disclosure of existing conditions adds to the confusion of how management will work to attain desired conditions. The effects

analysis provided by the RMP/EIS is inadequate and filled with vague descriptions of how management action might or might not affect resources in a positive or negative manner.

Before the RMP/EIS is finalized, the vegetation section must be substantially improved. The Affected Environment must compare historic and current vegetation conditions and habitat quality and quantity. The connection must be made from historic vegetation conditions to existing conditions, facilitating connections between desired conditions and management actions. Until a thorough vegetation NEPA analysis is constructed, the LGCA cannot support any management actions taken by the BLM for the protection of vegetation resources in the Bighorn Basin.

10. INVASIVE SPECIES AND PEST MANAGEMENT

Within the Invasive Species and Pest Management section there is nearly nonexistent disclosure of relevant field-verified data. The most glaring deficient within this subject area is that only 10% of the Worland Field Office (WFO) has been inventoried for invasive nonnative annual bromes. Clearly an EIS cannot accurately analyze the impact of invasive species when only 10% of the WFO has been inventoried. Prior to finalization the BLM must conduct a new, expanded inventory and reanalyze impacts.

2.5 Alternative Summary

In section 2.5 Alternatives Summary it states that the section describes only the key elements of the alternatives (those with the greatest potential to affect resources). This table should include invasive weeds and cheatgrass since this resource has the greatest potential to affect resources if not managed properly. Please include acres of invasive weeds and cheatgrass by alternative.

3.4.4 Invasive Species and Pest Management

The Affected Environment section for Invasive Species and Pest Management is inadequate and contradictory. Acreages are not consistent as explained below, there is no information provided on the species types and acres infested by species, nor is there a location map. Noxious weeds were identified as an issue early in the planning process, however they are given minimal treatment and there have been no indicators identified to compare the difference in alternatives.

This section states that in 2007 "...the WFO estimated that approximately 57,000 acres in the field office were infested with nonnative annual bromes." This inventory is stated to only cover 10% of the Bighorn Basin so, "actual infested acreage might vary." We argue that the inventory is far too minimal and must be conducted at a much greater scale.

4.4.4 Vegetation – Invasive Species and Pest Management

The Environmental Consequences section does not disclose what the indicators are for measuring impacts. This section has very detailed information on surface disturbing activities, is it to be assumed that every acre of surface disturbing activity is going to be infested with weeds? Please identify what indicators were used to compare alternatives and provide a table that displays the differences between alternatives so that the impacts can be understood.

4.4.4.1 Methods and Assumptions

There are no methods detailed on how environmental consequences of invasive species were analyzed. There is no quantitative information provided to assess impacts.

4.11 Unavoidable Adverse Impacts

On page 5-514 it states that surface-disturbing activities (e.g., construction of well pads and roads, pits and reservoirs, pipelines and powerlines, mining, and vegetation treatments), OHV use, fire and fuels management, some recreational activities, concentrated herbivory, and operation and maintenance of existing facilities and infrastructure in the Planning Area would cause fugitive dust, exhaust emissions, and smoke, thereby adversely affecting air quality through the release of HAPs, VOCs, CO, SO_2, NO, and PM_{10} into the atmosphere. In addition, these activities would release CO_2, CH_4 (primarily from livestock grazing), and other GHGs into the atmosphere.

Additionally, please remove concentrated herbivory and (primarily from livestock grazing) as these activities are not considered surface-disturbing activities.

Mitigations

1. The BLM will complete a comprehensive inventory of invasive species in the Big Horn Basin to direct their Integrated Pest Management Program.
2. The BLM will address the invasion of cheatgrass and implications it will have on all resources and resource uses in the basin. This will include discussion of trends, locations of cheatgrass, and detailed plans for prevention and control.
3. The BLM will change the definition of surface-disturbing activity to remove disturbance of endemic vegetation. Surface-disturbing activities should only include uses that remove non-renewable resources such as top soil, sand and gravel etc. This definition implies that use of herbivory is a surface disturbing activity. Ecosystems evolved with herbivory use which is a renewable resource and its use should not be considered surface-disturbing activities.

> **Surface-Disturbing Activities:** These are Public Land resource uses/activities that ~~disturb~~ remove the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface-disturbing activities include: construction of well pads and roads, pits and reservoirs, pipelines and power lines. ~~and most types of vegetation treatments (e.g., prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., *No Surface Disturbing Activities*), this phrase prohibits all resource use or activity, *except those uses and activities that are specifically authorized*, likely to disturb the endemic vegetation, surface geologic features, and surface/near surface soils.~~

11. FISH RESOURCES

Throughout the document, there are many terms and practices regarding fish resources that are not defined or described. We have highlighted these clarification needs, including questions that will assist in better clarifying where such information is lacking.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

Record #4055 – Alternative A uses the terms "intensively managed intermittent streams" on a "case by case" basis. Without defining "intensively" or the "case by case basis" decision criteria, any action might be proposed on an intermittent stream. The impact to intermittent streams and other uses could be substantial. Alternative B does define which streams might be chosen, but chooses to use the term "intensively manage" without specifics. Could this mean an exclusion of cattle or no stream crossings or other uses? Alternative C uses the same language as Alternative A. Alternative D references no surface occupancy within ¼ mile of a Class 1 or 2 fisheries and a 500-foot fisheries buffer elsewhere. Does this mean any intermittent stream contributing to a fishery could be deemed subject to a ¼ mile or 500-foot buffer? Would intermittent streams contributing to a class 1 or 2 fishery be subject to a ¼ mile avoidance of surface disturbing activities? Is the use of the term "avoid" meant as a guideline subject to interpretation as to how it would be applied or is it a NSO restriction similar to Alternative A? We propose that this language not be applied to Record #4055, but rather only to Record #4056.

Record #4058 – Alternative A forms the basis for comparison of alternatives. Several commonly used techniques are listed including vegetation manipulation and planting, installing sediment and erosion control structures, fencing, and acquiring, developing, and maintaining water sources. However, there is little evidence in the document to support either the need for nor the benefit of the techniques listed. Alternative B indicates that there are implied management practices, but none are specifically listed. What management practices would be implemented in addition to those listed in Alternative A? Are there additional practices proposed in addition to "acquiring, developing, and maintaining land and water sources?" There are no references or assessments to determine where or if such acquisitions are necessary, nor beneficial for native fish or fish species of concern.

Record #4059 – Alternative A is unclear as to whether existing reservoirs will be encouraged to have minimum pool depths. Please clarify as to whether the Bighorn Basin RMP encourages the establishment of minimum pool depths. Both Alternative B and D reference the term "managing existing reservoirs." What is meant by "managing existing reservoirs," as well as "encouraging minimum pools?"

Record #4060 – Alternative B proposes to retrofit or design new culverts to "allow fish passage, both upstream and downstream." Is this alternative proposing to retrofit or design new culverts that allow for fish species of all size classes to have passage? Will fish have passage at all potential streamflows (including bankfull)? Will fish passage be provided on ephemeral or intermittent streams? In most cases, culverts are not capable of passing all species and size classes of fish at any flow level. Bridges spanning

bankfull width or fords would be required for such wide-ranging passage requirements. Bridges or fords are not mentioned in this alternative. Alternative C proposes to design culverts and crossings to current standards. What are current standards? What fish species and size classes are provided passage with the current standards? Why are such current standards not listed in Alternative A? Alternative D proposes to use Alternative B practices on a priority basis. What are the priorities? How extensive are the practices expected to be applied?

Resource Uses

"Campgrounds are not developed under Alternative B, resulting in less adverse impacts due to recreation access than Alternatives A and C." Does this statement apply only to land within ¼ mile or 500 feet of a stream or will no more campgrounds be built in the Bighorn Basin? Also, why would not well located and designed campgrounds be less impactive than dispersed camping that could occur on streambanks?

Resources

Paragraph four, page 4-163 of the Bighorn Basin RMP/EIS states that:

> Alternative B maintains natural flow regimes in streams supporting fish, providing the greatest beneficial impacts to water quantity compared to the other alternatives. Fencing of wetlands and riparian areas reduces potential bank degradation and sedimentation from other activities and resources uses, resulting in greater indirect beneficial impacts to fish than Alternative A.

This paragraph implies that Alternative B maintains "natural flow regimes." However, there are existing alterations due to water and diversion projects and acknowledgement that oil and gas development may provide produced water surface discharge, thereby changing natural flow regimes. Due to this, please clarify the term "natural flow regimes."

12. WILDLIFE AND WILD HORSES

The information for Biological Resources – Wildlife and Special Status Species-Wildlife in the Draft Bighorn Basin RMP/EIS is lengthy, covering approximately 200 pages. However, the Wildlife sections of the Draft Bighorn Basin RMP/EIS are consistently incomplete, contradictory, and unclear. An Affected Environment chapter should comprehensively disclose wildlife habitat needs and available habitat for all species analyzed in the EIS Planning Area. Additionally, when management challenges are noted for individual species (e.g. greater sage-grouse) or groups of species (big game), such challenges should be disclosed quantitatively with data and research. Rather than doing so, the Affected Environment chapter provides little to no historic, baseline, and/or current data on wildlife species, habitat availability and quality, and substantiation via data and research to document that the management challenges are in fact real and accurate as described.

In moving from the Affected Environment, which inadequately portrays the current condition, it is impossible to analyze the effects of proposed management actions on species and habitats in the Environmental Consequences chapter. As one example of many, the RMP/EIS states the following (pg. 4-222):

> Although livestock grazing in greater sage-grouse habitat can have both adverse and beneficial impact (e.g., Alternative D allows livestock grazing to improve greater sage-grouse habitat), the more restrictive management under Alternative B would be the most beneficial to this species.

Certainly, it is agreed that proper livestock grazing management is beneficial to greater sage-grouse. It is also accurate that if done improperly, greater sage-grouse can be negatively impacted by livestock grazing. However, the RMP/EIS does not provide any site-specific Planning Area data that discloses greater sage-grouse occupied areas that have been either beneficially or detrimentally affected by livestock grazing. More importantly, the RMP/EIS does not provide any evidence that "restrictive management under Alternative B would be the most beneficial to this species."

The preceding statement that explicitly claims restrictive management is the most beneficial is an over-arching theme advanced for all wildlife species in the RMP/EIS. Restrictive management of the Planning Area for the purpose of protecting wildlife is neither based on recognized science or advances in the implementation and effectiveness of mitigation measures. There is great concern from the LGCA and Bighorn Basin stakeholders that the BLM is creating an environment with the RMP/EIS antithetical to the responsible, beneficial use of resources in the Planning Area for the coming decade or more. Using aspirational goals and objectives, sans comprehensive data and research, to promote wildlife to the economic detriment of local governments and stakeholders is without merit. As currently written and expressed in the comments that follow, the wildlife portion of the RMP/EIS is significantly inadequate as a basis for making management decisions with far-reaching ramifications.

Relevant Regulatory Guidelines

As it pertains to wildlife in the Bighorn Basin Planning Area, the following are relevant regulatory guidelines the BLM must be in compliance with when making planning decisions:

- August 14, 2003 Wild Horse Consent Decree between the BLM and State of Wyoming
- DQA
- Endangered Species Act (ESA)
- FLPMA
- NEPA and CEQ Regulations
- Wild Free-Roaming Horses and Burros Act (WFRHBA)

2. Resource Management Alternatives

2.4.4 Biological Resources (Wildlife, Special Status Species, and Wild Horses)

After the cursory discussion of management actions common to all alternatives, the RMP/EIS addresses Biological Resources Management Actions Common to All Alternatives. Paragraphs two, three, and four discuss wildlife, special status species, and wild horses. Page 2-13 of the RMP/EIS states:

> Management actions include maintaining or improving important wildlife habitats through vegetative manipulations, habitat improvement projects, livestock grazing strategies and the application of applicable guidance.

The LGCA supports programs that maintain and improve important wildlife habitats through the aforementioned methods. However, the RMP/EIS fails to demonstrate through a lack of baseline and existing condition data the need for improvement of wildlife habitats. As the comments for the vegetation section, when the BLM provides scientifically sound and acceptable data showing the need for habitat improvement projects, the LGCA requests the opportunity to review the data prior to the initiation of habitat improvement projects.

Upon demonstration that wildlife improvements are necessary, the LGCA must be consulted on the methods of improvement and where they will occur.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

Following careful review of Table 2-5 in the RMP/EIS, the LGCA offers the following comments disclosed in Table 9.

Table 9 Wildlife Comments for Table 2-5 of the RMP/EIS

Record Number	LGCA Comment
Goals/Objectives description pg. 2-72	BR:5.1 – Consult and implement standards/goals/objectives found in the Big Horn, Hot Springs, Park, and Washakie County Plans. BR:5.2 – Habitat condition trends should be evaluated via field surveys, comparison of historic and current conditions, and how herd levels and habitat conditions affect grazing permittees. BR:5.3 – The LGCA strongly favors acknowledgment of the importance of working landscapes. Private, working ranches provide a majority of critical and parturition habitat in the Planning Area. Any management decision should take into account how the action will affect working landscapes and private landowners and permittees. BR:6 – Please define environmental risks and associated impacts and describe how they are measured temporally and spatially. BR:6.1 – In minimizing, avoiding, and mitigating environmental risks to fish and wildlife, all decisions and management actions must be substantiated with field-verified data and best science. The BLM is required, according to case law, to take a "hard look" at best science before implementation of management actions. BR:6.4 – The LGCA supports aggressive control measures for predatory animals that affect the social and economic well-being of citizens in the Bighorn Basin.
4053	Stakeholder cooperation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4061	Any management decision implemented through the various methods/guidance outlined in record #4061 must be based on sound science and monitoring/field data. Sans that, the LGCA does not support implementation of any management actions that limits resource uses.
4062	HMPs should only be updated when necessary and based on sound science and monitoring/field data.
4063	Define "as appropriate," "casual use," and "vegetation manipulation."
4064	Stakeholder cooperation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4065	Stakeholder cooperation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4066	"Similar guidance that is updated over time" must involve stakeholders.
4067	Stakeholder cooperation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4068	"Other agencies" must include the LGCA.
4069	Consultation should include not just the WGFD, but the LGCA and its constituency.

Record Number	LGCA Comment
4070	LGCA and stakeholders proposals should also be considered prior to changes in population objectives. Any management changes have to be based on a "hard look," sound science, and monitoring/field data.
4071	"Local government" and "other stakeholder" cooperation are paramount prior to any actions limiting access to any area in the Planning Area.
4072	Stakeholder cooperation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4073	Habitat enhancement projects should be implemented only after stakeholder review and agreement.
4074	Define "appropriate wildlife needs."
4076	Alternative A – The LGCA supports efforts to enhance public access via multiple means, including motorized access. Alternative B/D – Stakeholder cooperation and recognition of the importance of multiple uses is necessary.
4077	Alternative A, B, and D – There is no scientific research that suggests that livestock grazing affects parturition areas during the birthing season. Further, the parturition area concept is archaic due to predatory expansion. The LGCA does not support livestock grazing restrictions in parturition areas. Alternative C – The LGCA supports livestock grazing in parturition areas. However, if Record #4077 was developed to address potential brucellosis impacts, the LGCA recommends the following language, "BLM would consider implementation, on a case by case basis, management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."
4078	Currently, there are no domestic sheep grazing allotments in pronghorn crucial winter range. The LGCA does not support restriction of domestic sheep grazing in pronghorn crucial winter range. Any restriction must be made in consultation with stakeholders and only after the BLM has taken a "hard look" at scientific research. Presently, the LGCA cannot find any research to suggest a conflict between domestic sheep grazing and pronghorn.
4079	Alternative B – The LGCA ardently disagrees with yearlong restrictions in big game crucial winter range and parturition habitat. There is a large body of scientific research that states that mitigations are available and effective to protect these areas. The LGCA does support restrictions in big game winter range from November 15 to April 30. However, any restriction in parturition habitat is not supported.

Record Number	LGCA Comment
4080	The Absaroka Front Management Area should not receive special protections. It should be treated equally with all other areas in the Bighorn Basin.
4081	The LGCA supports livestock water developments and asserts that adverse effects can be avoided or mitigated effectively.
4082	Define "case-by-case basis."
4083	The LGCA strongly disagrees with Alternative B restrictions. Alternative A and D – Define "case-by-case basis."
4084	The LGCA disagrees with any parturition habitat designations. However, if Record #4084 was developed to address potential brucellosis impacts, I recommend the following language, "BLM would consider implementation, on a case by case basis, management actions jointly recommended by wildlife managers, grazing permittees, and animal health officials that would control the transmission of brucellosis."
4085	Wind energy projects should be advocated by the BLM. Mitigations are available to minimize impacts to wildlife.
4086	The LGCA supports recycling and reusing produced water for wildlife needs.
4087	In consultation with stakeholders the LGCA supports motorized vehicle restrictions in big game winter range during November 15 to April 30. There is no support for motorized vehicle restrictions in parturition habitat.
Goals/Objectives description pg. 2-80	BR:7 – Any management decision/action for special status species must be based on sound science and monitoring/field data. Sans that, the LGCA does not support implementation of any management actions that limits resource uses. BR:7.2 – The LGCA does not support any "use restrictions" and/or "management actions" that are not based on consultation with stakeholders, monitoring/field-verified data, and sound science determined to be so via a "hard look" by the BLM. BR:7.3 – Define "environmental hazards, risks, and impacts." Management should be compatible with multiple uses and stakeholder interests. BR:7.4 – The LGCA fully supports "providing multiple use management." Define "sufficient undisturbed" and "minimally disturbed" habitats. BR:7.5 – Development and implementation of "HMPs, activity plans, or use other mechanisms (sic)" should only be done after stakeholder consultation and review. BR:7.6 – The LGCA strongly favors acknowledgment of the importance of working landscapes. Private, working ranches provide

Record Number	LGCA Comment
	a majority of critical and parturition habitat in the Planning Area. Any management decision should take into account how action will affect working landscapes and private landowners and permittees. BR:9 – The Bighorn Basin contains a healthy population of greater sage-grouse. The LGCA supports sagebrush maintenance, as long as it does not include restrictions on multiple uses that affect the economic well-being of the citizens of the Bighorn Basin. BR:10 – "Restoration and/or rehabilitation" programs/action should always include stakeholder consultation and must not reduce or eliminate economic multiple use endeavors prior to collection of field data and a "hard look" at relevant science. BR:10.1 – Describe in detail the methods proposed to "reconnect large patches of sagebrush habitat."
4088	Postponement or modification of projects must include stakeholder consultation and review in addition to the same with the USFWS.
4089	Stakeholder cooperation/consultation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4090	"Authorized agencies" must include the LGCA.
4091	The LGCA does not support motorized vehicle restrictions unless it is proven through established, peer-reviewed scientific methods to be necessary. Restrictions should be discussed with stakeholders and the LGCA prior to implementation.
4095	Management actions must not be made without comprehensive monitoring data and scientific research to corroborate such a necessity. The LGCA does not support restrictions on livestock use based on aspirational goals/objectives. They must be warranted and implemented only after stakeholder review, consultation, and approval.
4096	Define "restore" and the effects to multiple uses and permittees.
4098	Define "manage." Describe in detail the method used in determining "ecological site descriptions."
4101	Disclose those areas with less than 5% sagebrush cover that will be restored. What temporal scale is being used to determine "historic levels."
4104	The LGCA supports this method of treatment.
4105	Stakeholder cooperation/consultation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.
4106	Stakeholder cooperation/consultation is paramount prior to any decision. The BLM must make strident efforts to involve stakeholders.

Record Number	LGCA Comment
4107	The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.
4109	Disclose where "strategic locations" are in the Bighorn Basin. How are "strategic locations" determined?
4110	The LGCA does support the use of fire. However, when possible, conifers should be removed by local timber companies to maximize economic value. When conifers do not have economic value, burning is acceptable.
4114	Describe and define activities that will "promote the maintenance and improvement of habitat quantity and quality."
4116	The LGCA supports prairie dog maintenance only to the degree that it keeps obligate species off the ESA.
4120	Alternative A – The lek buffer should be extended to 0.6 mile. Alternative D – The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.
4121	Alternative D – The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.
4122	Implement state-of-the-art noise reduction mitigations that minimize restrictions on oil and gas development projects.
4123	Alternative B – The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM. Further, the LGCA does not support restrictions of motorized access. Alternative C and D – The LGCA does not support BLM-designated Key Areas. Guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas, shall be implemented by the BLM.
4124	Alternative B – The LGCA does not support 1- and 2-mile TLS restrictions to protect raptors. There is no available science/research to suggest such a buffer is necessary. Alternative D – The LGCA does not support a 1-mile buffer around ferruginous hawk nests. Recognized science does not support such a restrictive buffer as well. The BLM must provide and take a "hard look" at scientific research before implementing such an extensive buffer zone.

Record Number	LGCA Comment
4125	The BLM has failed to recognize that the mountain plover co-evolved with grazing ungulates. Mountain plovers are dependent on over-grazed environments. Acknowledgment of such is requested by the LGCA and programs should be implemented that incorporate grazing methods to promote mountain plover.
4126	In general, the LGCA is non-supportive of any effort to promote prairie dogs to a degree greater than is necessary to keep obligates off the ESA list. LGCA/stakeholder consultation should hold equal weight to that of the USFWS and WGFD prior to any black-footed ferret reintroduction projects.
4127	In general, the LGCA is non-supportive of any effort to promote prairie dogs to a degree greater than is necessary to keep obligates off the ESA list. Please see our prairie dog strategy in the proceeding narrative.
4128	In general, the LGCA is non-supportive of any effort to promote prairie dogs to a degree greater than is necessary to keep obligates off the ESA list.
4129	In general, the LGCA is non-supportive of any effort to promote prairie dogs to a degree greater than is necessary to keep obligates off the ESA list.
Goals/Objectives description pg. 2-92	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4142	Provide habitat acres at the minimum allowable size according to the WFRHBA.
4143	Provide habitat acres at the minimum allowable size according to the WFRHBA.
4144	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum population objectives outlined in the WFRHBA and absolutely no more.
4145	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum population objectives outlined in the WFRHBA and absolutely no more.

Record Number	LGCA Comment
4146	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4148	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4149	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4150	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4151	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4152	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.
4153	The LGCA, unequivocally, does not support any restrictions to resource development/use activities on the basis of wild horses.
4154	The LGCA, unequivocally, does not support any restrictions to resource development/use activities on the basis of wild horses.
4155	The LGCA does not support wild horses in the Planning Area. The exotic species is detrimental to native habitats. It is recognized that until the WFRHBA is repealed the BLM has an obligation to comply with the Act. The opinion of the LGCA is that wild horses should be managed to meet the minimum objectives/standards outlined in the WFRHBA and absolutely no more.

3. Affected Environment

3.4 Biological Resources

Habitat Fragmentation

The discussion in the RMP/EIS on habitat fragmentation is overly simplified and explicitly claims that (pg. 3-70):

> a contiguous 100,000-acre block of sagebrush habitat is considered fragmented when a major highway is constructed within the habitat, thereby bisecting the block. If, in this example, the highway bisects the 100,000-acre block in half, the result of this fragmentation is two 50,000-acre blocks of sagebrush habitat bisected by a highway.

In making such a statement, the RMP/EIS fails to provide a single reference that the construction of a major highway through a 100,000 acre block will result in two separate parcels of wildlife habitat. Additionally, the RMP/EIS could have cited many pieces of literature that cogently discuss the effects of fragmentation on wildlife (Dobkin 1994; Faaborg et al. 1993). Instead, the RMP/EIS has not one citation regarding fragmentation.

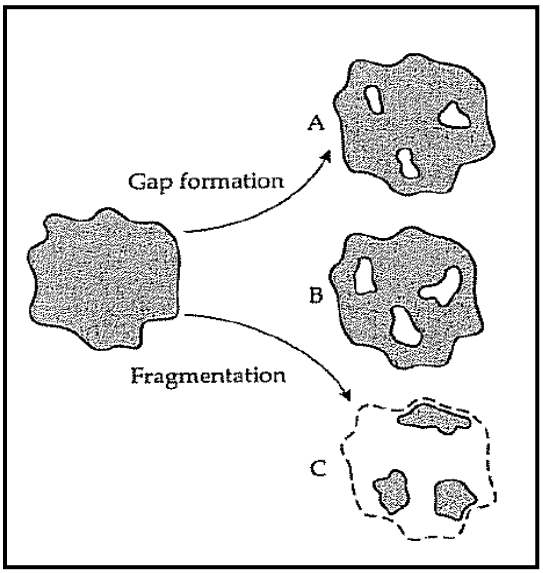


Figure 12 Gap/fragmentation formation sequence

Fragmentation is generally considered a change in landscape structure that reduces total available habitat, apportioning remaining habitat into smaller, more isolated patches (Meffe and Carroll 1994). As displayed in Figure 12, a fragmentation sequence begins with gap formation or perforation of the landscape (A). Gaps become bigger or more numerous (B) until the landscape matrix shifts from forest to anthropogenic habitat (C). Meffe and Carroll are considered experts in the field of fragmentation. As noted in Figure 12, multiple actions are required to facilitate the creation of habitat fragmentation. While the LGCA does not disagree with the concept, it is our opinion that the BLM's characterization of fragmentation is overly simplified. For instance, the example cited above from the RMP/EIS would be considered a "gap formation," not an action solely defined as "fragmentation."

3.4.6 Fish and Wildlife Resources – Wildlife

Wildlife and Habitats in the Planning Area

Within this section is a cursory discussion of wildlife and wildlife habitats in the Planning Area. As a side note, the RMP/EIS states (pg. 3-93):

> It also is noteworthy that many wildlife populations spend considerable time on non-BLM-administered lands and these populations often depend to a great extent on, and are therefore affected by, management of these non-BLM-administered lands.

The LGCA agrees completely with this statement. Private land is an important habitat component for many species in the Planning Area and beyond. However, in the RMP/EIS section 3.4 Biological Resources, under the subheading *Habitat Fragmentation*, the following is asserted (pg. 3-71):

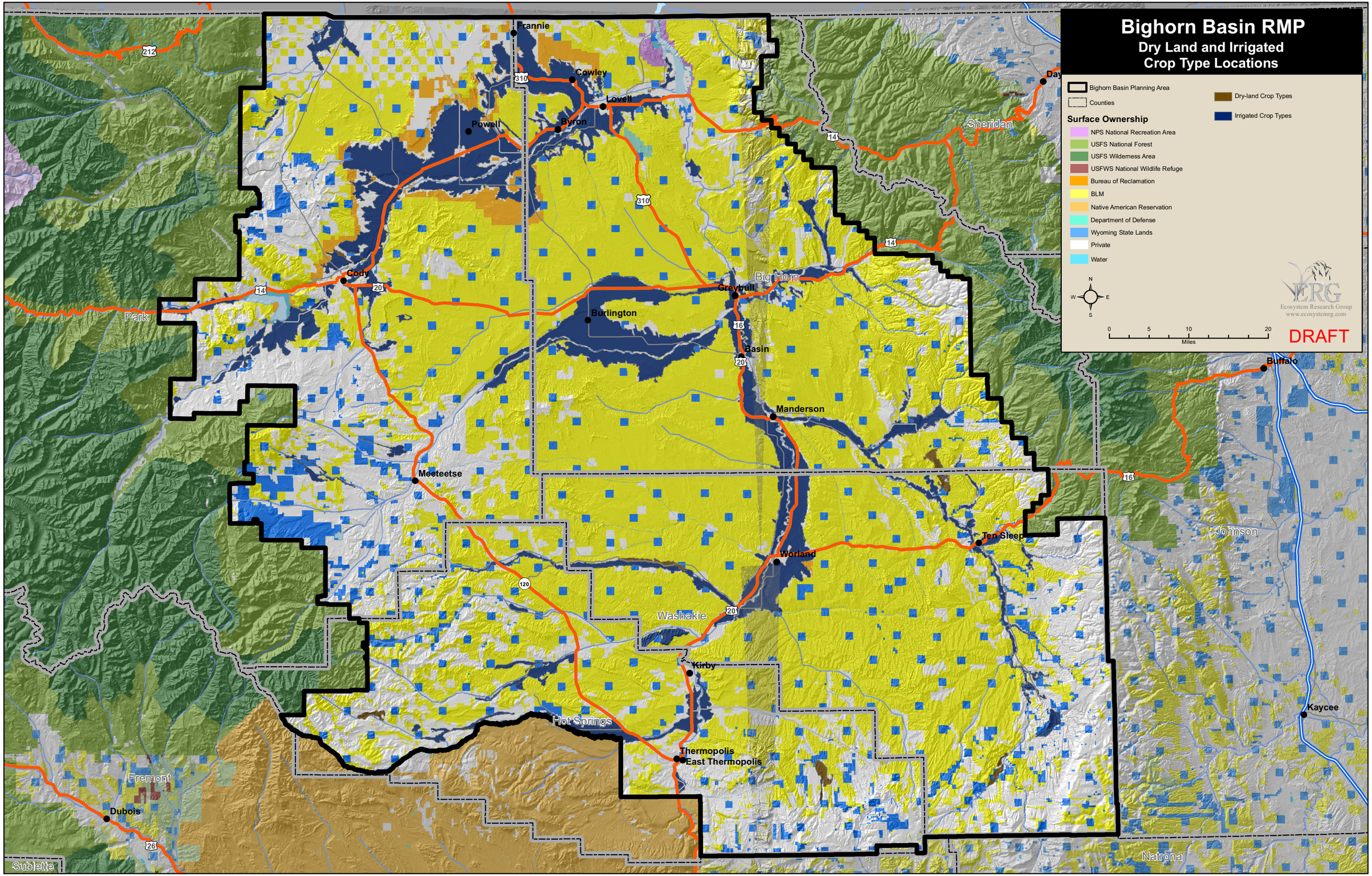
> Habitat fragmentation in the Planning Area is most prevalent along the linear features identified in the previous discussion; however, fragmentation also occurs at population centers, reservoirs, and other developments where humans live, recreate, and work. For example, the development of private parcels bordering BLM-administered lands has, in some cases, contributed to habitat fragmentation by the conversion to subdivisions or smaller ranchettes. This type of land conversion and habitat fragmentation primarily occurs near the wildland-urban interface. Buildings, roads, fences, and utility corridors associated with residential and commercial developments have all contributed to habitat fragmentation in the Planning Area.

The RMP/EIS needs to quantify the degree to which the preceding statement is true (what percentage of wildlife populations in the Planning Area are supported by private land). While it is true that wildlife is "affected by management of these non-BLM-administered lands," the inverse is also true that habitat on private lands is affected by BLM actions. Interestingly, while the RMP/EIS discloses that when large working ranches are "convert(ed) to subdivisions to smaller ranchettes" wildlife suffer habitat fragmentation and loss of habitat, the RMP/EIS makes no attempt to quantify how BLM actions affect the economic viability of working ranches. The BLM must disclose all connected actions of how changes in grazing management plans affect the viability of working ranches (Map 2).

Table 10 discloses the acres of private land in the Planning Area providing important habitat for greater sage-grouse, long-billed curlew, mule deer, elk, and pronghorn. Map 2 discloses ownership in the Bighorn Basin, including farmland. BLM management actions that discourage resource uses on private land may cause the loss of a portion of the acres displayed in Table 10. Losses of habitat would occur when the economic benefits of grazing or farming are impinged upon by BLM restrictions. As financial incentives of farming and ranching are diminished, private landowners will be inclined to subdivide their land and maximize real estate profits. The resulting effect is a loss of wildlife habitat.

Table 10 Acres of Private Land in the Planning Area Providing Important Wildlife Habitat

Wildlife Species/Habitat-type	Acres in Private Land	Percent of Available Habitat Provided by Private Land
Greater sage-grouse core habitat	505,340	28
Long-billed curlew	3,816	30
Mule deer crucial winter range	624,643	42
Elk crucial winter range	260,490	48
Elk parturition	118,512	58
Pronghorn crucial winter range	90,016	15


Bighorn Basin RMP
Dry Land and Irrigated
Crop Type Locations
Bighorn Basin Planning Area
Counties
Dry-land Crop Types
Irrigated Crop Types
Surface Ownership
NPS National Recreation Area
USFS National Forest
USFS Wilderness Area
USFWS National Wildlife Refuge
Bureau of Reclamation
BLM
Native American Reservation
Department of Defense
Wyoming State Lands
Private
Water
N
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Miles
Ecosystem Research Group
www.ecosystemrg.com
DRAFT
Frannie
Cowley
Lovell
Byron
Powell
Cody
Greybull
Big Horn
Burlington
Basin
Manderson
Meeteetse
Worland
Ten Sleep
Sheridan
Buffalo
Johnson
Washakie
Kirby
Hot Springs
Thermopolis
East Thermopolis
Kaycee
Park
Fremont
Dubois
Sublette
Natrona
212
310
14
20
16
120
26

Big Game

Comments that follow pertain to pronghorn, mule deer, elk, moose, and bighorn sheep.

Pronghorn

The tone of the pronghorn discussion is typified by sweeping generalizations, identification of problems without supporting data, and viability characteristics in the Planning Area without supporting data. An example of such is found on pg. 3-96 of the RMP/EIS:

> Population projections for pronghorn generally have been below objectives for several years, except where herds have access to large areas of irrigated fields. This is partly due to adverse effects on the quality of the shrub component of their pronghorn habitat in many ranges. Habitat condition of many of the Wyoming big sagebrush communities associated with pronghorn winter ranges is declining due to poor productivity, plant recruitment, old age, and cheatgrass invasion that has out-competed native herbaceous and sagebrush species. Declines in habitat quality also have affected the reproduction and survival rates for pronghorn. Lower reproduction and lower recruitment of young into populations has inhibited the ability of herd populations to recover from declining numbers.

The statement that pronghorn have done well "where herds have access to large areas of irrigated fields" lacks supporting data derived from field-verified surveys and monitoring. For how long has this been occurring? Since the conversion of native land to farmland? In the last 10, 20, or 30 years? Further, the RMP/EIS must disclose where, how many acres, and to what degree pronghorn populations are thriving as a result of irrigated private lands. It is also necessary to describe if this phenomenon is exclusive to the Planning Area or occurring throughout the West and why is it occurring.

The statement that the "(h)abitat condition of many of the Wyoming big sagebrush communities associated with pronghorn winter ranges is declining due to poor productivity, plant recruitment, old age, and cheatgrass invasion that has out-competed…sagebrush species" needs to be substantiated with data gathered in a scientifically-accepted manner to support the conclusion. Specific data needed, both historic and existing, include:

- How many acres of sagebrush have been lost to dry and irrigated farming?
- Of lands still in sagebrush, how has the coverage and age class distribution of sagebrush changed due to fire suppression?

The LGCA requests that in assessing this issue that comments for the vegetation/invasive species sections of this document be considered concomitantly. Our assessment shows that in fact Wyoming big sagebrush communities are not in decline (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Deer

The BLM, in their discussion of mule deer in the RMP/EIS, states the following (pg. 3-97):

> (b)ecause of seasonal dependence on woody plant communities, mule deer are generally declining in numbers due to a decline in habitat quality and quantity.

It is unclear how the BLM can make a statement such as the preceding without providing evidence? Not only does the statement need supporting data and scientific literature, but an explanation that this is the only variable negatively affecting mule deer. Data requested for inclusion in the final RMP/EIS include:

- How many acres of sagebrush have been lost to dry and irrigated farming?
- Of lands still in sagebrush, how has the coverage and age class distribution of sagebrush changed due to fire suppression?

Additionally, the causes of mule deer declines are multi-fold, variable, and sometimes uncertain (Ballard et al. 2001; deVos et al. 2003; Unsworth et al. 1999). For instance, Gill et al. (1999) suggest that declines in Colorado were most attributable to competition from increasing elk populations, loss of vegetation productivity to over-grazing by deer in the 1940's, and loss of habitat to farmland conversion. The Oregon Department of Fish and Wildlife (2011) concluded that the decline of mule deer in Oregon is attributable to several factors in addition to habitat quality/quantity changes, including severe winters and drought, changing predator-prey relationships, and changing grazing and forest management practices. Thus, it is unclear how the RMP/EIS can conclude with certainty that "mule deer are generally declining in numbers due to a decline in habitat quality and quantity," particularly without providing any data on habitat conditions (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Elk

Elk in the Planning Area are a significant resource. As the RMP/EIS states correctly (pg. 3-97):

> (e)lk numbers have been generally at or over objective for most herd units in the Bighorn Basin for the past two decades.

What the RMP/EIS does not bring to the discussion is how the overpopulation of elk has negatively affected BLM permittees. As affected parties, the LGCA asks that the RMP/EIS qualify and quantify how the increase in elk has:

- Complicated grazing for BLM permittees
- Compromised the economic viability of permittees
- Disrupted attaining utilization standards

The RMP/EIS continues with the statement that "(e)lk have possibly fared better because they are more generalist feeders than species like deer and pronghorn (pg. 3-97)." A NEPA document should not include the word "possibly" without supporting research findings that were conducted using the scientific method and the results are inconclusive. Without documentation of any type, the use of "possibly" in the RMP/EIS is egregious. CEQ 1502.24 states:

> Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix.

Suggesting that elk have "possibly" fared better sans "reference by footnote to the scientific and other sources relied upon for conclusions in the statement" is an issue the BLM must correct before the publication of the Final RMP/EIS (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Moose

Moose in the Bighorn Basin are distributed sparingly throughout the Planning Area and have highly specialized habitat needs (pg. 3-97):

> Moose are distributed in low densities throughout the Absaroka, Owl Creek, and Big Horn Mountains in the Planning Area, especially along the river and stream corridors adjacent to these mountains and in areas of higher elevation that have forest or woodland cover. In summer and fall, moose use willow, aspen, and mixed conifer forests for forage and security. Moose are primarily browsers and feed on woody species like willow, aspen, and some young conifer species. In winter, moose in the Big Horn Mountains seem to concentrate primarily in riparian corridors and mixed conifer habitats, while in the Absaroka Mountains they tend to move up in elevation to forage in mixed conifer and spruce/fir forest habitat types. Occasionally, severe winter snows push moose to lower elevations. Moose populations are generally below WGFD-objective numbers.

To begin and end the Affected Environment discussion of moose, the RMP/EIS determines that moose are both "distributed in low densities" and "below WGFD-objective numbers." In determining such statements, the LGCA is perplexed why the BLM does not provide causation for such, nor how the Agency proposes to improve moose prospects in the Planning Area. The Affect Environment should provide a setting for disclosing effects to moose from project activities in the Environmental Consequences. A cursory summary of moose needs and population numbers is contextually insufficient, which requires the LGCA to request additional information for moose so that in the future if resource uses are restricted under the auspices of protecting moose they can be fairly assessed and justified (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Bighorn Sheep

Without question domestic sheep and goat interactions with bighorn sheep lead to population decreases in the species. Information disclosing such is readily available and at least one comprehensive review has been created with a five-plus page reference list of scientific research pertaining to disease-related conflicts between domestic sheep and goats and bighorn sheep (Schommer and Woolever 2008). It is the obligation of the BLM, in asserting the conflict between domestic sheep and goats and bighorn sheep, to provide basis for such statements. Yet, the RMP/EIS goes further in stating (pg. 3-97):

> Bighorn sheep populations in the Planning Area have increased due to the establishment of native core areas in occupied bighorn sheep habitat and because of habitat augmentation and improvement through burning and livestock permit changes.

Does the preceding suggest that the elimination of domestic sheep and goat allotments in bighorn sheep habitat in the Bighorn Basin has increased population numbers? Presently, there are no domestic sheep or goat allotments in bighorn sheep designated habitat. In suggesting that "livestock permit changes" have facilitated an increase in bighorn sheep, please provide historic grazing allotment and bighorn sheep population data. Correlation between the reduction of domestic allotments and increases in bighorn sheep should be evident.

The assertion is made that "habitat augmentation" is the other factor allowing for an increase in bighorn sheep. What does habitat augmentation entail? A definition of this term is requested by the LGCA. The literature does show a positive response to bighorns from prescribed burning (Bentz and Woodard 1988; Bleich et al. 2008; Dibb and Quinn 2008; Smith et al. 1999). Brown et al (2010) found that bighorn sheep exhibited increased "vigilance" around cattle and thus spent extra energy being alert rather than feeding, which could be interpreted to negatively impact sheep. Ganskopp and Vavra (1987), however, indicate that the overlap where bighorn sheep and cattle occur on the same site was only about 20% due to bighorn sheep's affinity for steep slopes. If the RMP/EIS is going to conclude that cattle use is incompatible with bighorn sheep, data on the distribution of steep versus gentle land and amount of land where cattle can physically interact with bighorn sheep is needed (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Management Challenges

This section of the RMP/EIS begins with the following (pg. 3-98):

> Management challenges for big game species include poor habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species. The WGFD monitors disease in big game species. The BLM and the WGFD continually coordinate and evaluate actions affecting herd units and habitat conditions to determine the appropriate management direction.
>
> Big game species that depend on woody plant communities (e.g., pronghorn, mule deer, and moose) are generally declining in numbers due to a decline in habitat quality and quantity. Species that depend on herbaceous plants (e.g., elk and bighorn sheep) generally have stable or increasing populations.

It is disconcerting to the LGCA that impacts to wildlife from predation in the Bighorn Basin are minimized and whitewashed in the RMP/EIS. Predators, including gray wolves and grizzly bears, have adverse impacts to big game in the Bighorn Basin. Note that predators and predation are not listed as a management challenge for big game. The BLM must acknowledge, account for, and analyze the predation of big game species in the RMP/EIS.

The statement that "habitat conditions, fire management, drought, increased development and urbanization, habitat fragmentation, motorized vehicle misuse, disease, hunter access, and the impacts of livestock grazing management on the frequency, quality, and composition of key forage species" may be to varying degrees true. However, the preceding paragraphs, as well as the inadequate Affected

Environment summaries of individual species, provide an egregious lack of data and research to support such conclusions. For instance, if woody plant communities for pronghorn, mule deer, or moose have indeed declined, the Affected Environment should identify the key variables and provide quantifiable data to show baseline conditions, compared against historic conditions, which support that contention and are comparable to historic conditions, which are also not disclosed in the RMP/EIS. Under CEQ 1502.22, the BLM has a duty to provide relevant information unless it is proven to be unattainable or the agency would incur exorbitant costs to obtain the information. Neither of those are the case in this circumstance.

Recognizing the mandate outlined in CEQ 1502.22, the LGCA requests that the BLM qualify and quantify the aforementioned management challenges for big game species. At present, the BLM could choose to alter grazing allotments, road designations, hunting units, etc. as a rationale for improving big game habitat based on exceedingly inadequate and incomplete information. The effects of such management changes could have detrimental social, economic, and political impacts (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Furbearing Animals

According to the RMP/EIS furbearing animals in the Planning Area have decline due to drought conditions (pg. 3-99):

> Beaver, mink, and muskrat populations have likely declined across much of the Planning Area due to drought conditions. Water volumes have decreased in many riparian systems from a loss of water storage capability and from a lack of precipitation. The distribution of mink and muskrat populations has shrunk due to a loss of water in some riparian systems. Beaver depend on aspen, willow, and cottonwood trees to build and maintain their dams and lodges. Conifer trees have invaded many riparian areas adjacent to streams due to drying of these sites from a drop in the water table. Conifers take up available water and space, both surface and subsurface, choking out aspen, willow, and cottonwood communities.

The conclusion regarding the effect of conifer encroachment on the water table and riparian vegetation may in fact be accurate. Yet, the RMP/EIS fails to make that case with its lack of current and historic comparative data. A comparison could be made between present and past conditions through means as simple as aerial photos. It would seem that the BLM has conducted field surveys of riparian areas for decades. Why is that data not presented? Further, provide a temporal scale of "drought conditions" that has brought about this change in riparian corridors. Recognizing the mandate outlined in CEQ 1502.22, the LGCA requests that the BLM quantify the change in riparian vegetation structure that has presumably facilitated a decline in furbearing animals (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Predatory Animals

The BLM identifies jackrabbit, porcupine, coyote, gray wolf, red fox, raccoon, and skunk as predatory animals in the Planning Area. Control of predatory animals and damage-control activities are supported by the LGCA. Close consultation and communication with stakeholders negatively impacted by

predatory animals is important to improve and maintain the relationship between stakeholders and federal agencies (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Raptors

Species of raptors in the Planning Area are numerous and include: osprey, red-tailed hawk, Swainson's hawk, ferruginous hawk, northern harrier, goshawk, Cooper's hawk, sharp-shinned hawk, rough-legged hawk, golden eagle, bald eagle, merlin, kestrel, peregrine falcon, American kestrel, prairie falcon, great-horned owl, long-eared owl, short-eared owl, great gray owl, and burrowing owl. Of the discussion regarding raptors, the key statement is (pg. 3-101):

> At present, there is no population data for raptor populations; however, the golden eagle population and osprey sightings and nests appear to be increasing throughout the Planning Area.

Descriptions of raptors and their habitat-needs presented in the RMP/EIS are not disputed. Not clear, however, is the restrictive protections afforded raptors in the alternatives. Without population data on raptors, coupled with the fact that golden eagle and osprey "appear to be increasing throughout the Planning Area," the TLS and CSU restrictions are too restrictive (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

3.4.9 Special Status Species – Wildlife

Predatory Animals

Gray wolves in the Planning Area have far exceeded minimum pack numbers identified in the Wyoming recovery plan. When the gray wolf is delisted from the ESA it is the opinion of the LGCA that they should be managed and controlled as a predator species Basin-wide, not only in "conflict-identified areas of the central and eastern Bighorn Basin (pg. 3-111)."

Game Birds (Greater Sage-grouse)

Great attention is given to greater sage-grouse in the RMP/EIS. Understandably, as a candidate species, certain protections are necessary to minimize the further decline of greater sage-grouse and increased federal protection that would occur if the species was elevated to threatened or endangered status. Discussion of the greater sage-grouse states the following (pg. 3-111/112):

> The greater sage-grouse is a candidate species for listing under provisions of the ESA (USFWS 2010). Greater sage-grouse are distributed in sagebrush habitat throughout the Bighorn Basin, where habitat fragmentation and degradation has not reduced habitat to unsuitable. Greater sage-grouse leks are generally at mid elevations within sagebrush habitat. Nesting and brood-rearing habitat is sometimes associated with the lek and sometimes found at a distance from the lek in sagebrush habitat. These remaining suitable sagebrush habitat areas could be productive for greater sage-grouse; however, fragmentation and degradation might limit the distribution and abundance of greater sage-grouse.

> There are many sources of habitat fragmentation, all of which may affect the greater sage-grouse. Industrial development, livestock and wildlife grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects and other activities may cause an artificial component to a natural habitat condition. Structures such as powerlines and towers and industrial disruptive activities may cause avoidance and abandonment of habitat. Livestock grazing, fuels treatments, and weed spread infestations are factors which may cause habitat degradation depending upon severity, intensity, and design. West Nile virus, which recently has had lethal effects on greater sage-grouse in parts of Wyoming, could become an important factor in greater sage-grouse survival. There has been little research to document the presence of the virus and its effect on greater sage-grouse in the Bighorn Basin. Greater sage-grouse have been declining across the west, which has prompted several petitions to list them as threatened under the ESA, including a recent petition that led to the March 5, 2010 finding by the USFWS of warranted for listing but precluded (USFWS 2010). Population levels throughout the Planning Area declined during the mid 1990s. Since 2004, the levels have maintained or slightly increased. It is thought this resurgence was a result of well-timed precipitation events (WGFD 2000; WGFD 2004). These precipitation events promoted forage growth, which aided the survival of young. Population growth has varied throughout the Planning Area based on specific local conditions, with some areas showing little change; other areas have had a recent increase in lek count numbers. With recent improvement in spring and summer conditions in many parts of the Bighorn Basin, there are some greater sage-grouse leks that have become active again after many years of non-use. Winter conditions generally are not a limiting factor in the Bighorn Basin because snow depths are not as severe as in other parts of Wyoming.

There is general agreement amongst the LGCA that the preceding is a fair characterization/summary of the life history of greater sage-grouse in the Planning Area. As a candidate species and important resource in the Bighorn Basin, the LGCA acknowledges that certain protections for greater sage-grouse are warranted. Without protective measures, greater sage-grouse may be elevated to threatened or endangered status, drastically reducing multiple-use options in the Bighorn Basin. The LGCA understands the constraints associated with threatened and endangered species status and understandably strives to avoid such an outcome. State-of-the-art mitigations (controlled surface use, timing limitations, lek buffering) are available to ensure that effects to greater sage-grouse from oil and gas activities are significantly minimized. To that point, greater sage-grouse populations in the Bighorn Basin are healthy and select members of the LGCA assert that mitigations are excessively restrictive and applied too broadly, discouraging resource use and development.

The discussion of greater sage-grouse in the RMP/EIS Affected Environment is deficient, rendering impossible proper analysis of impacts disclosed in Environmental Consequences. Again, as with big game, the RMP/EIS does not include predation as a management challenge facing greater sage-grouse. Certainly predation is one of many factors affecting greater sage-grouse in the Bighorn Basin. In the opinion of the LGCA it is disingenuous of the BLM to not include predation in the list of stressors affecting greater sage-grouse. The contention of the LGCA is that failing to segregate the variables and identify data-based quantifiable outputs makes it unattainable to quantitatively identify effects.

Also, please disclose that greater sage-grouse co-evolved with intensive and extensive grazing from bison and that greater sage-grouse populations were high during the 1950s and 1960s, a period when domestic

livestock were grazed at much higher stocking levels and under less-restrictive (season-long) grazing systems then those applied in the Planning Area today. Thus, attributing declines in greater sage-grouse to grazing is disingenuous. Failing to disclose the ecological relationship between greater sage-grouse and natural disturbance processes (bison grazing) severely biases the analysis for assessing effects on greater sage-grouse from grazing (see Wildlife Mitigations – Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).

Additionally, as it pertains to greater sage-grouse, guidance in Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, which recognizes only Core Areas and provides adaptive management principles for the species, shall be implemented by the BLM. Unequivocally, the LGCA supports Executive Order 2011-5. It is the firm opinion of the LGCA that the BLM will adopt Executive Order 2011-5 as management guidance for greater sage-grouse in the Bighorn Basin.

Nongame Birds (Neotropical Migrants)

Mountain Plover

On May 11, 2011, the USFWS determined that the mountain plover does not warrant listing as a threatened or endangered species throughout all or a significant portion of its range. The RMP/EIS was compiled prior to the determination and states (pg. 3-113):

> The mountain plover inhabits shortgrass prairies and shrub-steppe habitats, both for breeding and wintering. This species prefers areas with little vegetative cover for nesting, particularly prairie dog towns. The species is now included on the BLM sensitive species list and is a proposed threatened species under the ESA.

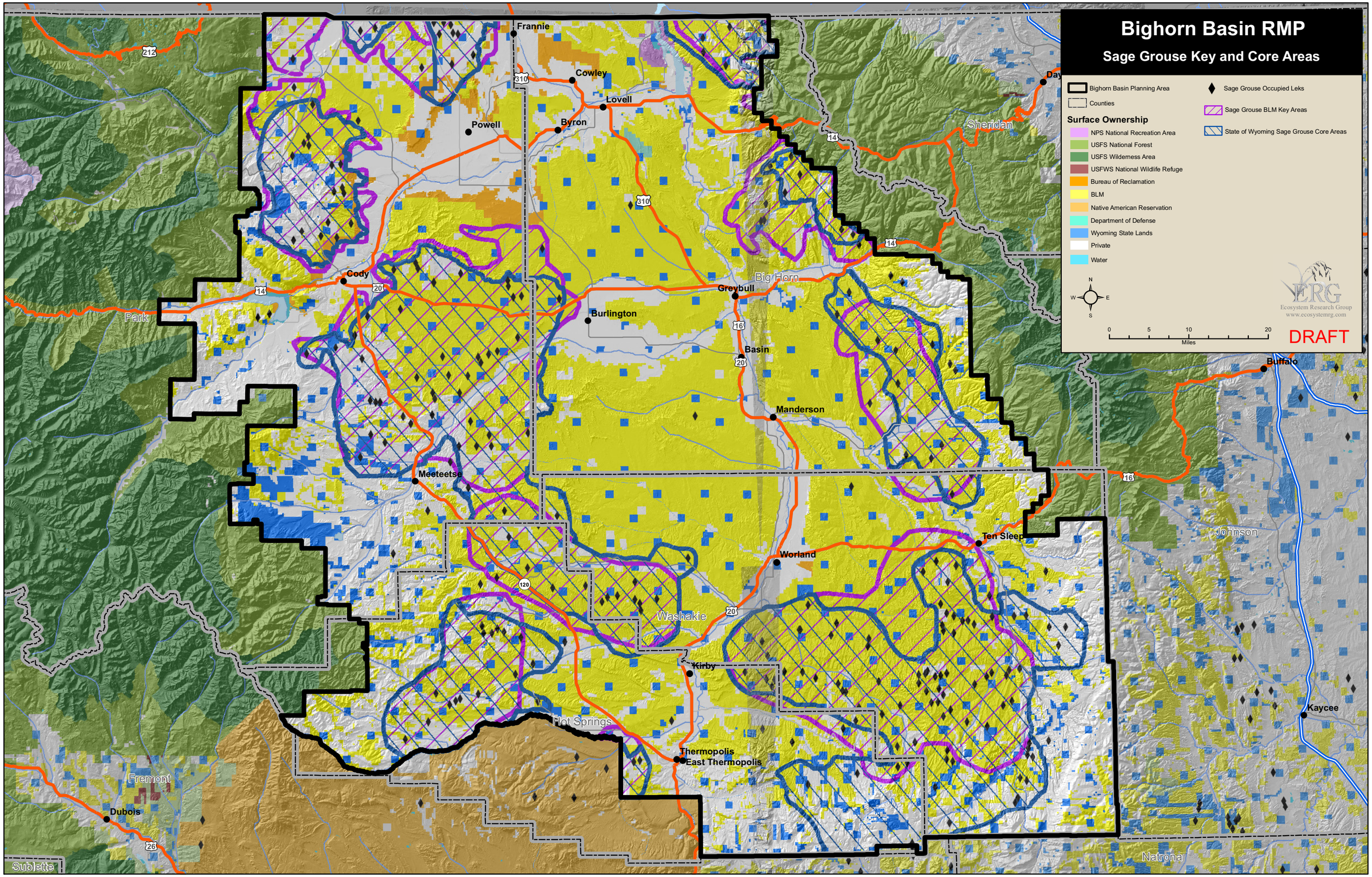
In describing the vegetative nesting cover required, the dependency of mountain plovers on disturbance including prairie dogs and grazing (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001) is understated in the document. As a disturbance-dependent species, the RMP/EIS should acknowledge that mountain plover co-evolved with heavy grazing by large bison and prairie dog populations. The RMP/EIS should propose to promote heavy grazing regimes and to maintain or enhance prairie dog populations, in areas identified as appropriate, to encourage mountain plover sustainability (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Nongame Mammals

Black-footed Ferret/White-tailed Prairie Dog/Black-tailed Prairie Dog

Assertions related to black-footed ferrets and white- and black-tailed prairie dogs in the RMP/EIS include, in part, the following (pg. 3-114/115):

> Conversion of grasslands to agricultural uses, widespread prairie dog eradication programs, and incidences of the plague have reduced ferret habitat to less than 2 percent of what once existed.


Bighorn Basin RMP
Sage Grouse Key and Core Areas
Bighorn Basin Planning Area
Counties
Surface Ownership
NPS National Recreation Area
USFS National Forest
USFS Wilderness Area
USFWS National Wildlife Refuge
Bureau of Reclamation
BLM
Native American Reservation
Department of Defense
Wyoming State Lands
Private
Water
Sage Grouse Occupied Leks
Sage Grouse BLM Key Areas
State of Wyoming Sage Grouse Core Areas
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Miles
Ecosystem Research Group
www.ecosystemrg.com
DRAFT
Frannie
Cowley
Lovell
Byron
Powell
Cody
Burlington
Greybull
Basin
Manderson
Meeteetse
Worland
Ten Sleep
Buffalo
Kirby
Thermopolis
East Thermopolis
Dubois
Kaycee
Park
Big Horn
Sheridan
Washakie
Hot Springs
Fremont
Sublette
Johnson
Natrona
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> The white-tailed prairie dog is associated with desert grasslands and shrub grasslands. A long-term study of white-tailed prairie dogs in the Planning Area indicated that there has been a decline in abundance and distribution of this species.
>
> There is one black-tailed prairie dog colony in the Planning Area, which is typically associated with the short grass prairie north and east of the Bighorn Basin.

In regard to white- and black-tailed prairie dogs, the LGCA does not take a position advocating for or against the species. Where a position is taken is in the fact that the BLM fails to sufficiently describe white- and black-tailed prairie dog life history in the Bighorn Basin. Due to this failing, the LGCA declares that the BLM must revise the white- and black-tailed prairie dog section with the following information and data:

- Current habitat condition and population density
- Historic habitat condition and population density
- National distribution
- Plague and predation and its effects on white- and black-tailed prairie dog
- Relationship to obligate species (e.g. burrowing owls and black-footed ferrets)
- Distribution and connectivity of prairie dog towns in the Bighorn Basin
- Relationship with grazing (positive and negative)

To address the white- and black-tailed prairie dog issue, the LGCA has developed a mitigation that instructs the BLM on how to proceed going forward in consideration of these two species met (see White- and Black-tailed Prairie Dog Mitigation – Grazing).

3.4.10 Wild Horses

Wild horses in the Planning Area are a nonnative species that negatively impacts resources and resource uses. As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the WFRHBA are met (see Wild Horses Mitigation – Grazing).

In August 2003 a Consent Decree was signed between the Attorney General for the State of Wyoming and the Assistant Attorney General, Environmental and Natural Resources Division, U.S. Department of Justice. The purpose of the Consent Decree is to reduce wild horse populations in herd management areas (HMA) to an appropriate management level (AML). Terms of agreement that must be implemented and followed in order to remain compliant with the Consent Decree include:

> If BLM determines through its inventory and projected reproduction rates that the wild horse population are likely to exceed AML in the following Fiscal Year, the BLM shall request funds to reduce the population to AML by December 15 the next budget cycle year. If the BLM fails to

> reduce the number of wild horses to AML by the required date, the State may petition the court to compel the BLM to do so.

There are two HMAs in the Planning Area: Fifteenmile and McCullough Peaks. The Consent Decree set an AML for Fifteenmile and McCullough Peaks HMAs at 70 to 160 and 70 to 140 wild horses, respectively. As disclosed in the RMP/EIS, the estimated number of horses in Fifteenmile HMA is 89 and 110 in McCullough Peaks HMA. The LGCA acknowledges that wild horses in each of the HMAs are within the AML outlined in the Consent Decree. While it is appreciated that the BLM is in compliance with the Consent Decree, the LGCA's stated position is that wild horse populations should be further reduced to a total head that is at or near the minimum AML.

Management Challenges

4. Environmental Consequences

4.4.6 Fish and Wildlife Resources – Wildlife

Generally, the effects of alternatives upon individual species (e.g. elk) or species groups (e.g. special status species) are "intuitive" and "comparative," rather than data- and science-based. For instance, note the conclusion under Alternative B regarding wildlife species (in particular big game) (p. 4-168):

> Under Alternative B, restricting motorized vehicle use and surface-disturbing activities in the Absaroka Front Management Area provides the greatest beneficial impacts to wildlife species, especially big game…

The preceding may be true, but the conclusion for beneficial impacts to wildlife species, especially big game, for Alternative B is not supported by cited research, data on existing conditions, or identification of what variables affecting big game (e.g. hunting season security, habitat effectiveness, etc.) would be impacted beneficially.

A similar nebulous conclusion, without substantiating documentation, is made for special status species. The narrative, included below, provides a "least" to "most" impactful alternative summary for special status species (pg. 4-203).

> Overall, Alternative B is projected to result in the least surface disturbance and would have the least potential to cause habitat loss and fragmentation in the short- and long-term, followed by alternatives A, D, and C respectively. Alternative B provides the greatest beneficial impacts to special status wildlife habitats by including the most proactive actions to restore and enhance habitats. Except for seasonal motorized vehicle restrictions in the Absaroka Front Management Area, Alternative C would have the greatest adverse impacts to wildlife habitats and, therefore, the fewest beneficial impacts for special status wildlife species. Alternatives A and D would be similar in terms of surface disturbance, though the mitigation and reclamation requirements under Alternative D may lead to fewer impacts than Alternative A. Alternative B and, to a lesser extent, Alternative D benefit special status wildlife species by protecting large areas of contiguous native habitats in the Absaroka Front Management Area, ACECs, and LWCs designated as Wild Lands; alternatives A and C, respectively, would protect fewer large blocks of contiguous habitat. Alternatives C and D exempt Oil and Gas Management Areas (568,164 acres under Alternative C

> and 134,214 acres under Alternative D) from seasonal wildlife restrictions, resulting in adverse impacts to special status wildlife species.
>
> Livestock grazing management under Alternative C would adversely affect grizzly bears and gray wolves the most, followed by alternatives A, D, and B. Gray wolves would benefit more from forest, woodland, and forest products management under alternatives A and D and less under alternatives B and C. Timber harvesting practices, old-growth stand retention, surface-disturbance restrictions around raptor nests, and snag retention under Alternative B would result in the most beneficial impacts to Canada lynx, followed by alternatives D, A, and C.
>
> Alternative B protects the largest area of greater sage-grouse leks, nesting and early brood-rearing habitats, and winter concentration areas, followed by alternatives D, A, and C. Alternative B and, to a lesser extent, Alternative D place comparatively greater restrictions on resource uses and activities in greater sage-grouse Key Habitat Areas (Table 4-9). Although livestock grazing in greater sage-grouse habitat can have both adverse and beneficial impact (e.g., Alternative D allows livestock grazing to improve greater sage-grouse habitat), the more restrictive management under Alternative B would be the most beneficial to this species. Other sagebrush-dependent species (e.g., Brewer's sparrow, sage sparrow, and sage thrasher) are anticipated to benefit the most from protective management actions for greater sage-grouse under Alternative B, followed by alternatives D, A, and C.
>
> Alternative B protects the largest area around active raptor nests (including a year-round CSU stipulation around all nests) and would be the most beneficial to these species, followed by alternatives A, D, and C respectively. Alternative C does not prohibit activities that may potentially disturb raptor nesting sites, and therefore protects the smallest amount of land for raptor nests. Adverse impacts to bald eagles from livestock grazing and surface disturbance would be greatest under Alternative C, followed by alternatives A, D, and B. Impacts from recreation in riparian/wetland areas to this species would be greatest under Alternative A, followed by alternatives B, D, and C. Proactive management actions in the Chapman Bench area under alternatives B and D would beneficially affect the mountain plover and long-billed curlew. Although livestock grazing and vegetation management under Alternative C is most beneficial to the mountain plover, adverse impacts to prairie dogs under this alternative would result in adverse impacts to the mountain plover as well.

Again, the conclusion may be true, but no supporting data showing existing conditions, desired conditions, measurement indicators, or site-specific actions to be taken are disclosed in 2.5 – Alternatives Summary, 2.6 – Detailed Descriptions of Alternatives by Resource, and/or Chapter 3 – Affected Environment. As with big game and greater sage-grouse, there is no discussion of predation and predators. Determining effects upon special status species is complicated because, individually, special status species have highly diverse habitat requirements. Baird's sparrows require open grassland (Dechant et al. 2002a; Dieni and Jones 2003; Green et al. 2002), whereas Brewer's sparrows require mature sagebrush (Hansley and Beauvais 2004a; Rotenberry et al. 1999). Greater sage-grouse require a mix of mature and young sagebrush and open grasslands depending upon the season (Connelly et al. 2000; Connelly et al. 2004; Rowland 2004), and mountain plovers require lands heavily-grazed by either ungulates or prairie dogs (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001). Alternative D states (pg. 2-88):

> Manage for the retention and success of the mountain plover, long-billed curlew, and other sensitive species habitat. Allow and stipulate, where feasible, vegetative treatments, invasive and nonnative pest species control, fuels management, and maintenance of existing facilities.

While those are appropriate goals for an alternative, they lack the required information needed to identify quantifiable effects as required in CEQ 1502.16(a) and (b). Given that special status species have habitat needs that are extremely diverse, there is no way to conclude that one alternative is preferable to another for individual species with the sparse information provided in chapters 2, 3, and 4 (see Wildlife Mitigations – Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).

4.4.6.1 Methods and Assumptions

Table 11 discloses methods and assumptions for wildlife in the RMP/EIS (pg. 4-167-168). Associated with each method(s)/assumption(s) is a comment from the LGCA.

Table 11 Wildlife Methods and Assumptions in the RMP/EIS and Corresponding LGCA Comments

Method/Assumption*	Comment
For each alternative, changes to vegetation types, either in quantity, quality, or increased fragmentation, are compared to baseline conditions. Adverse and beneficial impacts to vegetation types (i.e., wildlife habitats) are assumed to have a corresponding adverse or beneficial impact on wildlife species.	Describe and disclose vegetation type "quantity," "quality," and "baseline conditions." At what scale, temporally and spatially, and to what degree and how will adverse and beneficial impacts to wildlife habitats have equal and corresponding adverse/beneficial impacts to wildlife?
Disturbance impacts to wildlife are evaluated by comparison to current management practices in the Planning Area; increased protection in time or space are beneficial, whereas reduced protection result in adverse impacts.	Elaborate and provide measurable indicators for the statement "increased protection in time or space is beneficial."
Habitat fragmentation adversely affects wildlife.	Describe if habitat fragmentation adversely affects all wildlife species equally, regardless the scale/type of fragmentation.
Prescribed fire, where historical fire regimes occurred, is a tool used to manage vegetative communities and can result in short-term adverse impacts with long-term beneficial impacts to wildlife, certain wildlife habitats, and in some cases to forage productivity and availability.	Explain if prescribed fire only causes short-term adverse impacts with long-term beneficial impacts to wildlife? Is this true for all wildlife species?
Forest management actions replicating natural historical disturbance regimes and managing wildlife habitats instead of, or in addition to, managing forest products are anticipated to benefit wildlife habitats.	Describe how "forest management actions" differentiate from "managing forest products." The RMP/EIS frames the latter management regime as less ideal than the former.
Management actions aimed at benefiting specific wildlife species can have adverse or beneficial impacts to other wildlife species.	Provide substantive examples in Chapters 3 and 4 and refer back to this assumption.

Method/Assumption*	Comment
Surface disturbance generally causes adverse impacts to wildlife habitats. Lesser amounts of surface disturbance in wildlife habitats have a corresponding lesser adverse impact to wildlife compared to more surface disturbance. The extent of adverse impacts due to surface disturbance depends on the precipitation zone.	Mitigations are available to limit adverse surface disturbance effects to wildlife habitats. This assumption should include a statement in that regard. The extent of adverse impacts from surface disturbance does not depend solely on the precipitation zone. Include in this assumption all factors that affect the extent of adverse impacts from surface disturbance.
Prohibiting surface disturbance or occupancy is more restrictive and provides more protection for wildlife than avoiding surface disturbance or occupancy.	Mitigations are available to limit adverse surface disturbance effects to wildlife species and habitats. This assumption should include a statement in that regard. Prohibition of surface occupancy is not the only method of avoiding disturbance.
The more surface disturbance that occurs on steep slopes or on highly erosive soils, the greater the potential for adverse impacts to wildlife habitats. Adverse impacts from surface disturbance also increase in areas that receive less precipitation.	Mitigations are available to limit adverse surface disturbance effects to wildlife species and habitats on steep slopes or on highly erosive soils. This assumption should include a statement in that regard. The extent of adverse impacts from surface disturbance does not depend solely on the precipitation zone. Include in this assumption all factors that affect the extent of adverse impacts from surface disturbance.
The higher the road density and the frequency of use in the Planning Area, the greater the potential to degrade adjacent wildlife habitat quality in the Planning Area.	Define “adjacent” quantitatively.
The BLM utilizes the best available information, management and conservation plans, and other research and related directives, as appropriate, to guide wildlife habitat management on BLM-administered lands.	The LGCA agrees completely with this method/assumption. However, the RMP/EIS does not incorporate at an adequate level the mentioned methods. Additional information is needed throughout the RMP/EIS to substantiate BLM findings as they relate to wildlife.
The quality and quantity of seasonal ranges and migration corridors are generally considered to be the limiting factors on big game populations in the Planning Area. The ability of these areas to support populations is a factor in determining population levels.	Provide historic and current vegetation data that validate the claim that quality and quantity of seasonal ranges and migration corridors are generally considered to be the limiting factors on big game populations in the Planning Area.
Wildlife habitats being protected are generally in desired natural condition and those being managed are being managed toward a more desirable condition.	Define qualitatively and quantitatively “generally in desired natural condition.”

*Text taken directly from the RMP/EIS

4.4.6.2 Summary of Impacts by Alternative

Big Game-Alternative A

The RMP/EIS states (pg. 4-177):

> As identified in Chapter 3, big game in the Planning Area face certain challenges such as poor habitat conditions, habitat fragmentation, disease, increased development and urbanization, hunter access, and impacts to key forage species from livestock and wild horse grazing.

As noted in comments for Chapter 3 – Big Game, the LGCA ardently disagrees that the challenges facing big game were properly described. While it may be true that the BLM does *identify* the aforementioned challenges, the RMP/EIS fails to disclose, both qualitatively and quantitatively, "poor habitat conditions, habitat fragmentation, disease, increased development and urbanization, hunter access, and impacts to key forage species from livestock and wild horse grazing." For proper analysis in Chapter 4, the variables must be segregated and measurement indicators constructed for each variable so that effects can be properly analyzed. Merely identifying challenges is inadequate. As the RMP/EIS is currently written, the LGCA cannot find a means of understanding and evaluating current big game challenges, how they differ from historic conditions, or how if any of the alternatives will work to make conditions better or worse for big game.

Alternative A surface-disturbing activity effects, as described in the RMP/EIS (pg. 4-177), are over-stated and incompatible with recognized research on big game and disturbance.

> Although Alternative A applies a TLS stipulation to avoid surface-disturbing activities in big game crucial winter range and parturition habitat, disturbance is allowed in these areas. Big game have exhibited sensitivity to human activity and disturbance. Mule deer exhibit a stress response to disturbances associated with noise and activity up to 0.29 mile from the source (Freddy et al. 1986). Allowing surface disturbance, including wind-energy development, in big game crucial winter range and parturition habitat is likely to disturb and displace species such as mule deer in the short term. The WGFD estimates there would be adverse impacts to pronghorn from oil and gas development on at least 170 acres surrounding each well pad (WGFD 2009). The greater mobility and adaptability of these species to human activity and disturbed areas would prevent long-term population impacts. However, it is feasible that big game behavior or populations may be altered in the long term at some level of development.

Numerous studies in the last several decades have documented ungulate displacement from roads and/or human activity (Cassirer et al. 1992; Lyon 1979; Perry and Overly 1976). Sawyer et al. (2009) documented a substantial mule deer population decline in the Pinedale Anticline Project Area, partially attributable to extensive gas drilling activity during the winter on crucial mule deer winter range. Conclusive research, however, that suggests that there are disturbance-related effects when disturbance is precluded during the winter period (by TLSs) on crucial winter ranges is absent in the literature. Thus, the LGCA can find no science-based rationale to support the RMP/EIS conclusion that "big game behavior or populations may be altered in the long term at some level of development" given that winter disturbance is precluded in all alternatives by a TLS or a NSO (Alternative C).

The RMP/EIS also infers that by "(a)llowing surface disturbance, including wind-energy development, in … parturition habitat (the activity) is likely to disturb and displace species such as mule deer in the short term (pg. 4-177)." Wyoming has a history of protecting parturition areas with seasonal operating

constraints. Other western states (Montana, Oregon, and Idaho) practice little to no emphasis on avoiding disturbance in parturition areas.

The RMP/EIS has substantial acres (205,872) of lands allocated for parturition (calving) areas (BLM GIS Data 2011). The science behind such allocations is questionable and the BLM and WGFD will need to review the elk and other big game literature to determine if such allocations are appropriate. In the 1960s through the 1980s, much elk research was conducted across the western states (Beall 1974; Irwin and Peek 1983; Leege 1968; Luman and Neitro 1980; Lyon 1983; Lyon et al. 1985; Marcum 1975). While some of the research did address parturition areas under the category of "management recommendations," no data statistically supporting the correlation that elk populations perform better when parturition areas are protected versus populations where parturition areas receive no special protection can be found. The questions outlined in the following paragraphs should be addressed.

Unlike the Bighorn RMP, most management agencies in the west do not spatially allocate elk parturition areas. So, a logical question is whether those (few) elk populations in which calving areas were protected performed better than other populations? The LGCA sincerely doubts that the BLM will find any strong data-based correlation. Data from most western states indicated elk populations increased substantially in the 1990s through the early 2000s. While biologists from the state wildlife management agencies do not necessarily agree upon the reasons for the increase, the only variable common across the west that might best explain those increases is milder-than-normal winter weather.

As wolves have re-colonized the west, elk and other big game behavior seems to no longer follow predictable patterns, including well-published seasonal use preferences. One thing biologists, ranchers, and hunters all agree upon is that elk and other big game do not react as they have for the past century. If wolves are pushing elk and other big game into unusual areas at different times of the year, how will allocating elk and other big game parturition areas provide improved protection to cows and calves if wolves do not allow animals to use the areas for extended periods?

Consequently, the inference that parturition areas are somehow at risk in Alternative A is without scientific merit. More importantly, even if there is a relationship between calf survival and TLSs in parturition areas (that has not been disclosed in the RMP/EIS), the TLSs in Alternative A preclude disturbance during the late spring on parturition areas. Thus, the RMP/EIS has no basis for inferring that ungulate parturition will be affected by Alternative A.

The RMP/EIS further states that (pg. 4-177):

> Alternative A does not restrict motorized vehicle use to designated roads and trails in big game crucial winter range or elk parturition habitat, which may adversely affect big game by increasing human access and the probability of disturbance.

Given that elk herds have been substantially above WGFD population goals for many years, it is difficult to conclude that existing levels of motorized disturbance (as allowed in Alternative A) has had any demonstrated effect on elk populations. There is research connecting winter disturbance to impacts on elk

populations (Toweill and Thomas 2002), but no citations were proffered in Chapter 3 or in the aforementioned RMP/EIS discussion. It is suggested that the BLM add the relevant scientific references and conclude something to the effect that *although the current high elk populations show no obvious adverse effects from road-related disturbance, the literature does suggest that negative effects from road use in the winter are possible*.

Additionally, no research suggesting vehicle disturbance in elk parturition areas has any documented effect on elk calving success or calf survival. We suggest that unless the BLM offers some pertinent research that the BLM should remove the conclusion that unrestricted roads may affect elk parturition.

The RMP/EIS states (pg.4-178):

> Special designations would result in beneficial impacts to big game where they overlap big game habitat (Table 4-9) and restrict resource uses and activities that degrade big game habitat or can potentially disturb big game (e.g., oil and gas development and motorized vehicle use). Alternative A designates the Carter Mountain and Upper Owl Creek ACECs, which contain big game habitat and restrict motorized vehicle use and minerals development.

The conclusion that such "designations would result in beneficial impacts to big game" is purely speculative. The RMP/EIS has not sufficiently identified the research connection between human disturbance and elk, has not provided any baseline data on existing levels of human disturbance related to roads or road density, and has not identified any future disturbance levels that might be expected under Alternative A. It is recognized that anticipating levels of future disturbance from oil and gas is speculative, however, the RMP/EIS should have provided some range of possible disturbance levels in miles of road per square mile, pads per square mile, or other measurement indicators that would provide units for comparing effects by alternative.

In general, the LGCA is non-supportive of any effort to promote prairie dogs to a degree greater than is necessary to keep obligates off or increase the population of black-footed ferrets to a minimum level where they can be removed from the ESA list. The RMP/EIS concludes in Alternative A (pg. 4-231):

> In the long term, actions implemented under Alternative A would benefit special status nongame mammals occupying sagebrush habitats in designated greater sage-grouse lek habitat buffers. Black-footed ferrets are associated with and depend on prairie dog colonies in the Planning Area. Due to the BLM's use of conservation measures, terms and conditions, and BMPs, measurable adverse impacts from BLM actions to prairie dog populations are not anticipated under Alternative A.

According to BLM GIS data, black-footed ferret essential habitat occurs on 35,323 acres, representing only 0.6% of the Planning Area. The RMP/EIS provides no data on suitable habitat (occupied white-tailed and black-tailed prairie dog towns). Upon request, the LGCA received a BLM GIS data file for black-tailed prairie dogs that discloses 72,636 acres of suitable habitat. Significantly greater, the Wyoming Natural Diversity Database (WNDD) suggests there is approximately 200,000 acres of occupied prairie dog towns Basin-wide (Map 3). This may represent 3%–4% of the Bighorn Basin (depending upon how individual prairie dog towns were buffered by the WNDD) and compares with a

range-wide occurrence of ~2% (Miller et al. 1994). No fault is found with the aforementioned "conservation measures, terms and conditions, and BMPs" used to protect prairie dogs where they occur (or have been re-introduced) and prairie dog-obligates.

No analysis is found in the RMP/EIS that demonstrates that sustaining black-footed ferrets on 0.6% habitat is sufficient to recover black-footed ferrets to non-listed status. Nor, can we find any objectives for prairie dog towns that are needed to sustain black-footed ferrets, even though the WNDD data suggests prairie dog towns are reasonably abundant. Consequently, concluding that "adverse impacts from BLM actions to prairie dog populations are not anticipated under Alternative A" may be technically true, but it is not clear if Alternative A meets the ESA in terms of providing sufficient habitat over time. Additionally, is it not clear that measures taken in Alternative A will provide sufficient acres of occupied prairie dog towns to maintain burrowing owls (and other prairie dog obligates) at a level sufficient to preclude federal listing. The RMP/EIS needs to provide information (goals, objectives, minimum acreages of suitable habitat, monitoring strategies, stakeholder involvement, etc) on a Basin-wide scale to demonstrate that Alternative A (and other alternatives) are indeed compatible with maintaining prairie dog populations to support black-footed ferret recovery and the ESA (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Alternative B

Big Game-Alternative B

Protections through resource use and development restrictions for big game in Alternative B are unnecessary and not formulated using accepted science and research. The RMP/EIS concludes (pg.4-186):

> Alternative B expands the Carter Mountain, Upper Owl Creek, and Little Mountain ACECs that contain important big game habitats, migration corridors, and bighorn sheep populations, and ACECs designated under Alternative B encompass more big game crucial winter habitat and parturition habitat than Alternative A (Table 4-9). In addition to restrictions that exist under Alternative A, the Carter Mountain and Little Mountain expansion is unavailable to oil and gas leasing and withdrawn from locatable mineral entry. The Chapman Bench, Rattlesnake Mountain, and Sheep Mountain ACECs are also designated under Alternative B, which all contain important big game habitat and restrict motorized vehicle use and/or minerals development. Designating all LWCs as Wild Lands and managing them to protect primitive recreation and outstanding opportunities for solitude, and the associated restrictions on resource uses and activities, would benefit big game, as 246,064 acres of crucial winter range and 37,900 acres of parturition habitat lie within these lands (Table 4-9).

The Affected Environment did not demonstrate with either data or scientific literature how making "Carter Mountain and Little Mountain expansion … unavailable to oil and gas leasing and withdrawn from locatable mineral entry ... would benefit big game." It is disclosed that the ACECs include 246,064 acres of crucial winter range. Those areas, however, are already protected from wintertime ungulate disturbance by a TLS. The RMP/EIS infers there will be a temporary loss of habitat from surface-

disturbing activities, but no estimate of acreage lost is provided. Low to moderate intensity oil and gas development has a relatively tiny "footprint" (pad surfaces, access roads, pumping stations, etc). High intensity oil and gas developments (e.g. Jonah or Pinedale Anticline) have larger footprints. However, the percentage of habitat temporarily lost is still in the single digits. For the RMP/EIS to conclude that withdrawing lands from oil and gas will benefit big game, some estimate of lands temporarily lost as habitat to pads, roads, and pumping stations should be provided and a science-based assessment of the significance of that loss to wintering ungulates should be made. The RMP/EIS makes no disclosure of the amount of summer range acres withdrawn from oil and gas development, nor does it identify any benefits to summering ungulates on that winter range from withdrawal. Additional Alternative B prohibitive restrictions on resource use include (pg.4-186):

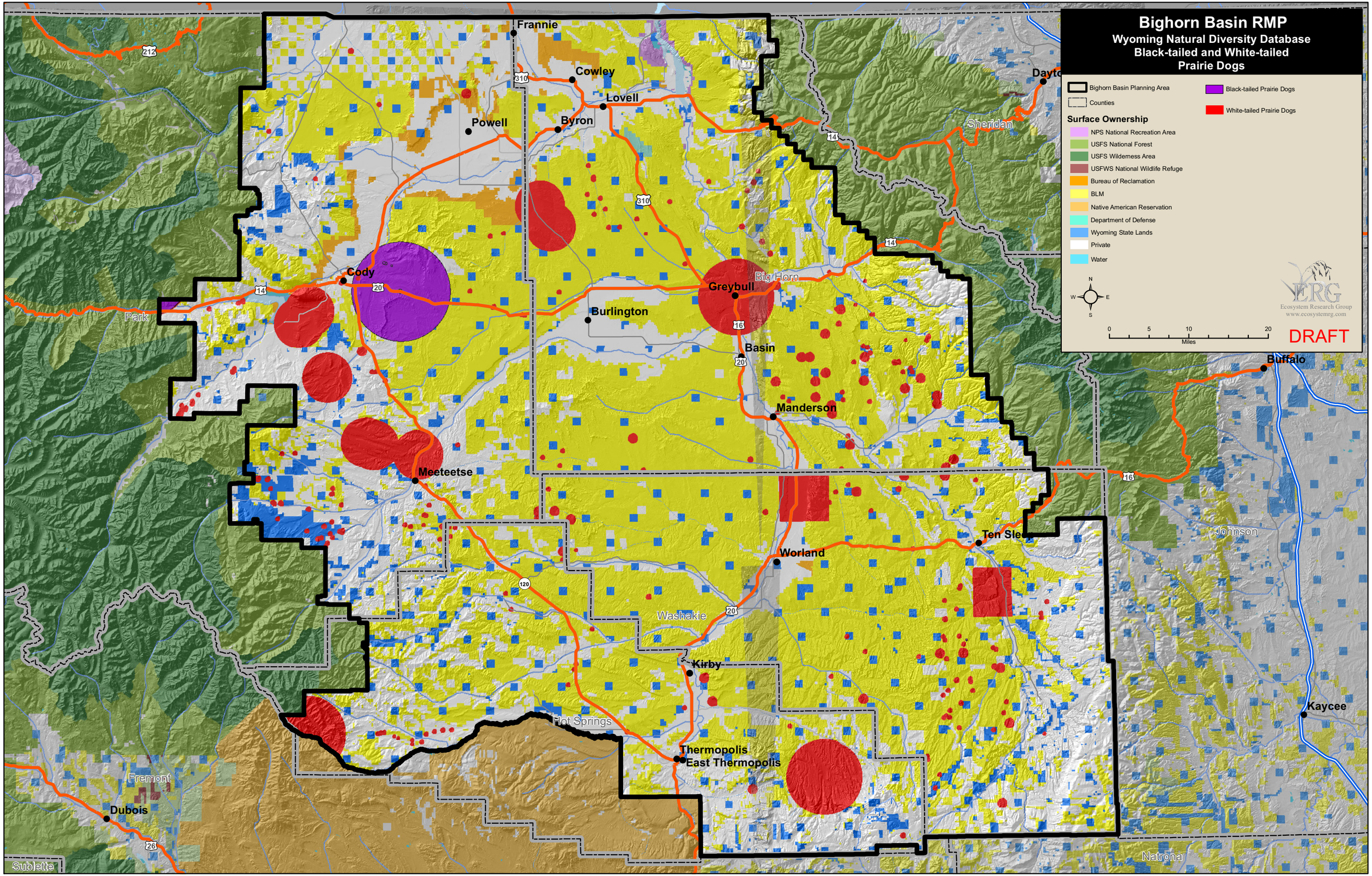
> Alternative B prohibits livestock grazing in elk parturition habitat during the birthing season (May 1 through June 30), domestic sheep grazing on pronghorn crucial winter range, and livestock grazing on crucial winter range for elk and bighorn sheep (Table 4-9) to increase forage availability, reduce forage competition and prevent possible displacement of these wildlife populations (Scolvin et al. 1968; Coe et al. 2004; Stewart et al. 2002).

The LGCA strongly disagrees with the removal of domestic sheep grazing from crucial pronghorn winter range. In the RMP/EIS, the BLM fails to disclose, with peer-reviewed scientific studies or BLM field data, that cattle grazing has adverse effects on wintering pronghorn. Additionally, the conclusion that eliminating "livestock grazing on crucial winter range for elk… (Table 4-9) to increase forage availability, reduce forage competition, and prevent possible displacement of these wildlife populations (Scolvin et al. 1968; Coe et al. 2004; Stewart et al. 2002)" has not been demonstrated as fact. Two critical variables discussed in two of the three aforementioned citations (Skovlin et al. 1968, Coe et al. 2004) are the "level of utilization" and "season of use." Known conflicts between livestock and elk include these two variables. No data is provided in the RMP/EIS, however, that discloses "season of use" or "level of utilization" in the areas where benefits to ungulates are anticipated under Alternative B. Thus, the conclusion is groundless. The third citation (Stewart et al. 2002) makes no specific correlation between livestock grazing and elk. Furthermore, the RMP/EIS is using research indiscriminately to make the case that elk will benefit by removing livestock in Alternative B. The RMP/EIS earlier cited Anderson and Scherzinger (1975), which showed that summer livestock grazing *benefitted* elk on winter range when done in certain seasons and intensities. Yet, that finding is ignored in the effects on elk in Alternative B. If the RMP/EIS is going to disclose beneficial effects upon elk from Alternative B, it needs to demonstrate with allotment-by-allotment data that utilization is excessive (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Alternative D

Big Game-Alternative D

The DEIS concludes that Alternative D is superior to Alternative A in regard to big game for numerous reasons including (pg.4-199):


Bighorn Basin RMP
Wyoming Natural Diversity Database
Black-tailed and White-tailed
Prairie Dogs
Bighorn Basin Planning Area
Counties
Black-tailed Prairie Dogs
White-tailed Prairie Dogs
Surface Ownership
NPS National Recreation Area
USFS National Forest
USFS Wilderness Area
USFWS National Wildlife Refuge
Bureau of Reclamation
BLM
Native American Reservation
Department of Defense
Wyoming State Lands
Private
Water
N
W
E
S
0
5
10
20
Miles
ERG
Ecosystem Research Group
www.ecosystemrg.com
DRAFT
Frannie
Cowley
Lovell
Byron
Powell
Cody
Park
Greybull
Big Horn
Burlington
Basin
Manderson
Meeteetse
Sheridan
Buffalo
Ten Sleep
Worland
Washakie
Kirby
Hot Springs
Thermopolis
East Thermopolis
Fremont
Dubois
Sublette
Johnson
Kaycee
Natrona
212
310
14
20
16
120
26

> Avoiding livestock grazing in elk parturition habitat unless adverse impacts can be avoided or mitigated would limit potential adverse impacts to elk, while allowing for the use of livestock grazing as a management tool that can improve forage palatability for elk (Frisina 1992 and Anderson and Scherzinger 1975). The BLM avoids wind-energy projects in big game crucial winter range and parturition habitat under Alternative D as well, minimizing the potential for disturbance and displacement.

As written, the conclusions are purely speculative. The RMP/EIS has not identified any research connection between livestock grazing in parturition areas and adverse impacts to elk or any research connection between wind energy developments and adverse effects to elk. In fact, the papers cited in the RMP/EIS (Frisina 1992 and Anderson and Scherzinger 1975) only describe *beneficial* effects from grazing livestock on elk summer range, including parturition periods. Thus, the RMP/EIS provides no reason why "avoiding livestock grazing in elk parturition habitat" would be beneficial. The RMP/EIS conclusion that "avoid(ing) wind-energy projects in big game crucial winter range and parturition habitat under Alternative D …would… minimize the potential for disturbance and displacement" is without any supporting data, scientific citations linking wind energy projects with declining elk populations, or anticipated levels of disturbance that might accompany wind-energy projects (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

4.4.9 Special Status Species – Wildlife

In consideration of the findings for all special status species, the LGCA is focusing comments on Baird's sparrow, Brewer's sparrow, mountain plover, greater sage-grouse, sage sparrow, and sage thrasher. The discussion on special status species, including those dependent upon sagebrush (e.g. sage sparrow), grasslands (e.g. Baird's sparrow), or heavily-grazed lands (mountain plover) is disjunct. Special status species are discussed under "Fish and Wildlife Resources – Wildlife" subcategories "sagebrush and desert shrub species" and "grassland species (p.4-195)", and again under "Special Status Species- Wildlife (p.220)." Furthermore, the variables disclosed are different between the sections (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

4.4.9.1 Methods and Assumptions

Table 12 discloses methods and assumptions for wildlife in the RMP/EIS (pg. 4-167-168). Associated with each method(s)/assumption(s) is a comment from the LGCA.

Table 12 Wildlife Methods and Assumptions in the RMP/EIS and Corresponding LGCA Comments

Method/Assumption*	Comment
Impacts to special status wildlife species are based primarily on potential impacts to habitats managed by the BLM.	Within the Planning Area, sagebrush and grassland obligate species use habitat on 730,321 acres of private and state land. The importance of private and state land must be considered, as well as how BLM management actions

Method/Assumption*	Comment
Precise quantitative estimates of impacts generally are not possible because the exact locations of future actions are unknown, population data for special status wildlife species are often lacking other environmental variables, or habitat types affected by surface-disturbing activities cannot be predicted.	Oil and gas production and livestock grazing activities are common across BLM and other federal agency lands. At the least, the BLM must provide a comparative analysis using other similar projects to assess predicted effects. Prior to the development of the EIS/RMP, the BLM had an obligation to conduct comprehensive population surveys. In doing so, the accumulation of "other environmental variables" should have occurred. It is impossible, without population data and other environmental variables, to analyze Planning Area management actions undertaken by the BLM.
Prohibiting all surface-disturbing and disruptive activities in greater sage-grouse seasonal habitats is more beneficial to greater sage-grouse than avoiding these activities, as avoidance provides discretion for each proposed activity and applies mitigations, where prohibition precludes all activity.	The BLM must define qualitatively and quantitatively what "all surface-disturbing and disruptive activities" entail. Asserting that there are no mitigations available that are as effective as prohibiting activities is biasing.
Within historical fire regimes, prescribed fire is used to manage vegetative communities and can result in short-term adverse impacts with long-term beneficial impacts to wildlife, certain desirable wildlife habitats, and in some cases to forage productivity and availability.	Explain if prescribed fire only causes short-term adverse impacts with long-term beneficial impacts to wildlife? Is this true for all wildlife species?
Measures to protect one species generally result in long-term benefits to other species in that habitat.	Much greater detail is needed for this assumption. For instance, measures to protect a species that uses overgrazed or bare areas (e.g. mountain plover) would have detrimental effects to greater sage-grouse.
Short- and long-term surface disturbance are assumed to occur in vegetation types in proportion to the availability of these vegetation types in the Planning Area. Impact acreage for vegetation types are not absolute, but serve as a relative comparison among alternatives.	Clarify. As written, the assumption is unclear.
Because of the migratory nature and relative mobility of some special status wildlife species (e.g., waterfowl, neotropical migrants, and raptors), these species are affected by actions on non BLM-administered land more so than other species. In the case of migratory species, impacts to winter and migration habitats could adversely impact the viability of some species. Winter and migration habitats are assumed to be at least as important to long-term viability of these species as breeding and nesting habitats.	The assumption ignores the migratory nature of big game species that are significantly affected by actions on non-BLM land. Further, actions on BLM land can affect private land, thus displacing or disturbing wildlife.

Method/Assumption*	Comment
The USFWS may designate additional wildlife species as threatened and endangered as additional data are collected and evaluated. These species would be managed in accordance with the ESA and as directed by decisions in the alternatives.	Before the designation of a wildlife species in the Planning Area close consultation should occur between stakeholders and local governments in the Planning Area.

4.4.9.3 Detailed Analysis of Alternatives

Game Birds (Greater Sage-grouse)-Alternative A

Effects from proposed activities in Alternative A are assumed to cause negative impacts, to differing degrees, to greater sage-grouse. The RMP/EIS concludes (pg.4-227):

> Alternative A provides a protective buffer around occupied leks and seasonal restrictions in brood-rearing habitats and winter concentration areas, but does not provide specific guidance for the prevention of habitat loss and fragmentation. For example, developing minerals and wind-energy facilities on BLM-administered land under Alternative A may result in long-term adverse impacts to greater sage-grouse by fragmenting sagebrush habitats. Holloran et al. (2010) found that male greater sage-grouse yearlings were 4.6 times more likely to establish leks outside compared to inside areas with oil and gas infrastructure, and yearling female avoidance responses indicated a loss of functional nesting habitats within 3,000 feet of the infrastructure of natural-gas fields. These results suggest that conventional oil and gas development adversely affects greater sage-grouse by excluding individuals from developed areas. Alternative A closes 37,933 acres of greater sage-grouse Key Habitat Areas to oil and gas development to limit these impacts (Table 4-9). Alternative A does not include restrictions for the development of wind energy; however, any proposal for a renewable energy ROW would be analyzed on a site-specific basis, and appropriate mitigations (seasonal restrictions or buffer areas) would be applied in accordance with current greater sage-grouse habitat management policy. Overall, surface disturbance in sagebrush habitats under Alternative A is anticipated to result in adverse impacts to greater sage-grouse in the short and long term.

The findings of Holloran et al. (2010) are pertinent to the aforementioned conclusion if future oil and gas activities were to be conducted in a "conventional" manner. The oil and gas industry, however, has endorsed measures, including directional drilling and seasonal constraints, in cooperation with the BLM that make future drilling activity anything but conventional. Thus, we argue that the conclusion that "surface disturbance in sagebrush habitats under Alternative A is anticipated to result in adverse impacts to greater sage-grouse in the short and long term," be reevaluated to include state-of-the-art measures currently applied.

The buffer design for Alternative A states (Table 2-5, pg.2-84):

> Apply a CSU stipulation for discretionary actions to prohibit surface-disturbing and disruptive activities within ¼ mile of occupied greater sage-grouse lek.

The ¼ mile protective measure is no longer state-of-the-art and is obviously, based on the latest research (Holloran et al. 2010), insufficient to protect greater sage-grouse and avoid the risk of federal listing. In our estimation, limiting the standard to an archaic ¼ mile lek buffer makes Alternative A unfairly un-

selectable. The LGCA recommends modifying Alternative A to extend the CSU stipulation to 0.6 miles to recognize the state-of-the-art mitigation.

In regard to invasive weeds and impacts to greater sage-grouse in Alternative A, the RMP/EIS concludes (pg.4-228):

> Although the extent of sagebrush habitat degradation from the spread of invasive species and other weeds is unknown for the Planning Area, the potential for these species to substantially affect greater sage-grouse habitats in the future exists (Wyoming Sage-grouse Working Group 2003). Therefore, the anticipated continued expansion and spread of invasive species under Alternative A would result in adverse impacts to greater sage-grouse and sagebrush habitats.

No data on the amount of invasive weeds by species, spatial distribution, or infestation intensity is provided in the Affected Environment. The aforementioned discussion makes no reference to measures applied during oil and gas exploration, vegetation manipulation, or grazing to minimize the spread of invasive weeds. Without a more rigorous evaluation of the effectiveness of those measures, or lack thereof, we find no basis for concluding that "continued expansion and spread of invasive species under Alternative A would result in adverse impacts to greater sage-grouse and sagebrush habitats."

In regard to livestock grazing and impacts to greater sage-grouse in Alternative A, the RMP/EIS concludes (pg.4-228):

> By altering habitat components necessary for greater sage-grouse habitats, livestock grazing can affect the suitability and extent of greater sage-grouse habitats in the Planning Area (Wyoming Sage-grouse Working Group 2003). While livestock grazing management has a limited effect on sagebrush, it is important because it affects the height and density of herbaceous material available for greater sage-grouse cover. Livestock grazing on greater sage-grouse habitat consists of both long-term management to promote desirable plant communities and annual management of the standing crop to provide cover for the greater sage-grouse, requiring management of the timing and intensity of grazing (BLM 2003b). Monitoring is important to ensure grazing intensity and duration does not remove required herbaceous cover and litter important for maintaining greater sage-grouse habitats. Although rangeland productivity is improving in the Planning Area, the current focus of management and monitoring does not emphasize the protective cover of vegetation and litter required by greater sage-grouse. Therefore, management of livestock grazing under Alternative A may not improve the quality or quantity of habitats for greater sage-grouse, but should maintain current habitats.

The LGCA agrees with the discussion regarding the relationship of successful greater sage-grouse nesting with the need to retain a "standing crop to provide cover for the greater sage-grouse…" No data is provided in the Affected Environment on the availability of nest cover at any scale (e.g. by grazing allotment, Basin-wide, etc.). No scientific references are provided that correlate declines in greater sage-grouse specifically to limited nesting cover, without segregating that variable from other possible variables (weather, changes in sagebrush coverage, distribution of sagebrush size classes, invasive weeds, and oil and gas disturbance). Thus, the conclusion that "management of livestock grazing under Alternative A may not improve the quality or quantity of habitats for greater sage-grouse, but should maintain current habitats" is speculative and sans supporting data.

Research (Connelly et al. 2000; Gregg et al. 1994; Wallestad and Pyrah 1974) does show a positive correlation between greater sage-grouse nest success and nest cover. If the RMP/EIS is going to suggest, as it does, that changes in grazing may or may not improve greater sage-grouse nest success, the conclusion must be based on Basin-wide allotment-by-allotment data that summarizes nest cover in a statistically meaningful manner that isolates the effects of limited nest cover from other variables. If data concludes that modifications to grazing in some allotments are warranted to recover greater sage-grouse, the BLM should engage stakeholders and permittees with a proposed solution. Making conclusions regarding the effects of grazing on greater sage-grouse without data, however, is improper. Management decisions based not on data but "perceptions" could have significant negative economic impacts on permittees and stakeholders. The LGCA strongly objects to Basin-wide modifications to grazing under the auspices of greater sage-grouse recovery that are not allotment-specific or based on field data and scientifically-sound analyses (see Wildlife Mitigations – Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).

Nongame (Neotropical Migrants)-Alternative A

Although cited in the nongame mammals discussion, the following narrative is pertinent to the analysis of Neotropical migrants. The RMP/EIS concludes that (pg.4-231):

> *Sagebrush and Shrubland Species* – Similar to the greater sage-grouse, special status nongame mammals in this category depend on sagebrush habitats or other shrubland types. Therefore, measures to protect greater sage-grouse as discussed under *Game Birds (Greater Sage-grouse)* would benefit all sagebrush and shrubland species. Likewise, adverse impacts to sagebrush habitats discussed for the greater sage-grouse would result in adverse impacts to these species.

We challenge the conclusion that "measures to protect greater sage-grouse as discussed under *Game Birds (Greater Sage-grouse)* would benefit all sagebrush and shrubland species." Brewer's sparrows, sage sparrows, and sage thrashers clearly prefer large tracts of late seral big sagebrush (Buseck et al. 2004; Hansley and Beauvais 2004a; Hansley and Beauvais 2004b; Wiens and Rotenberry 1981). Greater sage-grouse prefer a mosaic of young and old sagebrush interspersed with open grassy areas (Connelly et al. 2000; Connelly et al. 2004; Rowland 2004). Thus, the biological requirements for species in the "sagebrush and shrubland species" differ by species. Greater sage-grouse management strategies in all alternatives (pg. 2-80, Table 2-5) include:

> Sustain the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of greater sage-grouse and other species by achieving the objectives below:
>
> **BR:9.1** Maintain large patches of high quality sagebrush habitats, with emphasis on patches occupied by greater sage-grouse.
>
> **BR:9.2** Maintain connections between sagebrush habitats, with emphasis on connections between habitats occupied by greater sage-grouse.
>
> **BR:10** Identify the amount of habitat that should undergo restoration and/or rehabilitation during the life of the plan and initiate restoration and/or rehabilitation by achieving the objective below.

> **BR:10.1** Reconnect large patches of sagebrush habitat with emphasis on reconnecting patches occupied by stronghold and isolated populations of greater sage-grouse.

The alternative design elements are seemingly appropriate for managing greater sage-grouse, but leave essential questions unanswered including:

- What is the existing coverage of sagebrush versus grass-dominated areas in greater sage-grouse Core Areas?
- What was the historic coverage of sagebrush versus grass-dominated areas in greater sage-grouse Core Areas?
- Of lands currently dominated by sagebrush in greater sage-grouse Core Areas, what is the age class distribution?
- How does that compare with historic conditions in greater sage-grouse Core Areas?
- What is the desired target for sagebrush coverage and age class distribution in greater sage-grouse Core Areas?

Without providing data to address the preceding questions, it is unclear how the BLM concludes that current conditions are limiting to greater sage-grouse or if future conditions will be better or worse. Thus, the RMP/EIS conclusion (pg.4-181) that "species that utilize or depend on sagebrush habitats (will) benefit from management actions for greater sage-grouse" may or may not be accurate and reflect current conditions in the Planning Area.

In regard to Neotropical bird habitat suitability and effects from grazing, the RMP/EIS concludes (pg. 4-181):

> Under Alternative A, the BLM manages foothills-mountain grassland/shrub and basin grassland/shrub communities toward DPC objectives to emphasize watershed protection and livestock grazing. Livestock grazing practices, though managed in accordance with the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming*, may not create the vegetation heterogeneity necessary to increase habitat suitability for neotropical migrants (Derner et al. 2009). However, habitat quality would be maintained in these areas to benefit neotropical migrants that depend on these habitats.

The conclusion that direction in Alternative A provided by *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming*, "may not create the vegetation heterogeneity" needed for neotropical migrants is speculative. The RMP/EIS needs to determine whether grazing management does or not meet the needs of Neotropical migrants. If, grazing as currently conducted does not provide the needs for some species (e.g. heavily-grazed lands needed by mountain plovers), then the alternatives should be modified to meet those biological needs.

As the discussion continues regarding Neotropical birds, the RMP/EIS integrates, as if habitat needs are the same for all Neotropical species, an analysis of grassland and shrubland species (pg. 4-230):

> *Grassland Species* – Grasslands make up less than 1 percent of the Planning Area. Under Alternative A, there are no management actions specific to special status neotropical migrants that utilize grasslands, other than the mountain plover. Refer to Section 4.4.2 *Vegetation - Grassland and Shrubland Communities* and Table 4-8 for a discussion of management actions and BLM-authorized activities that would impact grasslands and would similarly affect neotropical migrant habitat in these areas. Due to its projected long-term surface disturbance and reclamation requirements, Alternative A would result in habitat loss and degradation in grasslands. Adverse impacts to the mountain plover would be minimized by implementing various conservation measures and BMPs under Alternative A. Mountain plovers are often found in association with prairie dog towns because they tend to prefer nesting areas with sparse vegetation cover, and therefore are affected by management actions for white-tailed prairie dogs (see *Nongame [Mammals]).*

The relationship between sagebrush-associated species and grassland-associated species needs to be segregated. First, the wildlife effects discussion needs to acknowledge that according to BLM biophysical setting data, most grasslands are the result of disturbance that removed sagebrush (fire, mechanical, herbicides, etc). Similarly, most sagebrush-dominated areas are the result of an absence of disturbance (e.g. long-term fire suppression). Secondly, the effects analysis needs to acknowledge that actions that benefit/favor sagebrush obligates (e.g. sage sparrows) will be detrimental to grassland obligates (Baird's sparrows) and contrariwise. Lastly, the degree to which alternatives provide for both sagebrush- and grassland-associated species must be based on comprehensive data that discloses the current mix of sagebrush and grasslands and changes in that mix that will occur by alternative. Referring simply to greater sage-grouse measures (Section 4.4.9 *Special Status Species -Wildlife* and *Standards for Healthy Rangelands)* or domestic livestock grazing measures (*Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming)* does not answer the fundamental questions of how Alternative A will affect sagebrush- and grassland-associated species in terms of how the Planning Area will be managed in either sagebrush or grassland coverage (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Game Birds (Greater Sage-grouse)-Alternative B

In regard to livestock grazing and impacts to greater sage-grouse in Alternative B, the RMP/EIS concludes (pg. 4-235/236):

> Under Alternative B, the BLM … closes more areas to livestock grazing, including … greater sage-grouse Key Habitat Areas. Closing greater sage-grouse Key Habitat Areas may have adverse and beneficial impacts, depending on site-specific range condition. Poor livestock grazing management can have long-term, adverse impacts to greater sage-grouse by degrading habitat (WGFD and BLM 2007). For Key Habitat Areas in which range conditions are not meeting the *Wyoming Standards for Healthy Rangelands* (Appendix N), closing these areas to livestock grazing may benefit greater sage-grouse by improving habitat conditions over long time periods (40 years or more) (Crawford et al. 2004). Alternative B closes 1,129,179 acres in greater sage-grouse Key Habitat Areas to livestock grazing. However, on Wyoming big sagebrush sites with

> dense sagebrush and an understory of annual grasses, reductions in livestock grazing may hasten further habitat degradation if ungrazed fuel loads increase the chance of wildfires that kill sagebrush over vast areas (Crawford et al. 2004). Light-to-moderate livestock grazing may improve greater sage-grouse habitat by increasing herbaceous vegetation in arid-to-semiarid areas (Holechek et al. 2006). Appropriate grazing intensity and duration maintains suitable greater sage-grouse habitat (WGFD and BLM 2007). Under all alternatives, livestock grazing management is in accordance with the *Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of Wyoming* to meet multiple use objectives (e.g., wildlife). Closing greater sage-grouse Key Habitat Areas may create limited long-term beneficial impacts in areas meeting the *Wyoming Standards for Healthy Rangelands*, but may adversely impact other areas by increasing the potential for wildfires in the short term and eliminating the beneficial long-term effect that livestock grazing can have on rangeland vegetation if managed at the appropriate intensity.

The LGCA fundamentally disagrees with the preceding discussion of greater sage-grouse and Alternative B. As noted previously, BLM-designated Key Areas should not be recognized, only those Core Areas identified in Governor Mead's 2011 Greater Sage-grouse Executive Order. In stating that closure of grazing in Key Areas may have adverse or beneficial impacts, the BLM has an obligation to disclose both the adverse or beneficial impacts that would occur due to a closure to grazing. Where there is agreement with the preceding narrative is that "appropriate grazing intensity and duration maintains suitable greater sage-grouse habitat (WGFD and BLM 2007)." The following should be addressed under Alternative B:

- Greater sage-grouse co-evolved with bison and are therefore, generally tolerant of or benefit from livestock grazing;
- Some allotment-specific problems with limited nesting cover may exist, but issues can be resolved at the allotment-scale regardless of alternative selected;
- Removing 1.1 million acres of livestock is based on a perception that grazing is a major problem for greater sage-grouse, but that opinion is generally not validated by research.
- Removing livestock on 1.1 million acres will have greater negative effects on greater sage-grouse from increased fire severities, resulting in a loss of big sagebrush to a greater degree than any minor site-specific benefits from improved nesting cover.
- Elimination of 1.1 million acres of grazing allotments will have significant adverse impacts on permittees in the Planning Area. The BLM has an obligation to disclose the economic effects of removing 1.1 million acres of grazing.

See Wildlife Mitigations – Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development.

Nongame (Neotropical Migrants)-Alternative B

Removal of 1.98 million acres of livestock grazing in Alternative B will significantly affect the economic well-being of grazing permittees in the Planning Area. Ancillary to the adverse economic impacts,

grazing removal at such a scale will be detrimental to mountain plover. A conclusionary statement in the RMP/EIS is both unsubstantiated and incorrect (pg.4-237):

> Greater restrictions on livestock grazing under Alternative B may result in adverse impacts to mountain plover by reducing available mountain plover habitat (i.e., heavily grazed areas and areas with bare patches); however, managing areas to create preferred habitat for the mountain plover, would likely provide a net benefit to this species.

Mountain plovers require intensively grazed areas, either from domestic livestock, wild ungulates, or prairie dogs (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001). Removing 1.98 million acres of grazing allotments will drastically inhibit the ability of the BLM to provide suitable habitat for mountain plover. Consequently, concluding that "Alternative B *may* result in adverse effect to mountain plover(s)" is a gross inaccuracy. Furthermore, the conclusion that "managing areas to create preferred habitat for the mountain plover, would likely provide a net benefit for this species" lacks the essential discussion of "how" that activity would occur. Given that mountain plovers require intensively-grazed areas, how will non-disclosed management activities benefit mountain plovers when Alternative B removes grazing on 1.98 million acres? Will BLM crews be out *mowing* areas to create mountain plover habitat? Without some specific details on what those plover management actions will entail, the conclusion is baseless (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Alternative D

Game Birds (Greater Sage-grouse)-Alternative D

In regard to livestock grazing and impacts to greater sage-grouse in Alternative B, the RMP/EIS concludes (pg. 4-246):

> Livestock grazing management also would result in impacts similar to Alternative A, although there may be more beneficial impacts to greater sage-grouse from allowing livestock grazing, even in closed areas, to improve greater sage-grouse habitat condition (WGFD and BLM 2007 and Holechek et al. 2006).

As stated in comments for the effects of Alternative A, no data is provided in the Affected Environment on the availability of nest cover at any scale (e.g. grazing allotment, landscape, Basin-wide). No scientific references are provided that correlate declines in greater sage-grouse specifically to limited nest cover, without segregating that variable from other possible variables (weather, changes in sagebrush coverage, distribution of sagebrush size classes, invasive weeds, oil and gas disturbance). Thus, the conclusion that "there may be more beneficial impacts to greater sage-grouse (from Alternative D)," is speculative (see Wildlife Mitigations – Core and Key Areas, Grazing, Travel Management, and Mining and Energy Development).

Nongame (Neotropical Migrants)-Alternative D

The RMP/EIS concludes for Neotropical migrants the following (pg. 4-201):

> Based on the restrictions on minerals development in sagebrush and desert shrub habitat (Table 4-8) and the reclamation requirements under Alternative D, this alternative is likely to result in fewer adverse impacts to neotropical migrants in these habitats than under alternatives A and C, but more than under Alternative B.

Based on previous comments regarding the effects of Alternative A, there is no data on existing acres of sagebrush age class distribution. While Alternative D infers there will be *less* acres lost to minerals extraction, there is no quantitative comparison of existing acres of habitat compared to acres remaining under Alternative A. It is understood there is uncertainty involved with minerals extraction, yet a general comparison is necessary to validate the conclusion advanced by the BLM.

The RMP/EIS states further (pg. 4-248):

> Management actions for white-tailed prairie dogs (see *Nongame [Mammals]*) may affect the mountain plover and long-billed curlew. Livestock grazing management would result in impacts similar in extent to those under Alternative A but with similar benefits to alternatives B and C from managing grazing in certain areas to create mountain plover habitat.

There is no specificity on where and how prairie dog or grazing management will take place to facilitate the preceding conclusions about special status species. For instance, "management actions for … prairie dogs … may affect the mountain plover and long-billed curlew." Will that "affect" be negative or beneficial and to what degree? It is not discernible from the information provided by the BLM. The conclusion that "livestock grazing management would…(have) … similar benefits to alternatives B and C from managing grazing in certain areas to create mountain plover habitat" lacks sufficient detail to ascertain whether the effects determination is accurate. Unanswered questions include:

- What is the Basin-wide target for lands providing ideal habitat for mountain plovers or curlews?
- How much of the Basin currently provides suitable habitat?
- How will grazing systems be modified to provide heavily-grazed lands replicative of intensive bison grazing or prairie dog towns, where will modified grazing occur, and how many acres will be involved?
- Given that mountain plover and curlew require lands that are heavily-grazed in the spring and that repeated spring grazing is injurious to plants, how will grazing be done over time to ensure long-term productivity of grazing lands?

See Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development.

4.4.10 Wild Horses

Wild horses in the Planning Area are a nonnative species that negatively impacts resources and resource uses. As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the WFRHBA are met.

Wild horses in the Planning Area are a nonnative species that negatively impacts resources and resource uses. As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the WFRHBA are met (see Wild Horses Mitigation – Grazing).

In August 2003 a Consent Decree was signed between the Attorney General for the State of Wyoming and the Assistant Attorney General, Environmental and Natural Resources Division, U.S. Department of Justice. The purpose of the Consent Decree is to reduce wild horse populations in herd management areas (HMA) to an appropriate management level (AML). Terms of agreement that must be implemented and followed in order to remain compliant with the Consent Decree include:

> If BLM determines through its inventory and projected reproduction rates that the wild horse population are likely to exceed AML in the following Fiscal Year, the BLM shall request funds to reduce the population to AML by December 15 the next budget cycle year. If the BLM fails to reduce the number of wild horses to AML by the required date, the State may petition the court to compel the BLM to do so.

There are two HMAs in the Planning Area: Fifteenmile and McCullough Peaks. The Consent Decree set an AML for Fifteenmile and McCullough Peaks HMAs at 70 to 160 and 70 to 140 wild horses, respectively. As disclosed in the RMP/EIS, the estimated number of horses in Fifteenmile HMA is 89 and 110 in McCullough Peaks HMA. The LGCA acknowledges that wild horses in each of the HMAs are within the AML outlined in the Consent Decree. While it is appreciated that the BLM is in compliance with the Consent Decree, the LGCA's stated position is that wild horse populations should be further reduced to a total head that is at or near the minimum AML.

4.4.10.1 Methods and Assumptions

Table 13 discloses methods and assumptions for wildlife in the RMP/EIS (pg. 4-167-168). Associated with each method(s)/assumption(s) is a comment from the LGCA.

Table 13 Wild Horse RMP/EIS Methods and Assumptions and Corresponding LGCA Comments

Method/Assumption*	Comment
The number of wild horses would increase by about 18 percent annually and be maintained by periodic removals.	As an exotic species, the LGCA posits that an increase of 18% annually will be detrimental to the native vegetation and the economic interest of permittees and stakeholders in the Planning Area. If required by the WFRHBA, annual increases in wild horses in the Planning Area should be at the minimal allowable level allowed for under the WFRHBA.
Wild horse removals (gathers) would occur about every 3 to 5 years in each HMA.	Gathers must occur annually to decrease the environmental devastation wrought by wild horses in the Planning Area.
Maintenance of wild horse populations at initial appropriate management levels in existing HMAs would be accomplished through removals and selected application of other population control practices.	Define "appropriate management levels."

Alternative A – D

Wild horses in the Planning Area are a nonnative species that negatively impacts resources and resource-uses. As a nonnative species that unduly affects grazing permittees, the LGCA firmly asserts that the BLM should manage wild horses in the Planning Area only to the extent that the minimum requirements of the WFRHBA are met.

The overall stocking level for both livestock and wild horses in the Fifteen Mile HMA is 5,670 AUMs (RMP/EIS pg. 3-120). Overall stocking levels for both wild horses and livestock in the McCullough Peaks HMA are not discussed in the RMP/EIS. Additions to Section 3.4.10, McCullough Peaks Wild HMA, should include the overall stock level AUMs. The management challenge in the areas is a reduction in rangeland health due to drought conditions documented in the RMP/EIS, as discussed in the Wild Horses Management Challenges section. Until a comprehensive study of the affects of wild horses in the Fifteen Mile and McCullough Peaks Wild HMA areas is complete, and included in the RMP/EIS, there should be no reduction in livestock AUMs (see Wild Horses Mitigation – Grazing). The BLM must consider reducing wild horse numbers and wild horse AUMs in the McCullough Peaks and Fifteen Mile HMAs to restore rangeland health until drought conditions have receded. The reduction in excess wild horses and AUMs would be consistent with the WFRHBA, Section 2 Subpart (f) which states:

> excess animals" means wild free-roaming horses or burros (1) which have been removed from an area by the Secretary pursuant to application law or, (2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.

The LGCA supports the contraceptive programs implemented by the BLM to control wild horse herd populations. In Section 3.4.10, Management Challenges, McCullough Peaks HMA, fertility controls are used to control population growth to an expected 15% annual rate. Section 4.4.10.1, Methods and Assumptions, states that the number of wild horses would increase by 18% annually. The percentages do not match, obviously. The Methods and Assumptions percentage of annual growth should be changed to match the fertility control method percentage annual growth rate or clarify the differences in the percentages. Wild horse HMAs should be managed according to the contraceptive measures delineated previously in this comment section.

The LGCA would not support the expansion of the McCullough Peaks HMA as stated in Section 4.4.10.2 of the RMP due to complications in forage competition. Should any expansion of wild horses occur, which is not mandated by the Wild Free-Roaming Horses and Burros Act and thus unnecessary, must result in no reduction in livestock AUMs due to this expansion. (see Wild Horses Mitigation – Grazing).

5. Absaroka Front Management Area

Wildlife values are high across the Absaroka Front Management Area (AFMA). The research on the effects of energy extraction upon elk, mule deer, and greater sage-grouse (Holloran and Anderson 2005; Sawyer et al. 2007a; Sawyer et al. 2007b) indicates that while adverse effects upon those species can be

severe if not appropriately mitigated, the effects can generally be mitigated by a combination of measures designed to minimize and reclaim the "footprint" of physical disturbance (well pads and roads), reduce the risk of invasive weeds, and avoid human disturbance within critical use periods (See Appendix H for further information regarding AFMA).

The agency-preferred alternative (D) in this analysis withdraws leasing from much of the AFMA and allocates the remainder to a mix of NSO and CSU. While the alternative takes a "no risk" approach to protecting wildlife, the alternative goes beyond what the science (Holloran and Anderson 2005; Sawyer et al. 2007a; Sawyer et al. 2007b) says is needed to protect wildlife from energy extraction activities.

Wildlife resources within the Greater Yellowstone Ecosystem (GYE) are considered "world class" in terms of the diversity of species, population density, and protected habitat. The AFMA is an important part of the GYE in that it provides a unique mix of ungulate winter range, spring/fall grizzly bear seasonal range, and convergence between prairie species (e.g. greater sage-grouse) and Rocky Mountain front species (e.g. moose) (WGFD 2009b). Because of the wide-ranging nature of many species using the AFMA (e.g. elk, grizzly bears), adverse impacts to wildlife occupying the AFMA have the potential to affect wildlife across a much wider area within the GYE. Species to be assessed in this analysis include:

- Elk
- Mule deer
- Bighorn sheep
- Moose
- Grizzly bears
- Greater sage-grouse

Past Direction

The 1986 Absaroka Front HMP, which was a partnership effort between WGFD, BLM, and the Shoshone National Forest, established direction for wildlife protection amidst various identified threats including continued timber harvest, energy development, and continued livestock grazing. Included was direction to:

- Develop guidelines for oil/gas and forestry practice where human activities … affect habitat use by priority species.
- Institute road density criteria based on miles per section and cover value guidelines to limit proliferation of roads in elk habitats.
- (Close) elk and bighorn sheep crucial winter and spring ranges and appropriate buffer areas … Dec.1– May 1.

- Restrict access within elk and bighorn sheep parturition areas (May 1–June 30).
- Allow (the creation of) new energy (extraction) and logging roads during active period authorized under seasonal restrictions of the specific action.

Although the document was a very thorough assessment of the situation, some management emphases have changed. Timber harvest has shifted from a "commodities production" emphasis to more of a "restoration" emphasis. Nationally, increasing demand for energy has increased the emphasis on energy extraction. Wildlife populations have also changed. Increased grizzly bear populations in the GYE, accompanied by reduced mortality have resulted in federal de-listing of the GYE population in 2007 followed by re-listing in 2009, and increased grizzly bear occurrence in areas adjacent to the GYE. Increasing concerns over the viability of greater sage-grouse (GSG) have resulted in a U.S. Fish and Wildlife Service determination that the species is "warranted but precluded" from federal listing. Wyoming has identified "core" and "non-core" greater sage-grouse populations state-wide. A substantial amount of greater sage-grouse research (Braun et al. 2002; Braun 2002; Doherty et al. 2008; Holloran et al. 2004; Naugle et al. 2006; Walker et al. 2007) has identified measures for protecting the species within areas likely to receive energy leasing. Also, a substantial amount of research on energy related effects on mule deer (Sawyer et al. 2007b; Sawyer et al. 2009), pronghorn (Berger et al. 2006; Sawyer et al. 2007b; Sawyer et al. 2009), and elk (Sawyer et al. 2007a) has become available since the 1986 HMP Plan.

Elk

Elk are highly valued by hunters as a game animal. Hunters spend substantial sums of money in pursuit of elk, and those expenditures also directly support outfitters, guides, resort owners, restaurants, and motels. Elk are also highly valued by the general public for the wildlife viewing opportunities. Although not as readily viewed as deer or antelope, elk can be viewed across the AFMA depending upon the season.

Elk are strongly dependent upon low-to-mid elevation winter ranges within which they avoid deep snows and find forage (Berger et al. 2006; Lyon 1979; Sawyer et al. 2007b; Sawyer et al. 2009). Researchers have concluded that female elk and young bulls have a strong fidelity to a given home range, and generally return year after year to the same winter range (Marcum 1975). Elk trend and population data, therefore, are usually measured on an elk herd unit basis. Elk herd units are defined as the yearlong range that a given herd uses including the winter range to which those elk consistently return. There are three elk herd units in the AFMA including #214-Gooseberry Elk Herd Unit, #216-Cody Elk Herd Unit, and #217-Clarks Fork Elk Herd Unit. Elk populations for all three herd units have done well within the last decade and have exceed WGFD population objectives as summarized in the Table 14 (2009a).

Table 14 WGFD Elk Population Data by Herd Unit

Elk Herd Unit	Mean Population 1999-2008	WGFD Population Objective	Hunter Success	Juveniles/100 Cows
Gooseberry	4,320	2,700	49%	24
Cody	8,050	5,600	47%	22
Clarks Fork	5,331	3,000	42%	22

Note that mean elk populations for the last decade have substantially exceeded WGFD population objectives. WGFD biologists (Altermatt pers. comm.) cautioned that good past performance does not necessarily mean that those herds are not without risk. Altermatt (2009a) indicated that population trends over the last decade are down (even though populations still exceed objectives and the percentage of juveniles per 100 cows is substantially less than what biologists suggest is needed for stable populations (Coughenour et al. 1994). Furthermore, increasing wolf populations suggest some potential for additional pressure on those elk populations.

A substantial portion of elk winter range is located within private ranches adjacent to the AFMA. The public often looks at high elk populations as "the more the better." Unfortunately, higher-than-desired elk populations, which have been the norm in the last decade, threaten the economic viability of those ranches. If those ranches become non-viable and are subdivided, there will be substantial adverse impacts to the wildlife that use those ranches.

Access to productive winter range is assumed to a major limiting factor for elk (Toweill and Thomas 2002). Acres of WGFD-designated by herd unit are disclosed in Table 15. The location of those winter ranges is included in Table 15.

Table 15 Distribution of Crucial Elk Winter Range within the AFMA

Elk Herd Unit	AFMA Acres in the Herd Unit	Crucial Winter Range Acres within the AFMA Portion Of The Herd Unit	Percent Crucial Winter within the AFMA portion of the Herd Unit
Gooseberry	175,877	106,128	60.3%
Cody	132,358	105,771	79.9%
Clark Fork	94,421	47,539	50.3%

Note from Table 15 that crucial winter range makes up a high percentage of all three herd units within the AFMA. Note too, from Map 4 that most crucial winter range for all three herd units is within the AFMA.

Threats to crucial elk winter range include:

- Physical loss of productive, forage-producing lands due to access roads, drill pads, or other on-site structures.
- Physical loss of forage productivity due to invasive, exotic weeds introduced by the vectors created by roads and unwashed vehicles and/or from sites made more vulnerable to invasion by disturbance.

- Human disturbance during the winter use period that either displaces elk to less desirable portions of the winter range or forces elk to use that winter range under more stressful conditions or for shorter timeframes.

In the West, physical losses of winter range are most commonly associated with residential subdivisions where portions of entire winter ranges can become unusable to wintering elk (Toweill and Thomas 2002). Also, analyses of concentrated deep gas energy fields (ERG 2006) have demonstrated that the combined "footprint" of access roads, drilling pads, compressor stations, and pipelines can remove a substantial percentage of available wintering habitat. Effects are usually measured as the percentage of the landscape removed. Energy extraction activities are usually considered temporary and disturbed lands usually receive some reclamation. Reclamation efforts on droughty, eastside grassland/sagebrush cover types can be problematic and monitoring indicates that results are often less effective and timely than anticipated (USDI 2006). Impacts on lost winter range, therefore, usually include some temporal evaluation of how long energy extraction activities will last, and how effective reclamation of those disturbed lands will be.

Droughty, eastside grassland/sagebrush cover types are inherently vulnerable to invasion from exotic weeds including such species as cheatgrass or leafy spurge (USDA 2002). Physical disturbance from energy extraction activities can make those sites substantially more vulnerable to invasion from weeds.

Human-disturbance to wintering elk is inherently harmful for a number of reasons. When elk flee from human activities, they burn additional calories that cannot be readily replaced during the winter (Toweill and Thomas 2002). Repeated disturbances may displace elk onto less productive portions of the winter range. Repeated or continual disturbance ultimately reduces the percentage of animals surviving the winter "pinch period" and or further reduces the vigor of surviving animals that could be reflected in reduced calf production, reduced calf survival, or increased predation (Sauer and Boyce 1983).

Avoiding physical disturbance of winter ranges can take many forms. State wildlife agency-owned wildlife management personnel have often closed or obliterated roads and revegetated historically over-grazed or dry-land-farmed areas as a means of increasing carrying capacity. Wildlife agencies report that sites lost to past management activities from physical disturbance have often been restored with a subsequent increase in carrying capacity (MTFWP 2004). Energy extraction activities have the same potential for site disturbance from pads, access roads, and compressor stations that other recreation or grazing activities do, albeit at a potentially greater scale. Energy extraction mitigation options generally include:

- Limiting physical disturbance to a given percentage of the landscape
- Requiring that energy extraction be done either incrementally, when those limits are approached, or with improved technology (e.g. directional drilling) to limit the "footprint" of that activity
- Requiring that reclamation of physically disturbed sites be done at a pace that equals new disturbance activity.

Bighorn Basin RMP

Absaroka Front Management Area (AFMA)

BighornBasin_PlanningArea

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Surface Ownership

- NPS National Recreation Area
- USFS National Forest
- USFS Wilderness Area
- USFWS National Wildlife Refuge
- BLM
- Indian reservation
- Department of Defense
- Wyoming State Lands
- Private
- Water

Elk Crucial Range

Legend

- Elk Crucial Range
- Elk Herd Units
- AFMA Boundary

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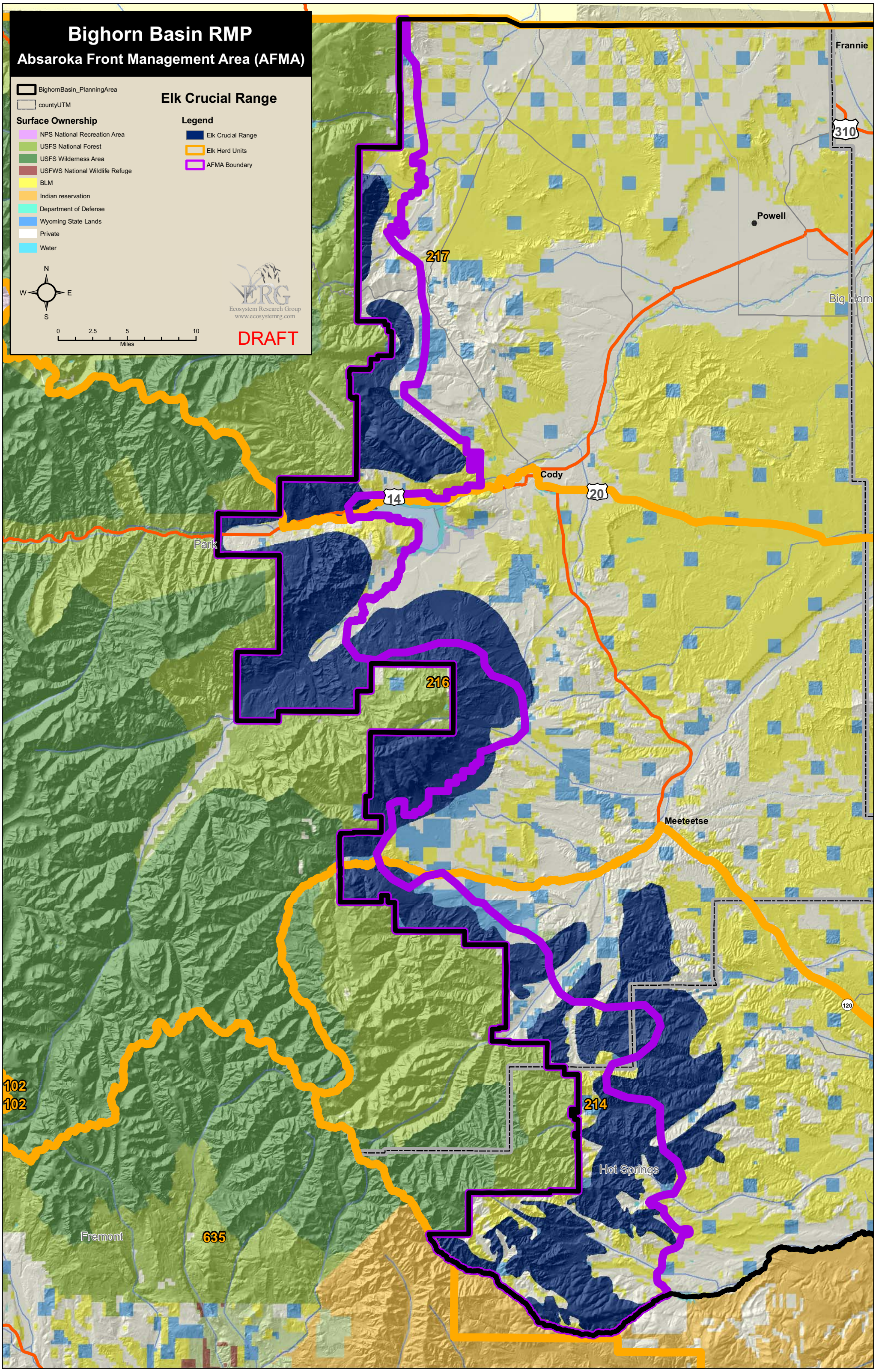

Avoiding weed invasions generally requires a number of aggressive actions to be successful. Those actions include:

- Rapid re-establishment of desired vegetation
- Timely weed surveys
- Aggressive weed control where needed
- Periodic monitoring
- Prompt re-treatment where warranted.

State Wildlife Management Agencies across the West have consistently managed winter ranges within wildlife management areas to minimize human disturbance upon wintering ungulates. Those restrictions can include road restrictions, area vehicle closures, or total seasonal closure to all recreational use. Wildlife agencies generally find that wintering elk thrive under those mitigation measures (MTFWP 2004).

Wyoming has had situations where high density energy extraction has clearly adversely impacted wildlife populations (Holloran 2005; Sawyer et al. 2006; Sawyer et al. 2009). The Pinedale Anticline field southwest of Pinedale has had documented declines in wintering mule deer, and probable declines in wintering pronghorns and nesting greater sage-grouse (ERG 2006). The density of wells, however, was very high and mitigation measures including limiting the footprint of disturbance, aggressively reclaiming disturbed sites, aggressively treating invasive weeds, and minimizing winter disturbance were inconsistently applied. Clearly, using the Pinedale Anticline as an example, it makes sense to consider the full range of mitigation options needed when making decisions about leasing public lands.

Based upon demonstrated success for avoiding adverse effects on wintering elk within crucial winter range, there are no major adverse energy extraction-related effects that cannot be mitigated with a combination of CSU and, where sites are difficult or impossible to reclaim to pre-disturbance productivity, NSO. To be successful, however, the mitigations measures, including seasons of allowable activity, allowable exceptions, maximum footprint of physical disturbance, and reclamation activity, including invasive weed control, need to be clearly identified in leasing stipulations. As important, prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

The AFMA provides a highly scenic landscape in which hunters actively pursue elk during the hunting season. Note from Table 14 that hunting success is remarkably high in all three herd units. Quality hunter opportunities are not necessarily linked to hunter success. Christensen and Lyon (1993) described hunting opportunities as being “good” when hunting seasons were long, season restrictions were minimal,

and hunters could pursue elk under a variety of situations including some very challenging situations, and periodically encounter elk throughout the season. Hillis et al. (1991) defined security as nonlinear patches of hiding cover≥250 acres in size >0.5 miles from an open road. They concluded that hunting opportunities would generally be good when the percentage of security was represented on ≥30% of the herd unit, including portions of the winter range in which elk might be present during the hunting season as a result of early fall snowfall. Edge and Marcum (1988) concluded that rugged topography was more likely to provide security than flatter ground, presumably because hunters were less willing to traverse difficult ground.

The Absaroka Front currently provides excellent elk hunting opportunities and contributes to the economic health of adjacent communities. Elk hunting opportunities declined across the West during the 1960s and 1970s as a result of increased road access and increased hunters. Improved access and increase in hunters resulted in increased elk harvest rates to the extent that in some areas (e.g. northeastern Oregon) all legal bulls were harvested in the first day of the hunting season so that the experiences of hunters who remained in the field for the remaining of the season were seriously compromised (e.g. no legal animals remained that could be observed) (Christensen et al. 1993). In general, Wyoming has not suffered the extreme loss of hunting opportunities that other states like Oregon or Colorado have, although WGFD biologists have generally recommended retaining adequate security across landscapes and advocated hunting season road closures (Hurley pers. comm.).

Energy extraction activities can compromise hunting season security by adding roads that can reduce security or by creating a high level of noise and human disturbance during the hunting season that makes existing security areas unusable to elk. Generally, leasing with CSU would fully mitigate impacts on security. If, however, security areas overlap with crucial winter range, the combined seasonal restrictions (e.g. fall through late spring) might not leave a sufficiently reasonable operating season for energy extraction. In that situation, special security areas, not to exceed 30% of the AFMA (Edge et al. 1988), should be designated NSO.

Mule Deer

Mule deer are often assumed to be comparable to elk in terms of habitat selection, threats, and mitigation needs (Shoshone National Forest Plan). Although mule deer are abundant across the AFMA, unlike elk, their populations have not increased to the degree that elk have, and they are currently in decline (Altermatt pers. comm.). Threats to mule deer from energy extraction are similar to elk and include:

- Loss of productive habitat due to physical disturbance from well pads, roads, and other infrastructure.
- Loss of productive habitat due to invasive weeds exacerbated by drilling-related disturbance.
- Human disturbance from winter drilling activity that displaces deer from desired foraging areas.

Analyses of concentrated deep gas energy fields (ERG 2006) have demonstrated that the combined "footprint" of access roads, drilling pads, compressor stations, and pipelines can remove a substantial percentage of available wintering habitat. Like elk, effects on deer are usually measured as the percentage of the landscape removed. Energy extraction activities are usually considered temporary, and disturbed lands usually receive some reclamation. Like within elk ranges, reclamation efforts on droughty, eastside grassland/sagebrush cover types can be problematic.

Droughty, eastside grassland/sagebrush cover types are inherently vulnerable to invasion from exotic weeds including such species as cheatgrass or leafy spurge. Physical disturbance from energy extraction activities can make those sites substantially more vulnerable to invasion from weeds.

Human disturbance on mule deer from energy extraction was specifically studied in the Pinedale Anticline field (Sawyer et al. 2007a; Sawyer et al. 2007b; Sawyer et al. 2009). They found that when winter drilling activity was extensive across the winter range, deer were confined to a much smaller portion of the winter range and access to available foraging was reduced. When that disturbance corresponded with extended, severe winter weather conditions, deer mortality was high and comparably higher than other wintering deer herds that were not exposed to human disturbance. Findings from Sawyer et al. (2007b) corroborate the importance of imposing seasonal restrictions on ungulate winter ranges.

Based upon demonstrated success for avoiding adverse affects on wintering elk within crucial winter range, there are no major adverse effects that cannot be mitigated with a combination of CSU or, where sites are difficult or impossible to reclaim to pre-disturbance productivity, NSO. To be successful, however, the mitigation measures, including seasons of allowable activity, maximum footprint of physical disturbance, and reclamation activity including invasive weed control, need to be clearly identified in leasing stipulations. As important, prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Bighorn Sheep

Bighorn sheep are a highly sought after trophy game animal, and are highly viewable, providing a valuable recreational experience for tourists. The western states bighorn sheep hunting permit auctions (one permit auctioned per state) managed by the Foundation for North American Wild Sheep generally brings in high bids of several hundred thousand dollars per permit, demonstrating a high demand for bighorn sheep.

Bighorn sheep are productive animals and tend to perform well, until periodic outbreaks of domestic sheep diseases (pinkeye, pasturella, etc) become epidemic. Sheep herds can crash precipitously when those epidemics occur, although they usually rebound rather rapidly (Schommer and Woolever 2008). Managers generally preclude domestic sheep or goat grazing near bighorn populations to minimize

epidemics. Bighorn sheep range, characterized by open grasslands on steep or rocky terrain, is present on only about 10% of the AFMA (Map 5).

The majority of sheep habitat is within the Sheep Mountain area. Because this is within an ACEC, there will be no leasing. Other sheep habitat occurs within small, isolated pockets of steep, rocky ground, most of which are not economically suitable for pad or access road locations (e.g. lessees will generally choose to avoid such areas without any stipulation precluding site occupancy). Thus, physical disturbance of sheep habitat is not considered a major threat.

Bighorn sheep do not exhibit the same sensitivity to human disturbance that elk do (Papouchis et al. 2001). Bighorn sheep will routinely occupy habitat along freeways and other areas of high disturbance. Because of areas of de facto NSO (see previous paragraph) that comprise sheep habitat, it is unlikely that disturbance from energy extraction would have measurable effects upon sheep populations; therefore, no mitigation measures are necessary.

Moose

Like elk, moose move to low elevation winter ranges during the winter. Unlike elk, moose are more tied to mesic vegetation and are thus concentrated within a much smaller portion of the AFMA landscape than elk (WGFD 2009a). Crucial moose range total 19,784 acres (4.9% of the AFMA). The location of that crucial range is shown in Map 5.

Because of the more restricted range of moose, research upon the impacts of energy extraction has not focused on moose to the same degree as it has on mule deer, elk, pronghorn, or greater sage-grouse. For analysis purposes, we have assumed that threats to moose are the same as for elk (e.g. loss of site productivity from physical disturbance, loss of site productivity from invasive weeds exacerbated by physical disturbance and human disturbance). When faced with human disturbance, moose, unlike elk, often do not seem to react by fleeing. As Cassier et al. (Cassirer et al. 1992) found with heartbeat-monitored elk in Yellowstone National Park, however, stress from exposure to humans can occur even without the animals taking flight.

Mitigation measures needed to protect wintering moose are assumed to be the same as for elk (e.g. minimizing the “footprint” of physical disturbance, aggressively controlling invasive weeds, and restricting activity during critical use periods). As important, prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Bighorn Basin RMP

Absaroka Front Management Area (AFMA)

Moose and Bighorn Sheep Crucial Range

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Surface Ownership

- NPS National Recreation Area
- USFS National Forest
- USFS Wilderness Area
- USFWS National Wildlife Refuge
- BLM
- Indian reservation
- Department of Defense
- Wyoming State Lands
- Private
- Water

Legend

- Moose Crucial Range
- Bighorn Sheep Crucial Range
- AFMA Boundary

N W E S

0 2.5 5 10 Miles

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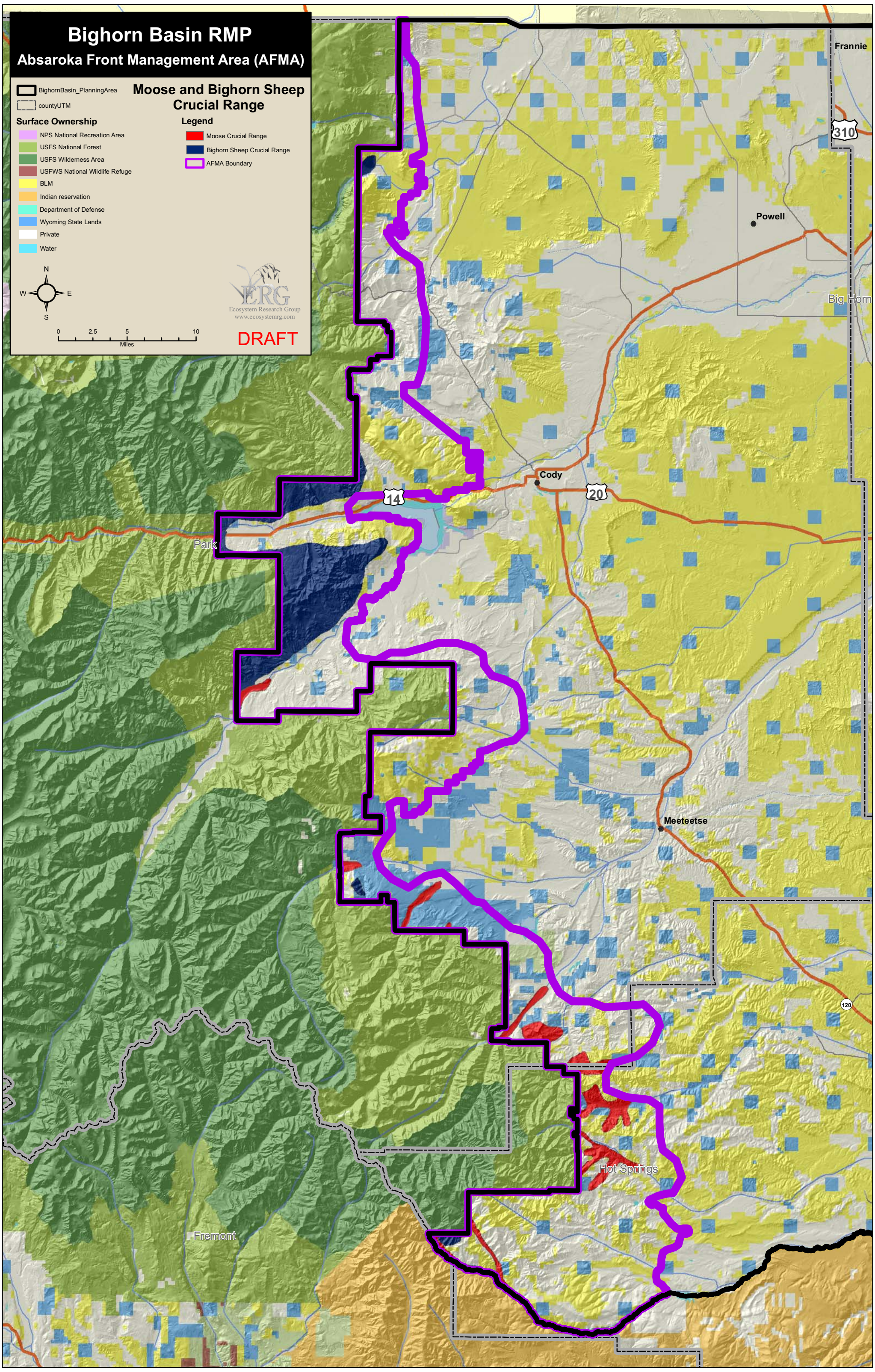


Grizzly Bear

Recovering grizzly bears within the GYE has been challenging and has included avoiding exposing bears to human foods to avoid habituation, minimizing livestock depredation, maintaining a mix of bear foods recognizing the downward decline of whitebark pine, and minimizing encounters with people (Gunther et al. 2004). Nonetheless, most researchers (Schwartz et al. 2006) conclude that grizzly bears have exceeded recovery goals and are relatively stable or increasing. One outcome of recovery is that bears increasingly inhabit the margins of prairie habitats along the periphery of the GYE. This pattern of use increases the risk of livestock depredation and exposure to grizzly bears to people and human foods (Gunther et al. 2004).

Grizzly bears were de-listed in 2007 and re-listed after a legal challenge in 2009. WGFD has designated the southern end of the AFMA as seasonal grizzly bear range (Map 6); note the extent of this area into the prairie.

Increased exposure of bears to human foods and resulting habituation, and increasing potential for confrontations with people are often cited as threats to grizzly bears (Gunther et al. 2004; Schwartz et al. 2006). Roads and associated human use of those roads are considered a threat to bears across the range (Mace and Manley 1993).

Disturbance associated with roads probably outweighs all other threats. CSUs have the potential to fully mitigate impacts upon grizzly bears; however, determinations regarding the level of energy extraction activity allowed, number of roads to be temporarily constructed, and season of use allowed for drilling need to be carefully crafted to fit the needs of locally-studied bear populations. In areas with an absence of reliable data, NSOs may be warranted. Prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

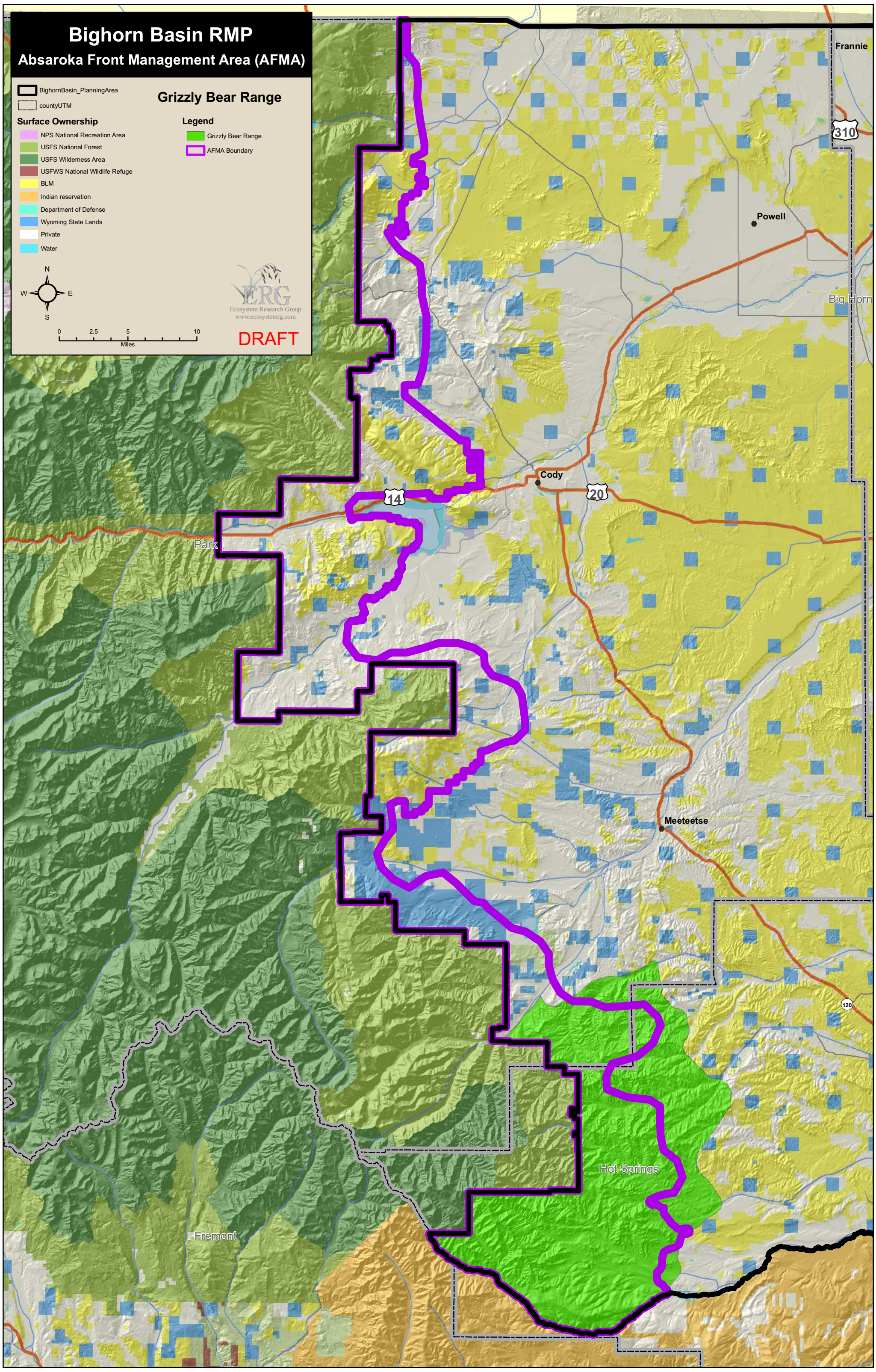
Greater Sage-grouse

Greater sage-grouse are a popular game bird across the west. Although still abundant, they have suffered major population declines in the last several decades (Braun 1988). They are basically a prairie sagebrush/grassland species and overlap with the AFMA only along the toeslope.

The USFWS has designated greater sage-grouse as a “candidate” species for federal listing under the ESA. Although the relative performance of greater sage-grouse varies substantially across Wyoming (and across the West), populations east of the AFMA have been relatively stable (Bighorn Basin Sage-grouse Local Working Group 2007). The effects of energy extraction on greater sage-grouse have been extensively studied (Lyon and Anderson 2003; Holloran 2005).

Bighorn Basin RMP

Absaroka Front Management Area (AFMA)



Within greater sage-grouse habitat, Wyoming has designated core habitat as areas having the greatest potential to sustain viable populations. Along the toeslope of the AFMA, there is both core and non-core greater sage-grouse habitat (Map 7). The acreage in both categories is fairly minimal. Active leks are inventoried and monitored statewide on BLM ground, and to varying degrees on other ownerships. Active lek locations within or adjacent to the AFMA are disclosed in Map 7.

Current direction for greater sage-grouse within core habitat (WGFD 2008) is to limit leases to NSO within 0.6 miles of active leks and to impose seasonal restrictions to avoid disturbance during the nesting seasons from 0.6 miles to 2.0 miles from leks. In non-core habitat, the NSO restriction is 0.25 miles from leks and seasonal timing constraints are applied within 2.0 miles of the lek. The measures are a reasonably conservative strategy for protecting greater sage-grouse considering the relative stability of the local populations. Yet, prior to any constraints being placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Alternative Summary and Conclusion

Alternative D, and to a greater extent Alternative B, provide onerous protection to wildlife with virtually no risk to those wildlife populations. The restrictions, however, seem excessive to what is actually needed to protect wildlife based on the literature as previously discussed. Elk populations, and more recently grizzly bear and wolf populations, have thrived in the area with existing levels of protection. While it could be argued that energy extraction could be of an intensity to rival the Jonah or Pinedale Anticline fields, it is more likely that well head density would approximate the existing patterns across the Bighorn Basin which has not resulted in major declines in wildlife populations.

Alternative A takes the mitigation measures recommended in various publications and applies them where they overlap with key wildlife habitats. Alternative A assumes that wildlife populations are at some risk from energy extraction activities, but that the published mitigation measures will be sufficient to avoid any significant adverse effects. Alternative D, and to a greater extent Alternative B, largely ignore the current level of over-performance that elk populations are exhibiting. As noted previously, before constraints are placed on grazing, oil and gas development projects, or travel management designations in the AFMA, the constraints must be substantiated with monitoring data, research, and close coordination and cooperation with stakeholders (see Wildlife Mitigations – Grazing, Travel Management, and Mining and Energy Development).

Bighorn Basin RMP

Absaroka Front Management Area (AFMA)

BighornBasin_PlanningArea

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Surface Ownership

- NPS National Recreation Area
- USFS National Forest
- USFS Wilderness Area
- USFWS National Wildlife Refuge
- BLM
- Indian reservation
- Department of Defense
- Wyoming State Lands
- Private
- Water

Sage Grouse Lek and Core Habitat

Legend

- Sage Grouse Quarter Mile and 0.6 Mile Buffers
- Sage Grouse 2 Mile Buffers
- Sage Grouse Core Areas
- AFMA Boundary

N W E S

0 2.5 5 10 Miles

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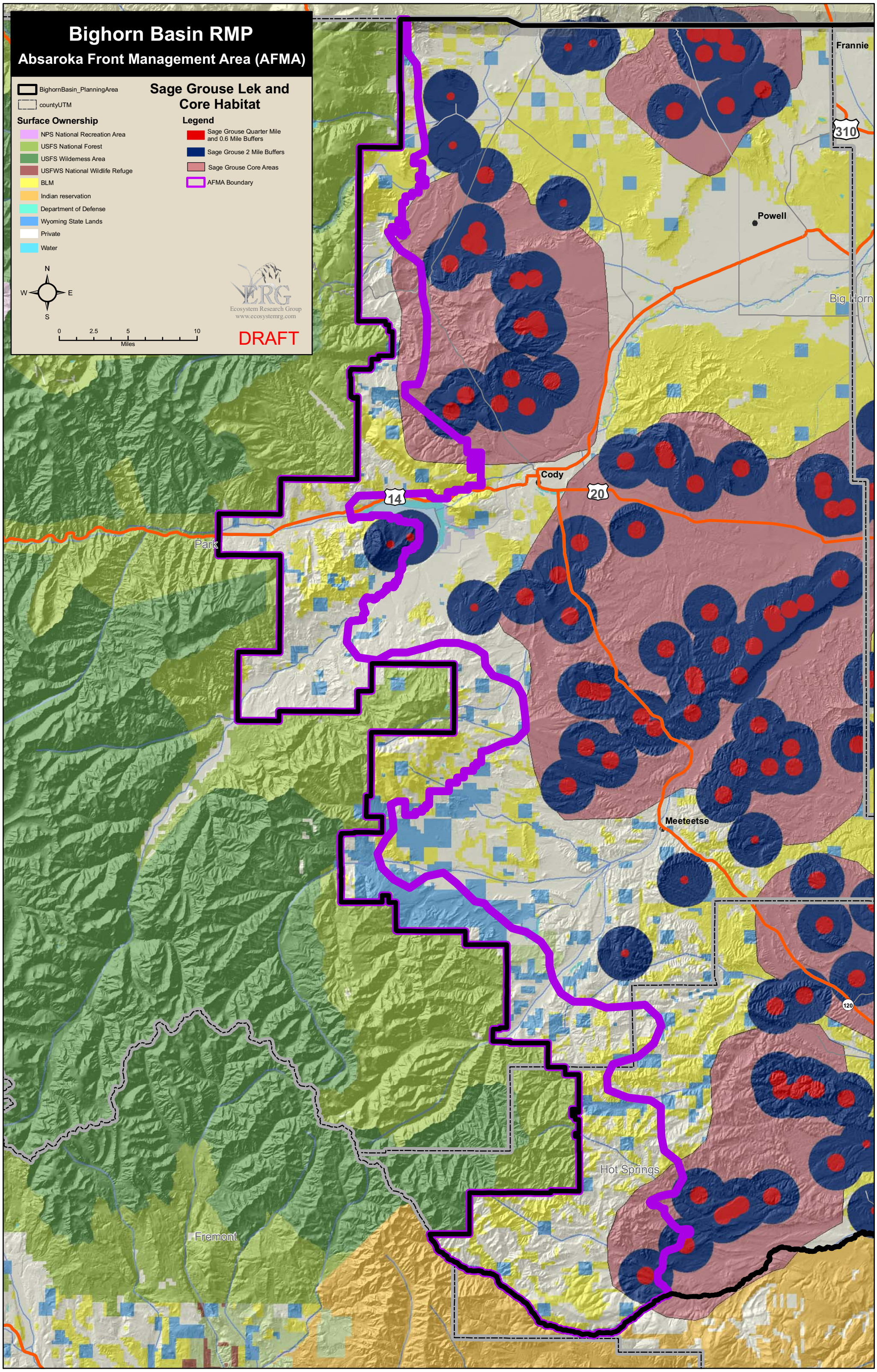

6. Mitigations

As the preceding comments described, the LGCA is concerned with the lack of substantive wildlife data and research, assertion of perceived management challenges, and erroneous conclusions. Of equal or greater concern to the LGCA is the adverse affect BLM management actions, based on the current RMP/EIS, may have on traditional multiple uses in the Bighorn Basin. To ensure that protective measures for wildlife are not implemented erroneously, and to the detriment of resources uses by stakeholders, the following wildlife mitigations were designed by the LGCA. Each mitigation clearly mandates that the BLM must undertake and complete monitoring studies of wildlife and wildlife habitats prior to the placement of constraints on resources, stakeholders, and local governments. Upon completion of monitoring studies, the BLM must work closely with stakeholders and local governments before implementing changes/restrictions in grazing allotment management plans (AMP), oil, gas, and mining leases, and travel management designations.

Mitigations – Grazing

1. Prior to any proposed modification of AMP or elimination of livestock grazing allotments in the Planning Area as a protective measure for greater sage-grouse and/or other wildlife species, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of livestock grazing at the project scale. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.
2. Preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area as a protective measure for big game parturition areas, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates big game population density and viability, repeated annual calving in the same areas, and the effects of livestock and grazing in Planning Area-designated parturition habitat. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

Mitigations – Mining and Energy Development

3. Previous to the designation and application of CSU, NSO, and TLS constraints on mining, oil and gas, and renewable energy development projects in the Planning Area as a protective measure for greater sage-grouse and other wildlife species, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of mining and energy projects in the Planning Area. At the conclusion of the study the BLM will coordinate with industry representatives and local governments in the Bighorn Basin preceding any constraints placed on mining and energy developments in the Planning Area. Special emphasis will be place on the development of innovative

energy development and mining mitigation measures in place of constraints. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

4. Previous to the designation and application of CSU, NSO, and TLS constraints on mining, oil and gas, and renewable energy development projects in the Planning Area as a protective measure for big game parturition areas, the BLM will design and implement a comprehensive monitoring study based on state-of-the-art methods that evaluates big game population density and viability, repeated annual calving in the same areas, and the effects of mining and energy projects in Planning Area-designated parturition habitat. At the conclusion of the study the BLM will coordinate with industry representatives and local governments in the Bighorn Basin preceding any constraints placed on mining and energy developments in the Planning Area. Special emphasis will be placed on the development of innovative energy development and mining mitigation measures in place of constraints. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

Mitigation – Travel Management

5. Any change in travel management designations for the protection of greater sage-grouse and/or other wildlife species that reduce or eliminate stakeholder access to allotted or permitted uses will be preceded by the BLM designing and implementing a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, habitat quality and quantity, and the effects of travel management infrastructure in the Planning Area. At the conclusion of the study the BLM will coordinate with stakeholders and local governments in the Bighorn Basin preceding any proposed modification of travel management designations in the Planning Area. Special emphasis will be place on the development of innovative travel management mitigation measures in place of alteration of designations. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

Mitigation – Greater Sage-grouse Key/Core Areas

6. BLM greater sage-grouse Key Habitat Areas in the Planning Area are arbitrarily designated and incompatible with the January 2010 *Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands including the Federal Mineral Estate* memorandum authored by the Wyoming BLM State Director (State Director). The memorandum states that "WY BLM sage-grouse Key Habitat Areas correspond to the State of Wyoming's Core Population Areas (Core Areas)." Greater sage-grouse Key Habitat Areas (1,857,477 acres) do not correspond with Core Areas (1,786,237 acres) in the Planning Area. To comply with the order of the BLM State Director, the agency-designated Key Habitat Areas in the Planning Area shall not be recognized, only the Core Population Areas designated by the State of Wyoming as described in Executive Order 2011-5.

Mitigation – Greater Sage-grouse Core Area Alteration

7. Executive Order 2011-5, issued by Wyoming Governor Matthew Mead on June 2, 2011, states (p. 2):

> Management by state agencies should focus on the maintenance and enhancement of Greater Sage-Grouse habitats, populations and connectivity areas identified in Attachment A. Absent substantial and compelling information, these Core Population Areas should not be altered for at least five (5) years.

Constraints on domestic livestock grazing, oil, gas, and mining development projects, and the travel management infrastructure due to the presence of greater sage-grouse core areas can be onerous to economic endeavors and recreational uses. In partnership with local governments and stakeholders, the BLM shall form an interdisciplinary team to review all greater sage-grouse core areas within the Planning Area every five years. In the event of "substantial and compelling information" that would include but is not limited to a considerable population increase or decrease, abandonment or deviation in use of one or more delineated core areas, and/or an alternation of vegetation (e.g. large-scale fire, invasive weed encroachment, plant disease) that removes minimum composition and cover requirements of greater sage-grouse, the interdisciplinary team shall convene within six months to review the core area(s) suitability and validity.

Mitigations – Special Designations and Other Management Areas

8. Before a new special designation and/or other management area (including but not limited to ACECs, LWCs, National Back Country Byways, WSRs, and/or WSAs) is authorized by the BLM for the protection of greater sage-grouse and/or other wildlife species that reduce or eliminate allotted or permitted stakeholder uses will be preceded by the BLM designing and implementing a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability and habitat quality and quantity in the Planning Area. Additionally, the BLM shall conduct a study of special designations and other management areas and the economic effects on stakeholders and local governments from the associated constraints and restrictions. At the conclusion of the study the BLM will coordinate with stakeholders and local governments in the Bighorn Basin preceding any new special designation and/or other management area implementation in the Planning Area. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

Mitigation – White- and Black-tailed Prairie Dogs

9. Prior to any proposed modification of AMP or elimination of livestock grazing allotments**,** designation and application of CSU, NSO, and TLS constraints on mining, oil and gas, and renewable energy development projects, and/or change in travel management designations as a protective measure for white- and black-tailed prairie dogs, the BLM will design and implement a comprehensive monitoring and research study based on state-of-the-art methods that evaluates:

    - Current habitat condition and population density
    - Historic habitat condition and population density
    - National distribution
    - Plague and predation and its effects on white- and black-tailed prairie dog
    - Relationship to obligate species (e.g. burrowing owls and black-footed ferrets)
    - Distribution and connectivity of prairie dog towns in the Bighorn Basin
    - Relationship with grazing (positive and negative)

    At the conclusion of the study the BLM will coordinate with stakeholders and local governments in the Bighorn Basin preceding any proposed modification of AMP or elimination of livestock grazing

allotments**,** designation and application of CSU, NSO, and TLS constraints on mining, oil and gas, and renewable energy development projects, and/or change in travel management designations. Special emphasis will be place on the development of innovative mitigation measures in lieu of prohibitions, constraints, modifications, or reductions. If disagreements arise, they shall be settled through a conflict resolution and mediation process.

Mitigation – Wild Horses

10. Wild horses are a non-native species in the Bighorn Basin that deplete and denigrate native vegetation and water sources. If the BLM proposes to increase wild horse AUMs, which would result in the alteration, reduction, or loss of domestic livestock grazing AUMs, it will be preceded by the BLM designing and implementing a comprehensive monitoring study based on state-of-the-art methods that evaluates species population density and viability, as well as the impacts of wild horses on native vegetation, water quality/quantity, and domestic livestock grazing in the Planning Area. At the conclusion of the study the BLM will coordinate with livestock grazing permittees and local governments in the Bighorn Basin preceding any proposed modification of AMPs or elimination of livestock grazing allotments in the Planning Area.

7. Conclusion

The preceding comments clearly illustrate that the BLM has failed to adequately describe historic wildlife habitat quality and quantity, population density, and viability of species analyzed in the RMP/EIS. In the Affected Environment chapter, the RMP/EIS insufficiently discloses the aforementioned variables. Given that the current condition does not properly disclose the population density and area of use of many species in the Planning Area, it is indiscernible to what degree a species or group of species is challenged by habitat conditions or availability. Complicating the wildlife section is the fact that the RMP/EIS does not provide measurement indicators for species. An EIS must provide measurement indicators so that management planning action effects can be applied to wildlife species and habitats. Only then can the action alternatives be accurately assessed and compared.

Management challenges are provided for the Planning Area that describe in very nebulous terms adversities facing wildlife species. However, the management challenges are not substantiated with data gathered from the Planning Area. In fact, very little data is provided for either wildlife species or habitats. In addition, the RMP/EIS incorporation of recognized research and field studies on Planning Area species that were conducted outside the Bighorn Basin, but still relevant, are mostly absent.

As noted above, stated management challenges for greater sage-grouse are tantamount to a laundry list of problems facing the species throughout its range, not just the Planning Area. Challenges for the greater sage-grouse include: industrial development, livestock and wildlife grazing, mining, gravel pit operations, oil and gas activity, land exchanges and disposal, vegetation manipulation, fuel reduction projects, power lines and towers, and other activities. One or more of the preceding challenges may indeed be factual for greater sage-grouse. Without field-verified data it cannot be ascertained which are real or merely perceived challenges.

Before the RMP/EIS is finalized, the wildlife section must be substantially improved. The Affected Environment must compare historic and current wildlife species populations and habitat quality and quantity. Next, a description of how management actions and resource uses in the Planning Area, over the life of the current RMP(s), have impacted wildlife either beneficially or adversely should be provided. With a solid Affected Environment chapter, the Environmental Consequences chapter can effectively analyze proposed action alternatives. For proper evaluation, measurement indicators must be devised for each species. Then, and only then, can the true effects to wildlife species be understood. Until a thorough wildlife NEPA analysis is constructed, the LGCA cannot support any management actions taken by the BLM for the protection of wildlife that inhibits resource uses in the Bighorn Basin.

13. HERITAGE AND VISUAL RESOURCES

The LGCA has considerable concerns with both the cultural resources and visual resources portions of the RMP. Concerns related to cultural resources have to do with significant buffers around important cultural sites potentially precluding surface disturbing activities over tens of thousands of acres in the planning area. The LGCA is also concerned that the BLM may want to protect portions of historic trails in areas where the there is no evidence on the ground of the location of these trails. We believe that appropriate mitigation measures can be employed that would protect these resources without precluding development on surrounding lands.

Cultural site and historic trail buffers are excessive. Alternative D buffers for cultural sites, national, and other historic trails would restrict or constrain resources uses on BLM that have yet to be identified. The BLM does not identify intact segments of historic trails nor do they identify cultural sites where the scene and setting is intact. The three mile buffer on cultural sites and the two, three, and five mile buffers (depending upon resource) of the historic trails shall be reduced and the BLM must identify exactly where the scene and the setting is intact in the Bighorn Basin to effectively analyze the economic impacts of these actions. If the BLM cannot produce intact segments of historic trails or properly identifying the cultural sites where the scene and setting is intact then the buffers for both resources will be eliminated.

With respect to Visual Resources, most of the comments relate to ambiguous determination of the Visual Inventory Classes and the Visual Resource Management (VRM) classes. Specifically unclear is the sensitivity levels in the inventory and why several VRM classes were expanded from Alternative A to Alternative D (Sheep Mountain Anticline). Other comments related to clarification of direct and indirect effects as well as the proper use of “would” and “could”.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

Page 2-97, Record 5020 mentions avoiding surface disturbing activities and ROW authorizations in view within 5 miles of important cultural sites where integrity of setting is a contributing element of NRHP significance (Alternative B). Alternative D mentions a three-mile buffer. It seems that mitigation measures described in Appendix L could go a long way to mitigating impacts of surface disturbing activities within these three- to five-mile buffers. Stipulating significant restrictions in these buffers could potentially remove a 78 square mile (five-mile buffer) and 28 square mile area (three-mile buffer) from surface disturbing activities for a single cultural site. This seems overly restrictive to the LGCA.

The management prescriptions under Alternative D, as outlined in Record # 5020, 5022, and 5023 (pp. 2-97 and 2-98), use the word “avoid.” The common legal definition of “avoid” is “to make void or of no effect; invalidate.” The average person may be led to the conclusion that surface-disturbing activities are precluded within 3 miles of important cultural sites throughout the Planning Area. Rather, it should be interpreted “as a term used to address mitigation of some activity” consistent with the definition provided in the Draft RMP and DEIS (p. Glossary-4). Although the use of the word “avoid” seems a poor choice,

given the definition provided in the Draft RMP and DEIS it seems reasonable to include "(see Glossary)" following "avoid" in each of the Record #s referenced above.

This language would require mitigation of visual impacts for projects that impact the integrity of the subject cultural site or historic trails within the buffer but if the project does not impact the visual integrity of the subject cultural site or feature (is not within view of the site even though it is within the buffer), no mitigation would be necessary. According to the Wyoming State Historic Preservation Office (SHPO), the intact portions of the Bridger Trail comprise less than 15% of the length of the trail across the planning area as shown on BLM maps. The BLM should publish in the DEIS the known intact portions of the Bridger Trail as documented by Wyoming SHPO.

Page 2-97, Record 5021 describes an NSO for leasable minerals within 3 miles and a CSU stipulation within 5 miles of important cultural sites for Alternative B. For Alternative D, the buffer would be 3 miles to protect the visual integrity of important cultural sites. Again, the mitigation measures described in Appendix L and others described under 5.0 mitigation measures could reduce or eliminate impacts associated with surface disturbing activities.

Page 2-97, Records 5020 and 5021. Mike Beis, BLM cultural specialist, and the SHPO representative in the February, 2010 meetings in Cody said they have indentified up to 500 cultural sites that deserve protection. If 500 sites need to be protected by these three- and five-mile buffers, thousands of acres of land within the planning area could be removed from potential development. This concerns the LGCA immensely.

3.5.1.1 Identified Cultural Resources

This section, as well as others, includes brief descriptions of historic trails in the planning area. The LGCA feels strongly that only identifiable intact portions of these trails should be protected as cultural resources. In areas where the trails cannot be identified, no protection of these trails is warranted. As noted above, the DEIS should include a map of known intact portions of the trail as documented by Wyoming SHPO.

3.5.3 Visual Resources

Page 3-136, paragraph 2 – Explain how sensitivity levels were determined.

Page 3-136, 3rd paragraph – It would be helpful to the reader if a table or diagram was provided to show how inventory classes are determined. For example, a Scenic Class A rating and a Low sensitivity rating results in a ___ Scenic Class.

Page 3-136 – Explain why foreground and background are lumped into one distance category (Foreground/Middleground). Seems the scenic class would be different for each distance zone.

Table 3-35 - Table footnote 1 in the Foreground/Middle Ground cell is mislabeled. Footnote one refers to scenic classes on the previous page. Suggest including a footnote on Foreground/Middle Ground that

would describe the distance zones for each. For example, foreground would be 0-1/4 mile from a travel route and middleground would be ¼ - 2-3 miles. Also visibility should be verified at the project level. This also could be considered a mitigation measure included later in the document.

Page 3-136, paragraph 2 – Explain how sensitivity levels were determined.

Page 3-136, 3rd paragraph – It would be helpful to the reader if a table or diagram was provided to show how inventory classes are determined. For example, a Scenic Class A rating and a Low sensitivity rating results in a ___ Scenic Class.

Page 3-136 – Explain why foreground and background are lumped into one distance category (Foreground/Middleground). Seems the scenic class would be different for each distance zone.

Table 3-35 - Table footnote 1 in the Foreground/Middle Ground cell is mislabeled. Footnote one refers to scenic classes on the previous page. Suggest including a footnote on Foreground/Middle Ground that would describe the distance zones for each. For example, foreground would be 0-1/4 mile from a travel route and middleground would be ¼ - 2-3 miles. Also visibility should be verified at the project level. This also could be considered a mitigation measure included later in the document.

Page 3-139 – Explain how the VRM Classes in Table 3-36 was determined or what they are based on. The Source at the bottom of the Table only says "BLM 2009a" which is the GIS data base. Are these classes based on the existing RMP?

Page 3-139 – Cite the "policy direction for renewable energy production on public lands" mentioned in the last paragraph.

4. Environmental Consequences

4.5.1.1 Methods and Assumptions

The following text is from page 4-262:

> Existing Planning Area plans considered the maintenance of a ¼-mile-wide buffer zone adequate protection in most site situations, and the occasional application of a 5-mile-wide buffer zone a generous allowance that would protect the viewshed of the resource. However, with the introduction of new technologies, particularly wind turbines that are often grouped into wind farms, these distances do not always protect the significant values of a resource. Because the historic preservation community has begun placing more emphasis on setting as the initial aspect of integrity for a NRHP-eligible cultural resource, management must approach the application of viewshed criteria with flexibility, and account for the distance from the resource and the type of intrusion when determining the impact. On a case-by-case basis, and as appropriate for some projects, project decisions account for the importance of viewshed in a resource's eligibility and the distance necessary to protect its NRHP significance.

The LGCA is concerned about the nebulous nature of "setting" of a NRHP-eligible cultural site with respect to viewshed criteria. It is implied in the above text that a five-mile viewshed buffer might not be sufficient on a case-by-case basis if the development were a wind farm. There needs to be more explicit

direction from the BLM in the plan with respect to buffers for protecting the setting of NRHP-eligible cultural resources.

The BLM is required, through the implementing regulations of the National Historic Preservation Act (36 CFR 800), to assess potential adverse effects to historic properties. In the case that adverse impacts are identified it is reasonable to expect that the BLM reasonably mitigate effects. Mitigation should not be used as a means to preclude development within the Planning Area. The application of best management practices as outlined in Appendix L are appropriate measures that can, and should be employed to protect cultural resources.

4.5.1.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

Page 4-265, 2nd paragraph – Clarify if limiting motorized use to designated roads and trails allows for dispersed camping and game retrieval off of roads.

Page 4-264 – The text of the document states:

> A number of management actions are common to all alternatives. These fall into several categories. Reactive actions include the investigation of all alleged violations of the Archeological Resources Protection Act; emergency site stabilization and long-term protection projects on important sites as appropriate….

Again, the BLM and SHPO have stated in meetings that there may be 500 important cultural sites that need protected under the buffers proposed in Alternatives B and D. It should be noted that management of cultural resources for setting is only intended to apply to those properties where setting is an important aspect of the integrity of the site. As noted in the comments from the State Historic Preservation Office the majority of cultural resources (approximately 98%) recorded in the Planning Area are archaeological in nature and thus the integrity of setting is not an issue of importance. In fact, less than 1% of cultural resource properties in the Planning Area meet the criteria for the management of setting.

4.5.3 Visual Resources

Page 4-283, 2nd paragraph under Visual Resources - The discussion about direct and indirect effects does not match the definition of direct and indirect effects on Page 4-1. Suggest that indirect effects for visual resources would be related to recreation use and economics as a result of diminished scenic quality.

4.5.3.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

Page 4-286 - The effects analysis is written as if the impacts "would" occur as opposed to "could occur" if development were to take place. This may be a clarification needed for all resource effects.

Alternative A

Page 4-288, Last sentence before Table 4-12 - Clarify why "applying VRM that is incompatible …with an area's visual values…would eventually alter these areas toward a higher visual inventory class." The visual inventory class is determined using the scenic quality rating (Classes A, B, and C) and the visual sensitivity level. The Forest Service visual inventory process uses inherent scenic attractiveness (Class A, B, and C) instead of scenic quality and it would not change as a result of management allocations or management actions.

Alternative D

Table 4-11 and Map 41: As an example of the concern raised on Page 3-139, why was the Sheep Mountain Anticline VRM Class expanded from Alternative A to Alternative D?

Mitigations – Heritage Resources

1. The BLM shall use mitigation measures based on professional opinion and established methods in the place of more restrictive buffers described under Alternatives B and D. In addition to mitigation measures described in Appendix L, a training program shall be instituted for workers involved in surface disturbing activities, thus reducing the potential for impacting cultural resources. Workers will be educated with respect to the consequences of unauthorized collection or destruction of artifacts, as well as the protocol for reporting cultural material identified in the field.
   a) During all phases of any project, the BLM will instruct permittees and their employees to keep equipment and vehicles within the limits of the initially disturbed areas to the maximum extent possible.
   b) If cultural resources are discovered at any time during construction on lands with tribal or federal surface ownership, all construction activities will cease and the BLM will be immediately notified. Prior to the initiation of work in a permitted area, the BLM will ensure that detailed instructions and training is provided to all workers regarding cultural resource discovery and reporting.
2. Segments of national historic trails not selected for special management consideration will continue to be managed as directed in applicable RMPs and other activity plans, and as required by the NHPA and the State Protocol between the Wyoming BLM and the Wyoming SHPO.
3. The BLM will consult with local and state governments and landowners including the LGCA, Wyoming SHPO and the Governor's office with respect to all national historic trail management issues.

Mitigations – Visual Resources

1. With respect to visual inventory classes, the BLM will display in the RMP/EIS an appendix or cite the project file that explains how the visual resource inventory was completed.

2. Regarding Table 3-36 of the RMP/EIS, the BLM will explain the basis and determination of VRM Classes. It is also suggested that indirect effects for visual resources would be related to recreation use and economics as a result of diminished scenic quality.
3. The BLM will include in the RMP/EIS an appendix (or in the project file/administrative record) the process used to determine the Scenic Quality Rating.

6. Conclusion

The LGCA has several concerns with the treatment of cultural resources in the RMP. Most importantly, the LGCA is concerned about three- and five-mile buffers around important cultural resources within which NSO or CSU restrictions would apply under Alternatives B and D. Given that there may be as many as 500 important cultural sites in the planning area; these buffers could potentially preclude activities on thousands and thousands of acres within the planning area. The LGCA believes that mitigation measures in Appendix L of the RMP and additional measures described above can be applied that would protect these resources but still allow surface disturbing activities within the buffer zones.

With respect to visual resources, most of the comments relate to how the Visual Inventory Classes and the Visual Resource Management (VRM) classes were determined; specifically, sensitivity levels in the inventory and why some VRM classes were expanded from Alternative A to Alternative D (Sheep Mountain Anticline). Other comments related to clarification of direct and indirect effects as well as the proper use of “would” and “could.”

14. LAND RESOURCES

14.1 LANDS AND REALTY, RENEWABLE ENERGY, RIGHTS-OF-WAY AND CORRIDORS, AND COMPREHENSIVE TRAVEL AND TRANSPORTATION MANAGEMENT

The LGCA is very sensitive to the changes in access and potential for resource use that are a result of land resource management. Of particular concern in the RMP/EIS is the change in travel restrictions that would limit motorized use from the current management standard of "existing roads and trails" to the proposed "designated roads and trails," which will have a significant adverse impact on energy development, grazing, and recreation uses by stifling access. While the issues that precipitate restrictions in renewable energy development, general ROW, or travel management are covered under the relevant resource sections, the LGCA requests that more information be included in the Land Resources section that cross-references the reasons change is proposed. With expanded descriptions of decisions which effect land resources, a fuller understanding can be reached concerning the variations between alternatives and, ultimately, the future actions undertaken in the Planning Area.

2.4 Management Actions Common to All Alternatives

Land Tenure Adjustments

Page 3-143 states that the small size of scattered parcels can result in increased difficulties in management. Please specify the acreages that correspond to these difficulties in management.

3.6.3 Rights-of-Way and Corridors

The RMP/EIS asserts that 'If the current rate of development continues and current management remains in place, designated ROW corridors should adequately meet future needs over the next 10 to 20 years.' Please provide supporting information for this statement, and assess the percentage of current ROW corridor capacity in use.

Please reference the source of oil and gas production estimates, assumptions concerning their distribution, and include provisions should activity data from these sources change.

Please provide supporting information for the assertion that demand for public land for access roads and electrical or pipeline ROWs will remain moderate over 10-20 years.

As noted previously in the Mineral Resources comment section, and in the Socioeconomic Resources comment section which follows later in this document, the LGCA strongly objects to the lack of disclosure, description, and analysis in the RFD and RMP/EIS of unconventional oil and gas play potential in the Mowry Shale Formation of the Bighorn Basin. Therefore, the LGCA is asserting that the BLM must update the RFD to reflect Mowry Shale potential in the Bighorn Basin. Following the update, the BLM must incorporate the updated data into the Final EIS and analyze the increased potential across all necessary resource areas. Please see the Mineral and Socioeconomic Resources section for more detailed comments and analysis of Mowry Shale potential in the Bighorn Basin.

Given the potential of the Mowry Shale Formation and EOR and unconventional gas plays elsewhere in the Bighorn Basin, the proposed ROWs in Alternative D will not allow for necessary infrastructure to develop and produce these important resources. Upon comparison of Alternative A and Alternative D ROW corridors, it was discovered that a large majority of the corridors in Alternative A are removed in Alternative D. Certain oil and gas management areas (intensely developed oil fields) were no longer being served by ROW corridors. This results in an inability to expand operations and apply new extraction techniques, such as EOR. Appropriately, as public servants with the best interest of the citizenry in mind, the LGCA has designed and developed an Alternative D ROW corridors GIS polygon and accompanying map (Map 9) and GIS shapefile. Energy producers in the Bighorn Basin met with the LGCA to discuss their needs for ROW corridors. Being able to provide corridors for CO_2 pipelines into oil and gas management areas and additional space in ROW corridors for removal and transportation of oil and gas is a necessity for energy producers. The proposed ROW corridors would allow for EOR and unconventional gas plays in the Bighorn Basin. Access to oil and gas previously unattainable is not only prudent in meeting the nation's energy demands, but will provide economic and employment benefits to the Bighorn Basin, Wyoming, and the U.S.

The LGCA began with the Alternative D ROW corridors as a base for development of additional corridors. Utilizing the Wyoming Pipeline Authority data for existing pipelines, the LGCA added ROW corridors based on existing infrastructure. WSAs, ACECs, sage grouse leks and core areas, and raptor nests contained within the Alternative D ROW avoidance and exclusion areas when developing the additional corridors were also taken into account. The result is ROW corridors that will feed most of the oil and gas management areas, allowing for continued development of presently developed oil and gas fields. The final proposed ROW corridors file was dissolved to remove any overlaps of ROW corridor junctions for accurate acreage calculations.

Management Challenges

3.6.4 Comprehensive Travel and Transportation Management

The RMP/EIS states that there are two fundamental tasks associated with comprehensive travel and transportation management. Both of these tasks require an accurate inventory of the existing transportation network. Please ensure that spatial inventories of the transportation network in the Planning Area accurately reflect current conditions prior to making decisions that would affect comprehensive travel and transportation management.

Motorized Vehicle Use in the Planning Area

Travel Management Areas

Page 3-156 briefly describes five travel management plans that are currently implemented. Please include a more detailed description of these existing travel management plans, including their location, extent, goals, range of designations, and resource issues driving those designations.

4.6.1 Lands and Realty

4.6.1.1 Methods and Assumptions

Include reference citations for the assertion that land tenure adjustments and land use authorizations will increase over the life of the plan.

Include more information about the metrics used in determining the priority or urgency associated with acquisitions benefiting varied resource programs.

Include reference citations for the assertion that the number of land use authorizations will increase over the life of the plan.

Include more information about the process of determining mineral development potential prior to a potential land disposal.

Define 'voluntary approaches' used to increase access to lands.

Include reference citations for the assertion that consolidation of public lands would decrease the cost of public land administration in the Planning Area and enhance efficiency in management of the remaining public lands.

Provide a description of the types of special designations that may qualify an acquisition area for a higher or lower priority.

4.6.1.3 Detailed Analysis of Alternatives

Please detail or reference the resource issues that drive differences in impacts between alternatives. Throughout the lands resource section of the RMP/EIS, effects from land designations on the operation of the lands and realty, renewable energy, rights-of-way, and comprehensive travel and transportation management resource areas. However, the resource issues that have precipitated those land designations are often not discussed in sufficient detail. In order to fully understand the implications of difference between alternatives for the land resources section of the document, more information must be included.

Impacts Common to All Alternatives

Land Tenure Adjustments

Please clarify the methods used to identify parcels available for disposal. Areas considered for disposal due to difficulties in management but retained due to other resource concerns should be detailed under each alternative. For example, under Alternative D, 4,633 acres of BLM ownership in parcels of 160 acres or less are not considered for disposal under zones 1C, 2, 2A, 2B, or W.

Withdrawals, Classifications, and Segregations

Please detail or reference the resource issues that drive differences in withdrawals, classifications, and segregations between each alternative.

4.6.2.1 Methods and Assumptions

Please include reference citations for the assertion that wind energy is the most likely type of renewable energy to be developed in the Planning Area.

Please include reference citations for the assertion that wind energy demand and development is expected to increase during the life of the plan.

Please include reference citations for the assertion that increased development of wind energy turbines would increase the demand for ROW authorizations for transmission lines.

4.6.2.3 Detailed Analysis of Alternatives

Please detail or reference the resource issues that drive differences in management that limits or prohibits renewable energy development between each alternative.

4.6.3 Rights-of-Way and Corridors

4.6.3.1 Methods and Assumptions

Please include reference citations for the assertion that ROW grants will be directly proportional to the development of other resources and resource uses in the Planning Area.

Please include reference citations for the assertion that companies would focus first on the maintenance and upgrading of existing lines before undertaking new construction of major utility lines in the Planning Area.

Please include reference citations for the assertion that if the current rate of ROW development continues designated corridors should adequately meet future needs over the life of the plan.

4.6.3.2 Summary of Impacts by Alternative

The RMP/EIS states that, overall, Alternative C has the lowest level of constraints applied to ROW authorizations. The RMP/EIS also states that Alternative A includes the fewest combined avoidance/mitigation and exclusion areas, as well as the most area of ROW corridors. These two factors would indicate that Alternative A has lowest level of constraints applied to ROW authorizations. Please clarify these apparently contradictory statements.

4.6.3.3 Detailed Analysis of Alternatives

Please detail or reference the resource issues that drive differences in management that limits or prohibits ROW corridors between each alternative. The process for identifying areas of designated ROW corridor is unclear. Please provide information concerning the process of designating ROW corridors.

Please include discussion of the differences in ROW acquisition between designated ROW corridors, avoidance/mitigation areas, and areas with neither designation. The impact of expansion of avoidance/mitigation areas and reduction of designated ROW corridors on ROW applicants is unclear.

4.6.4 Comprehensive Travel and Transportation Management

The first paragraph on page 4-321 of the RMP/EIS states the impacts from changes in travel management to individual resources will not be discussed within the travel management section, rather in individual resources sections. The BLM must include a discussion of impacts to resources emanating from a change in travel management designations. To be required of the reader to parse through all the resource sections to discover adverse resource impacts due to travel management changes is confusing. The BLM shall provide rationale for each GIS polygon disclosing a change in designation from "limited to existing roads and trails" to "limited to designated roads and trails." Furthermore, the BLM shall inventory all constructed and user-defined roads and trails, including two-tracks, using the most recent color and infrared NAIP aerial photography and ground-truthing methods when necessary.

The BLM shall also, utilizing current GIS datasets and ground-truthing methods, identify all infrastructure that requires motorized vehicle access for maintenance purposes before implementing a designation change from "limited to existing roads and trails" to "limited to designated roads and trails." The BLM will provide access routes necessary for all infrastructure identified from the inventories. The BLM will incorporate the LGCA stakeholder review data for roads, fences, range improvements, etc. that were identified and recorded during the LGCA LWC Inventory process. Stakeholder review data provided by the LGCA will be accompanied by signed affidavits as to the existence of structures.

4.6.4.1 Methods and Assumptions

Please include reference citations for the assertion that demand for new rights-of-way or access is expected to decrease.

4.6.4.3 Detailed Analysis of Alternatives

Please detail or reference the resource issues that drive differences in travel management between each alternative. Inclusion of this information would be appropriate in Table R-1 as well.

5. Mitigations

1. The BLM shall ensure that spatial inventories of the transportation network in the Planning Area accurately reflect current conditions in the Final RMP/EIS.
2. In the Final RMP/EIS, the BLM shall include a more detailed description of the existing travel management plans.
3. In the Final RMP/EIS, the BLM shall detail the resource issues that drive differences in impact between alternatives for Lands and Realty, Renewable Energy, Rights-of Way and Corridors, and Comprehensive Travel and Transportation Management. If the detailed information is included elsewhere in the RMP/EIS, a reference to that location would be sufficient.
4. In the Final RMP/EIS, the BLM shall assess the percentage of ROW corridor capacity that is currently in use, and use that information to revise ROW corridor designations for all alternatives.

5. In the Final RMP/EIS, the BLM shall provide description of the methods used to designate ROW corridors, and detail the differences between alternatives.
6. In the Final RMP/EIS, the BLM shall provide discussion of the differences ROW acquisition between designated ROW corridors, avoidance/mitigation areas, and areas with neither designation.
7. In the Final RMP/EIS, the BLM shall clarify the assertion that Alternative C includes the lowest level of restrictions on ROW authorization, and revise if applicable.

14.2 LANDS WITH WILDERNESS CHARACTERISTICS

Section 201 of FLPMA directs the BLM to inventory for LWCs. Prior to the Bighorn Basin RMP/EIS revision, the Cody and Worland Field Offices of the BLM inventoried for LWCs. When reviewed by the LGCA, skepticism arose about the wilderness characteristics contained within these areas. Given the vast local knowledge of these areas, it was apparent that LWC designations overlapped areas with known roads and structures. Therefore, the LGCA decided to conduct a Confirmation Inventory of LWCs (Appendix A).

The LGCA inventory utilized BLM GIS data for roads, range improvements, oil and gas fields, and data from other agencies such as the Wyoming Pipeline Authority and the Wyoming Oil and Gas Commission to inventory structures within the BLM-defined LWCs that detract from wilderness characteristics. During the analysis it became evident that the BLM ignored their data and other readily available data sources for structures when designating LWCs. This is further supported by objections to the LWC designations from BLM resource specialists that were documented on signature sheets and refuted during the designation process.

The LGCA LWC Inventory found that almost 20% of the 3.2 million acres of BLM lands in the Bighorn Basin were erroneously identified as having wilderness characteristics. In this area, the BLM has identified 56 areas comprising a total of 571,000 acres. Within this area there are 634 miles of roads, of which 518 miles are two-track, 442 reservoirs, 296 miles of fence, 569,273 acres of active allotments, 154 range improvements, 10 miles of water pipeline, 17 water wells, eight oil fields, 68 miles of oil and gas pipeline, eight active oil and gas wells, and 59 plugged and abandoned oil and gas wells (248,315 acres (43%) have oil and gas leases). Following the release of the BLM's inventory findings, the LGCA conducted a local stakeholder review. Additional features detracting from wilderness characteristics were identified during the stakeholder review. Based on both the BLM and LGCA inventory processes, the LGCA does not support the BLM's designated LWCs in the Planning Area. In addition, the LGCA has stated that the BLM shall initiate a new inventory process and postpone indefinitely the management of LWCs until a comprehensive and objective inventory is completed.

In review of the LWC Inventory conducted by the BLM, the LGCA sought guidance from BLM Manuals 6301, 6302, and 6303, as well as U.S. Department of Interior (USDI) Secretarial Order 3310. The preceding provide direction and guidance to the BLM in inventorying, considering, and designating LWCs and Wild Lands. Due to congressional action, Secretarial Order 3310 was rescinded by USDI

Secretary Ken Salazar on June 1, 2011. Additionally, following the LGCA inventory review and confirmation process, and during the RMP/EIS comment period, Instruction Memorandum (IM) 2011-154 was issued by the BLM on July 26, 2011. IM 2011-154 places into abeyance 6301, 6302, and 6303 "until further notice." The IM has an expiration date of September 30, 2012. Abeyance of the three manuals and Secretarial Order 3310 do not affect, in any manner, the LWC confirmation inventory completed by the LGCA, nor future participation in the LWC inventory process by local governments.

Relevant Regulatory Guidelines

The BLM Manual 6301 – Wilderness Characteristics Inventory (Public) provides the BLM guidance for inventorying LWCs. Upon detailed review of BLM Manual 6301, prior to review of the BLM LWC Inventory and subsequent confirmation inventory of LWCs performed by the LGCA, it is apparent that the BLM did not follow Manual 6301procedural guidelines when conducting the inventory. The LGCA believes that the lack of confirmation of procedural guidelines has led the BLM to publically release an inaccurate LWC inventory, leading to erroneous LWC designations.

The BLM Cody Field Office did not produce maps of the inventoried LWCs. Section 1, Subsection 13, Part A, Subpart 2a, on page 6 of BLM Manual 6301 requires the BLM to produces a map of each LWC by stating: "a map of sufficient detail to determine specific boundaries of the area in question." The Manual refers to this as a minimum standard in the inventory. The Cody Field Office is in direct violation of this section of BLM Manual 6301.

The BLM proposed multiple LWCs of roaded areas less than 5,000 acres in size. Section 1, Subsection 14, Part B, Subpart 1, on page 8 of BLM Manual 6301, discusses the size requirements of LWCs. Determination of the size criteria requirements is two-parted: 1) a roadless area of 5,000 contiguous BLM acres or 2) a roadless area of less than 5,000 acres if it is contiguous with lands such as wilderness, WSAs, etc. Some of the multiple BLM LWCs less than 5,000 acres are not adjacent to wilderness or WSAs. The LWCs that are adjacent to WSAs are not contiguous (Appendix A), containing roads separating the boundaries of the LWCs from the WSAs.

Further, the BLM did not inventory for man-made structures within LWCs. The BLM LWC Inventory occasionally refers to roads or structures on their inventory by hand drawing dots on LWC maps or drawing in roads with a highlighter. The BLM GIS library contains complete data sets for roads, range improvements, oil and gas fields, and other structures such as communication towers. It is clear that the BLM ignored their GIS data when preparing the LWC inventory. Other readily available GIS data sets ignored by the BLM are Wyoming Pipeline Authority oil and gas pipelines and Wyoming Oil and Gas Commission data for oil and gas wells. All of these structures are contained, to varying degrees, within all the BLM identified LWCs (Appendix A). Section 1, Subsection 14, Part B, Subpart 2, on page 9 of BLM Manual 6301, discusses naturalness, allowable structures, and cumulative effects of multiple structures on apparent naturalness. The BLM did not document in their inventory the structures that exist

within the LWCs, nor did they document the cumulative effects of those structures on the apparent naturalness of the LWCs. This is a direct violation of the guidance set forth in BLM Manual 6301.

The idea of apparent naturalness versus natural integrity is quite subjective. In particular, the review of human impacts to assess apparent naturalness is subjective in respect to how the "average visitor" is defined. On pages 9 and 10 of BLM Manual 6301 it is stated that apparent naturalness refers to looking natural to the average visitor who is not familiar with the compositions of a natural ecosystem. From a vegetation standpoint, the average visitor from a metropolitan area may not be able to identify noxious weeds, thus an area may appear natural. The average visitor from the rural western United States may be able to identify noxious weeds, knowing that they are not part of a natural ecosystem and thus detracting from the apparent naturalness of an area.

A wilderness or LWC inventory should be a scientific process that is based on sound, best available scientific data and research. The inventory should not be based on the opinion of the highest ranking member on an interdisciplinary team who determines what is or is not apparent naturalness. Thresholds for the amount of allowable structures in LWCs should be set to create a measureable baseline. For example, a threshold should be established for the number of structures allowed per 1,000 or 5,000 acres. A second threshold may be setting minimum distance criteria between allowable structures. The process should take in account the Wilderness Act, which is quoted in BLM Manual 6301 as:

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

The first sentence of the preceding quote and points one, two, and three are violated on a continual basis in the BLM LWC Inventory as determined by the LGCA LWC Confirmation Inventory (Appendix A).

The definition of a road has the most potential to impact LWC designations. Almost all LWCs contain roads (Appendix A). The classification of a two-track as a road or trail has been a point of contention during the LGCA LWC confirmation process. Barely visible overgrown two-tracks are on the list of allowable structures in BLM Manual 6301. Consequently the BLM does not consider user-defined roads (two-tracks) as roads based on the roads definitions in the glossary of BLM Manual 6301.

Significant research was performed by the LGCA to determine the definitions of a road (Appendix B). Multiple BLM reports concerning travel management and roads terminology are included in Appendix B of this document, including specific examples of two-tracks called roads by the BLM. Other sources of

roads classifications including USGS, Shoshone National Forest (SNF), and Wyoming Department of Transportation were also used in the formulation of a roads definition. According to the LGCA, two-tracks are considered primitive roads by the BLM and other sources. The BLM Manual 6301 definition of a road is in direct contradiction of previously released BLM reports concerning road classifications and terminologies (Appendix B).

A change in jurisdiction should not change the classification of a road. Contradictions in the BLM's own road definitions were found and documented by the LGCA along with differences in land jurisdictions that demonstrate contradictions in road classifications. Figure 13, Figure 14, Figure 15, and Figure 16 depict the Carter Mountain Road within the Carter Mountain LWC and ACEC. The figures demonstrate the same road with different classifications designated by the BLM, SNF, and USGS.

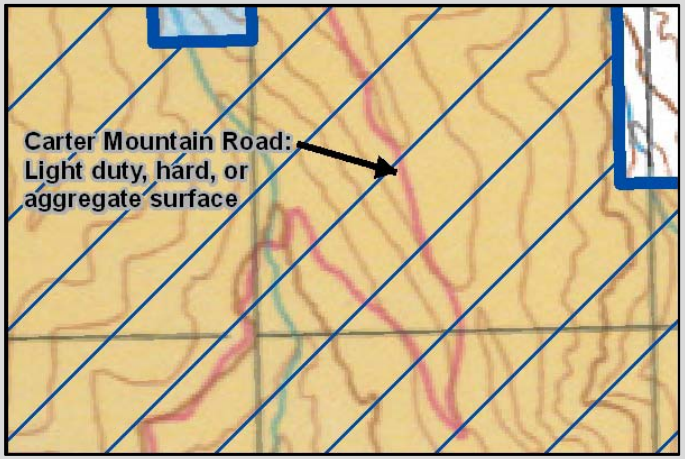

Figure 13 BLM surface management status 100k topographic map

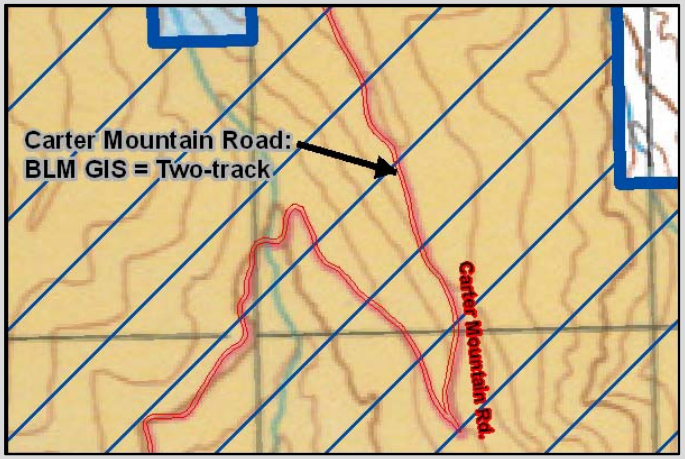

Figure 14 BLM transportation GIS data set

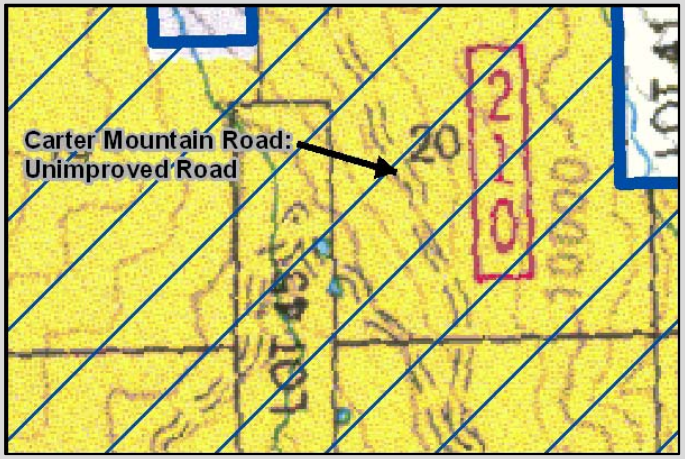

Figure 15 Shoshone National Forest visitor map

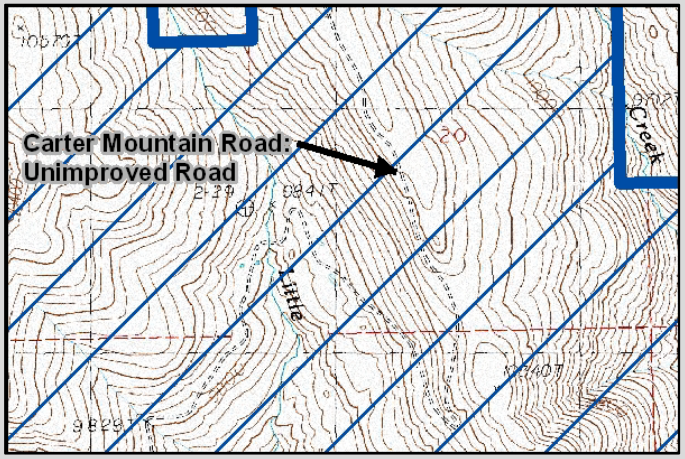

Figure 16 USGS topographic quadrangle

The inconsistencies in road terminology and classifications should require the BLM to adopt a standardized road classification methodology. The BLM Road and Terminology Report contains the most comprehensive attempt at this process. It contains a chart depicting route status levels and terminologies associated.

Figure 17 clearly depicts single track as trails and high clearance (commonly associated with two-tracks) as primitive roads. This terminology should be adapted to the LWC inventory procedures. Therefore, two-tracks would be considered roads in an LWC inventory.

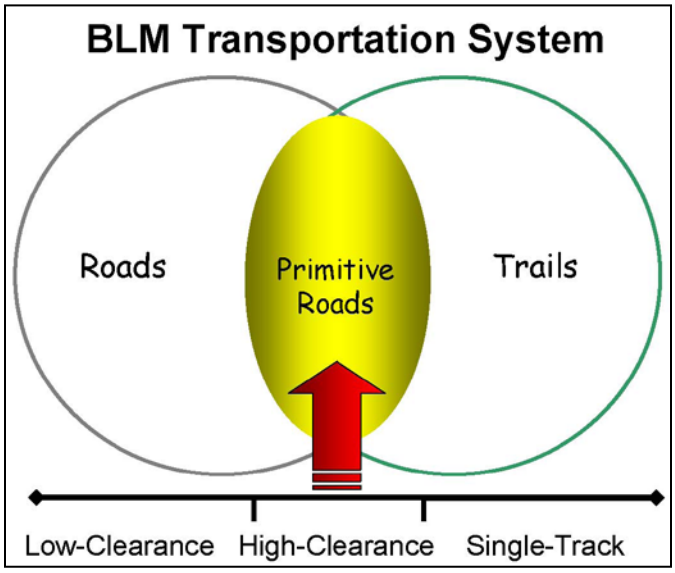

Figure 17 BLM transportation system chart (BLM 2005)

As a result of the comprehensive research on roads classifications, the LGCA has formulated a definition of a road that should be adopted by the BLM. The LGCA, employing direction from the Wilderness Inventory Handbook, asserts that the following definition of a road should be adopted for use in the LWC inventory process:

- A way or route which has been improved and maintained by mechanical means or historical use, as exhibited by a disturbed surface, to insure relatively regular present and future use by highway-legal motor vehicles.

Affected Environment

3.6.6 Lands with Wilderness Characteristics

The last paragraph on page 3-167 of the RMP/EIS, and continued on page 3-168, discusses Secretarial Order 3310. Revision is required in this paragraph by discussing the memorandum released on June 1, 2011 by Secretary of the Interior Ken Salazar, which states that there will be no public funding for Wild Lands. The memorandum directs the BLM to not designate any lands as Wild Lands. Either include the policy changes per the June 1 memorandum or remove all Wild Lands discussion from the entire RMP/EIS.

The second paragraph on page 3-168 of the RMP/EIS states that the inventory processes performed by the BLM is consistent with the process for conducting such inventories and the paragraph describes three points concerning the steps involved in the process. The LWC inventory performed is in conflict with this protocol and this is supported by the fact that the BLM did not inventory for roads and the Cody Field

Office did not produce maps of the LWCs. Please remove these statements unless the inventory is corrected to reflect the guidelines set forth by BLM Manual 6301.

The fourth paragraph on page 4-168 of the RMP/EIS discusses resource values including naturalness, solitude, and primitive recreation. Add the word "apparent" to read "apparent naturalness." The BLM inventory guidelines use "apparent naturalness," not "natural integrity." Further, the BLM does not assess naturalness from a biological, vegetative, or scientific standpoint. The BLM version of naturalness for their wilderness characteristics inventory is essentially defined by whether or not an area looks natural to someone who may not have knowledge of the difference between natural and human-affected ecosystems. This should not be the basis for any land use planning or scientific inventory. In the same paragraph it is stated that some smaller LWCs, less than 5,000 acres, are contiguous with WSAs or are of sufficient size to manage for wilderness characteristics. That is not the case. Most LWCs adjacent to WSAs are separated from the WSAs by a road, making them noncontiguous. Also, several LWCs are less than 1,000 acres, which likely make them unmanageable in size (See Appendix A).

The first paragraph on page 3-174 of the RMP/EIS discusses Wild Land designations. Based on Secretary Salazar's aforementioned memorandum, the BLM must remove any discussion regarding Wild Lands designations. This paragraph also discusses that impairing wilderness characteristics is appropriate within applicable requirements. The BLM must add additional language concerning lawful valid existing oil and gas leases and mining claims and rights to clarify this statement. The last statement of the first paragraph says that valid existing rights may be present in LWCs. The BLM should change "may be" to "are" because 248,243 of the 571,000 acres of LWCs contain oil and gas leases. This does not take into account existing mining claims in LWCs that are open to mineral entry.

Environmental Consequences

4.6.6 Lands with Wilderness Characteristics

The second full paragraph on page 4-355 of the RMP/EIS states "adverse impacts to LWCs occur when natural conditions… are compromised." The BLM shall add "apparent" in front of naturalness and remove the word "conditions."

4.6.6.2 Summary of Impacts by Alternative

The last paragraph on page 4-355 of the RMP/EIS discusses Wild Lands. The BLM shall remove all discussion of designating Wild Lands based on Secretary Salazar's June 1, 2011 memorandum directing the BLM to not designate any lands as Wild Lands.

4.6.6.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

The first paragraph of this section discusses how motorized vehicle use disturbs vegetation and contributes to the spread of noxious weeds, resulting in the degradation of native vegetation and diminishment of wilderness characteristics. That statement is true. However, the BLM guidelines do not reference native vegetation in assessing apparent naturalness for the determination of wilderness characteristics. In fact, the BLM advises against it. The LGCA LWC Inventory did account for noxious weeds and their effects on naturalness in the inventory (Appendix A). It is contradictory for the BLM LWC Inventory to assess naturalness on a non-scientific basis and the RMP/EIS to discuss native vegetation effects on wilderness characteristics. The BLM should correct their LWC inventory and inventory procedures to reflect inventories based on ecological naturalness, not apparent naturalness.

The second paragraph of this section discusses special management prescriptions for Wild Lands. The BLM shall remove all discussion of designating Wild Lands based on Secretary Salazar's June 1, 2011 memorandum directing the BLM to not designate any lands as Wild Lands.

Alternative A

Surface Disturbance

The BLM shall cite the data source and methodology for determining the acres of long-term surface disturbance noted in the first paragraph of this section on page 4-356 of the RMP/EIS.

Alternative B

Surface Disturbance

The BLM shall cite the acreage difference used to calculate the percentage reported for long-term surface disturbance and the data and source of the acreage noted in the first paragraph of this section on page 4-359 of the RMP/EIS.

Alternative C

Surface Disturbance

The BLM shall cite the data source and methodology for determining the acres of long-term surface disturbance noted in the first paragraph of this section on page 4-361 of the RMP/EIS.

Alternative D

Page 4-361 of the RMP/EIS uses the general term "management areas." The BLM shall replace this generic term with the specific names of management areas.

Surface Disturbance

The BLM shall cite the acreage difference used to calculate the percentage reported for long-term surface disturbance noted in the first paragraph on page 4-362 of the RMP/EIS.

Correspondence with the BLM in Response to LWC Inventory Participation

The LGCA is requesting direct involvement in the BLM's re-inventory process of LWCs. The request is based on the following amendment to 43 CFR Part 1610.4-3, which was published on March 23, 2005 in the FR Vol. 70, No. 55 (pg. 14,562):

> *Section 1610.4–3 Inventory Data and Information Collection*
> We revised the first sentence of this section to instruct Field Managers to collaborate with cooperating agencies in arranging for the collection of data and information. Other changes for this section are editorial, and do not affect the substance of this rule. Other than a minor word change (deleting ''participating'' from ''participating cooperating agencies''), this section remains as proposed.

The amended language is as follows (FR Vol. 70, No. 55, pg. 14,566):

> **1610.4-3 Inventory data and information collection.**
> The Field Manager in collaboration with any cooperating agencies, will arrange for resource, environmental, social, economic, and institutional data and information to be collected, or assembled if already available.***

Due to the preceding, the LGCA sent a memorandum to Mr. Hiner of the BLM on June 30, 2011, expressing the need to be involved, as required by law, in the LWC re-inventory process. As noted, the LGCA conducted a LWC inventory in response to the BLM's LWC inventory. Discovered in the LGCA's inventory is that the BLM improperly conducted a LWC inventory that is erroneous, incomplete, and in definite need of revising. Direct involvement of the LGCA in the BLM re-inventory process of LWCs would be a two part process (See Mitigation 1 below for a complete description of the two-part process suggested by the LGCA).

The LGCA asserts that the two-part process would conform to the laws set forth by the FR Vol. 70, No. 55 Section 1610.4-3 from March 23, 2005. All discussions and re-designations shall conform to the BLM LWC inventory guidelines and the Wilderness Act of 1964.

In response to the June 30, 2011 memorandum sent to Mr. Hiner, the LGCA received a response from Karla Bird, BLM Worland Field Office Manager, on August 26, 2011. In summary, Ms. Bird states that a response to the LGCA's request has been delayed due to the Cody and Worland Field Offices seeking advice from the Wyoming and Washington Offices and Solicitors, as the LWC policy is newly emerging. The Cody and Worland Field Offices expect to receive guidance from the aforementioned entities in the coming weeks.

In the interim, Ms. Bird alluded to the LGCA that the LWC inventory process is separate from the RMP project manager's duties (Mr. Hiner). Instead, the inventory of all resources lies with the field managers

and their staff. Therefore, if the LGCA seeks input in the LWC inventory process, such requests should be submitted to either Ms. Bird or Fred McDonald (Cody Field Manager), not Mr. Hiner. Currently, until guidance is provided from the Wyoming and Washington Offices and Solicitors, a final answer to the LGCA request cannot be given. Ms. Bird continues that the BLM is very interested in the LGCA's LWC inventory and BLM field staff is currently reviewing the information as the conduct field work to augment the BLM's LWC inventory. In conclusion, the BLM may in the future provide a demonstration opportunity for the LGCA, as well as the public, to observe how the BLM conducted the LWC inventory. The LGCA is adamant that the BLM will provide such a demonstration as a precursor to direct involvement in the LWC re-inventory process by the local governments as outlined immediately below in Mitigation 1.

Mitigations

1. As cooperating agencies, the LGCA respectfully requests direct involvement in the BLM's re-inventory process of LWCs. The request is based on CEQ 1501.6 (a) 2., FLPMA Section 20, and the Federal Register (FR) Vol. 70, No. 55 from March 23, 2005 that amends 43 Code of Federal Regulations Part 1610.4-3 (pg. 14562):

   > *Section 1610.4–3 Inventory Data and Information Collection*
   > We revised the first sentence of this section to instruct Field Managers to collaborate with cooperating agencies in arranging for the collection of data and information. Other changes for this section are editorial, and do not affect the substance of this rule. Other than a minor word change (deleting ''participating'' from ''participating cooperating agencies''), this section remains as proposed.

   The amended language is as follows (FR Vol. 70, No. 55, pg. 14566):

   > **1610.4-3 Inventory data and information collection.**
   > The Field Manager in collaboration with any cooperating agencies, will arrange for resource, environmental, social, economic, and institutional data and information to be collected, or assembled if already available.***

   Direct involvement of the LGCA in the BLM LWC re-inventory process of will be a two part process. Part one will involve a webinar review between the LGCA and Caleb Hiner (BLM Project Lead) of all 56 LWC GIS polygons to compare the BLM LWC Inventory to the LGCA LWC Inventory. Inclusion of additional BLM specialists designated by Mr. Hiner as essential to this review process will be welcomed. The comparison will consist of a detailed review of all GIS data sets available and the structures found in each LWC. Review discussions will focus on structures found within LWCs that detract from wilderness characteristics. Re-designation of LWCs by the BLM, derived from the review process, will be evaluated in part two of the process.

   Part two will include webinar reviews of the BLM re-designated LWCs with a Bighorn Basin county commissioner and/or conservation district representative from the county in which the LWC is located. The BLM will provide their methodology and cause of re-designation for discussion with the

LGCA representatives. Based on local knowledge and input of the LGCA, the BLM shall be open to further re-designations.

The LGCA asserts that the two-part process would conform to the laws set forth by the Federal Register Vol. 70, No. 55 Section 1610.4-3 from March 23, 2005. All discussions and re-designations shall conform to the BLM LWC inventory guidelines and the Wilderness Act of 1964.

2. In the Final RMP/EIS, the BLM shall assess the percentage of ROW corridor capacity that is currently in use, and use that information to revise ROW corridor designations for all alternatives. The LGCA will provide a map and GIS shapefile of proposed new Alternative D ROW corridors.

14.3 RECREATION

Common throughout the sections addressing Recreation Resources is that statements are made with little or no supporting research or citations. The BLM must address and correct statements advanced in the Recreation Resource discussion prior to any alteration of recreational pursuits in the Planning Area.

3.6.5 Recreation

Special Recreation Management Areas and Extensive Recreation Management Areas

Absaroka Mountain Foothills SRMA – If the goal of the management in this area is for semi-primitive motorized and non-motorized recreation, the RMP/EIS should provide more access in Travel Management designations from "limited to designated roads and trails" to "limited to existing roads and trails" in areas outside special designations such as Wilderness Study Areas and ACECs. This will provide for a more balanced approach to management.

Bighorn River SRMA – Provide the names and numbers of river access sites that are available to the public. Also include whether or not undeveloped access is available.

The last paragraph of this section lists the ERMAs located in the Planning Area. Include the Bighorn Basin ERMA in this list. It is listed in the Alternative D GIS file but not in the Alternative A GIS file. According to Caleb Hiner, BLM RMP Lead, the Bighorn Basin ERMA is all the lands left over after the current designations have been made.

4.6.5.1 Methods and Assumptions

On page 4-332 of the RMP/EIS in the second bullet, there is no citation listed to support the statement. Corrective Action: Please provide a reference that supports the statement "…because of less interest by younger generations, the number of hunters will decrease."

4.6.5.2 Summary of Impacts by Alternative

The last sentence on page 4-332 of the RMP/EIS states:

> Although Alternative D manages less acreage in SRMAs than Alternative A, by managing these areas for the realization of benefits by maintaining the desired RSCC, SRMAs under Alternative D would result in more beneficial impacts to recreation experiences than under Alternative A.

A result in beneficial impacts to recreation is not clarified. Please clarify benefits. Do these changes benefit primitive or motorized recreationists? If primitive recreationists are benefitted by closing roads for example, then motorized recreationists are impacted, not benefitted, and vice versa. Change this sentence to clarify which type of recreation is benefitted or state how both forms of recreation is benefitted.

4.6.5.3 Detailed Analysis of Alternatives

Impacts Common to All Alternatives

On page 4-333 of the RMP/EIS in the first paragraph under Resource Uses, there is no citation listed to support the statement. Please provide a reference to research that supports the second sentence, "The industrialized character…."

On page 4-333 of the RMP/EIS, the last sentence under Resource Uses states that mineral development would cause mostly adverse impacts to recreation. Please discuss the increase in access that may be provided by mineral production and the beneficial impacts to motorized recreation and access.

The last paragraph on page 4-333 of the RMP/EIS under Resource Uses discusses the negative short term impacts of mining on recreation and wildlife. There is no discussion of the long term benefits of reclamation, post mining. Reclamation can provide renewed biodiversity. Reclamation can establish a native and natural setting that is superior, in some cases, to the surrounding landscapes. Please discuss the long term benefits of reclamation to habitat and recreation.

On page 4-334 of the RMP/EIS in the first sentence of the third paragraph, this statement could imply that only non-motorized recreation users are seeking solitude and allowing motorized use "degrades" the setting. Corrective Action: Edit last part of sentence. "…while impairing those recreation users seeking a non-motorized recreation experience" at the end of the sentence.

The fourth paragraph on page 4-334 of the RMP/EIS discusses impacts to recreation due to livestock grazing. It states that on site specific levels, high levels of livestock grazing and range facilities may degrade the recreational experience due to noise, odor, and vegetation impacts. The BLM should not reduce AUMs in these areas unless significant public reports of these impacts occur. The BLM should set a threshold of significant reports to deal with these site specific issues. The paragraph further states that off-road motorized use for livestock support would create new trails causing new conflicts, contrast elements to the scenic characteristics, and would interfere with recreationists' goals, experience, and benefits. The paragraph does not discuss the benefits of new trails to motorized recreationists. Clarify these impacts are to primitive recreationists and further, support the benefits of new trails to motorized recreationists.

The third paragraph on page 4-335 of the RMP/EIS under Resources discusses the impacts of fire to recreation. It states that long term wildland fire impacts may degrade and displace recreation but would also create new recreation opportunities. Please names these new opportunities resulting from wildland fires and cite references documenting these opportunities.

The first paragraph on page 4-336 of the RMP/EIS discusses that the modification of the natural environment in VRM class III and IV may detract from recreational activities for the primitive recreationists. Please add discussion on how these alterations may benefit motorized recreationists from a new road and trail and access perspective.

Alternative A

Special Designations

The last paragraph on page 4-339 of the RMP/EIS discusses how the lack of management prescriptions for LWCs under Alternative A would threaten the natural setting and the opportunities for recreationists seeking solitude. Please reference Appendix A of this comment document to review the LGCA Confirmation Inventory of LWCs. The BLM failed to incorporate man-made structures into their LWC inventory and have designated 571,000 acres as LWCs which contain roads, oil and gas infrastructures, and range improvements. These types of structures are not typically found in Wilderness areas or areas containing wilderness characteristics. The LGCA Confirmation LWC Inventory followed the BLM guidance on the LWC inventory process and used the BLM's own data to refute the LWC designations.

Resources

The first paragraph on page 4-340 of the RMP/EIS discusses the recreational use of the Spirit Mountain cave and the managing of cave and karst resources under the Worland Caves SRMA to provide recreation opportunities. According to Caleb Hiner, BLM RMP Lead, the Worland Caves SRMA location is sensitive information. The LGCA discovered this during a phone conversation with Mr. Hiner in an attempt to gather accurate, complete RMA GIS files. If the location of the Worland Caves SRMA is sensitive information and not divulged to the cooperating agencies, let alone the public, how does this area provide recreational opportunities? This needs to be clarified. If the Worland Caves SRMA is providing recreational opportunities then the location should be divulged and the GIS file provided to the LGCA or if the location is indeed sensitive then the Worland Cave SRMA would not provide for recreational opportunities and the statements should be removed.

The third paragraph on page 4-340 of the RMP/EIS discloses that 30,000 acres will be affected from projected timber harvest. The BLM will cite the source and data for which this information was derived.

Proactive Management

On page 4-341 of the RMP/EIS, Table 4-15 in the first paragraph under RMAs identifies seven SRMAs rather than eight as noted in the text. Corrective Action: Please edit text to the correct number.

On page 4-341 of the RMP/EIS, the second paragraph in the SRMAs section discusses applying NSOs on all or part of the listed SRMAs. The BLM will correct the paragraph by adding discussion of which SRMAs are all NSO and which are partially NSO, as well as list the acres or percentages of NSO for each SRMA.

In the first paragraph on page 4-342 of the RMP/EIS, the last sentence discusses Rattlesnake Ridge health risks from high levels of H_2S gas potential from OHV use in the area. The BLM will cite the data source of this information and what exposure ranges are considered high risk. Also the BLM must discuss the levels of H_2S gas currently in the area.

Alternative B

Surface Disturbance

The first paragraph on page 4-342 of the RMP/EIS states 10,882 acres of long term disturbance. The BLM will cite the data and source of these acres.

Resource Uses

The first paragraph in this section, on page 4-342 of the RMP/EIS, states 5,000 acres of long term projected surface disturbance from mining. The BLM will cite the data and source of these acres.

Special Designations

The first paragraph of this section on page 4-343 of the RMP/EIS discusses the benefits to recreation from designating all LWCs as Wild Lands. The BLM will remove all discussions of Wild Lands based on Secretary Salazar's June 1, 2011 memo. See comments concerning LWCs and Wild Lands in the Common to All Alternatives section of the recreation comments and the Special Designations and Other Management Areas section comments.

Resources

The second paragraph on page 4-345 of the RMP/EIS states a projected timber harvest of 20,000 acres. The BLM will cite the data and source of these acres.

The third paragraph on page 4-345 of the RMP/EIS discusses using vegetation treatments to manage towards 75% Historical Climax Plant Community (HCPC). The BLM will cite the source of why 75% HCPC is desired. Also see vegetation comments concerning this issue.

The fifth paragraph on page 4-345 of the RMP/EIS discusses how impacts of cultural sites are similar to Common to All Alternatives, but to a greater extent. The BLM will rewrite this sentence because the impacts from cultural sites by alternative would not be similar given the buffer for protection of cultural sites varies greatly by alternative.

Alternative C

Surface Disturbance

The first paragraph in this section on page 4-347 of the RMP/EIS states 41,545 acres of long term surface disturbance is projected. The BLM will cite the data and source of this information.

Resource Uses

The first paragraph of this section states 10,000 acres of long term disturbance are projected from mining. The BLM will cite the data and source of this information.

Special Designations

The last paragraph on page 4-348 of the RMP/EIS discusses adverse impacts to local tourism from the lack of WSR designations. The BLM will cite the number of tourists that visited the WSRs and the revenue generated from these tourists. Also cite the anticipated loss of revenue from the tourists that will not visit these river reaches due to loss of WSR designation. If this cannot be quantified, then remove the statement.

Resources

The fourth paragraph of this section on page 4-349 of the RMP/EIS states that there will be 40,000 acres of timber harvest throughout the planning period. The BLM will cite the data and source of this information.

Proactive Management

The first paragraph on page 4-351 of the RMP/EIS discusses an increase in OHV use is expected for the planning area. If so, the BLM will manage for more OHV play areas, so as to reduce user conflicts within areas where solitude is desired.

Alternative D

Surface Disturbance

The first paragraph of this section on page 4-351 of the RMP/EIS states 28,079 acres of long term surface disturbance is projected. The BLM will cite the data and source of this information.

Resource Uses

The first paragraph of this section on page 4-351 of the RMP/EIS discusses mineral entry and mining. Previous sections of Resource Uses states the acres available for mineral entry and long term surface disturbance. This paragraph does not. The BLM will provide those acreages and cite the data and sources of this information.

The third paragraph of this section on page 4-351 of the RMP/EIS discusses the qualitative differences in ROWs between alternatives. The BLM will add acreages to this discussion to quantify the differences.

Special Designations

The first paragraph of this section on page 4-352 of the RMP/EIS states that three new ACECs with recreation values have been added in Alternative D. State the names of them in this paragraph.

The last paragraph of this section on page 4-352 of the RMP/EIS discusses potential benefits from Wild Lands designations to recreation. The BLM will remove all discussions of Wild Lands based on Secretary Salazar's June 1, 2011 memo directing the BLM not to designate any lands as Wild Lands.

Resources

The last paragraph on page 4-352 of the RMP/EIS discusses forest management and silviculture techniques. Previous sections for each alternative have disclosed the amount of projected timber harvest acres. The BLM will disclose timber harvest acres for Alternative D and cite the data and source of the information.

The first paragraph on page 4-353 of the RMP/EIS discusses vegetation treatments managing toward a 65% HCPC. The BLM will cite the data and source for this information. Also see vegetation section for comments regarding this issue.

Proactive Management

The second paragraph under the RMA section on page 4-353 of the RMP/EIS discusses the 12 SRMAs are substantially smaller in Alternative D than A. What is substantially smaller? The BLM will cite the acreage difference.

The first paragraph on page 4-354 of the RMP/EIS states an increase in OHV use is expected for the planning area. If the preceding is true, the BLM will manage for more OHV play areas to reduce user conflicts within areas where solitude and primitive recreation is desired.

Mitigations

1. Absaroka Mountain Foothills SRMA – If the goal of the management in this area is for semi-primitive motorized and non-motorized recreation, the BLM shall provide more access in Travel Management designations from "limited to designated roads and trails" to "limited to existing roads and trails" in areas outside special designations such as WSAs and ACECs. This will provide for a more balanced approach to management.
2. The Recreation sections of this RMP/EIS mentions in several places the Recreation Setting Characteristics Condition (RSCC). It discusses maintaining the RSCC and retaining the RSCC. The document does not describe what the RSCC is for any of the areas where the BLM will be maintaining or retaining the RSCC. The BLM will describe the desired RSCC for all areas in which the RSCC is mentioned and not explained. The BLM will relate the desired RSCC to the mineral constraints or surface occupancy restrictions within each SRMA, ERMA, and RMZ. In addition, the BLM will provide the data and research conducted to rationalize the decisions on surface occupancy restrictions. If the BLM cannot provide the data and research rationale of the surface constraints in relation to the RSCC then they shall not impose those restraints specific to the SRMAs, ERMAs, and RMZs.

3. The Recreation sections state, on more than one occasion, an increase in OHV use is expected for the planning area. The BLM shall manage for more OHV play areas to reduce user conflicts within areas where solitude and primitive recreation is desired.
4. The fourth paragraph on page 4-334 of the RMP/EIS discusses impacts to recreation due to livestock grazing. It states that on site specific levels, high levels of livestock grazing and range facilities may degrade the recreational experience due to noise, odor, and vegetation impacts. The BLM will not reduce AUMs in these areas unless significant public reports of these impacts occur. The BLM should set a threshold of significant reports to deal with these site specific issues.

14.4 LIVESTOCK GRAZING

The plan states that the current AUMs of 305,887 will only be reduced by 1–2% over the life of the Plan. However, according to the Plan, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that "when rangelands are not meeting resource objectives, the BLM implements changes in grazing management." The utilization levels have changed from the last RMP to the current draft yet there is no disclosure of impacts as a result of decreased utilization levels. Specifically for the allotments not meeting or not making acceptable progress towards meeting rangeland health standard where utilization levels have gone from 50% of current year's growth to 35% and from 60% of dormant to 40% of dormant.

There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 – 162) that states management must be consistent with "other resource objectives," but does not disclose which resources or objectives. These other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. If management actions cannot be identified or disclosed that is <u>not</u> "consistent with other resource objectives" then this statement should be removed from all management actions.

2.5 Alternative Summary

Alternative B would essentially destroy the livestock industry in the Big Horn Basin. Alternative A and Alternative C both maintain the culture and economic viability of livestock grazing. A combination of these alternatives should be considered in the final plan.

2.6 Detailed Descriptions of Alternative by Resource (Table 2.5 Detailed Alternatives)

In Table 2-5 Objective LR10.2 provides for the establishment of voluntary reserve common allotments but they are not defined or locatable on any maps. Please provide a definition of reserve common allotments, where they are located, the AUMs available on these allotments, the management actions

associated with these areas, who will qualify to use them, what are the impacts to AUM's and will grazing preference be maintained for these allotments?

Record 6281 of Table 2-5 references Appendix W in Alternative A and carries this management action to Alternative D. However, Appendix W is Utilization Levels which is one component of an AMP. Change Alternative D to Same as Alternative C. This is more appropriate because it ties forage availability to Appendix W.

Record 6283 Alternative D management action is confusing. Is livestock utilization not an appropriate use of produced water because of other resources? Please clarify what other resources would be considered or change the management action to the same as Alternative A.

In Table 2-6 Summary of Environmental Consequences by Alternative it displays impacts to AUMs by closures or surface disturbing activities. There is no disclosure of impacts due to conflicts, inconsistencies or whether livestock grazing is compatible with other resource uses or changes in utilization levels. For example on page 2-80 in Table 2-5 the Sage Grouse Objective BR:9.1 states "Maintain large patches of high quality sagebrush habitats, with emphasis on patches occupied by greater sage-grouse." Is this objective compatible with livestock grazing? With 1.8 million acres identified as key sage-grouse habitat the public needs to know what uses are in conflict, inconsistent or incompatible with livestock grazing in order to understand the impact this objective will have on livestock grazing.

In addition, in Appendix W – Utilization there is a footnote one to Table W-1 which states in part that where extensive wildlife use occurs utilization levels may need to be adjusted downward to ensure that total utilization of current year's growth following the use period of wildlife does not exceed the prescribed level of dormant use. Why is wildlife use being given priority over grazing? What are the impacts of this policy? Additionally, why did the BLM not analyze changing levels of utilization by alternative?

Prior to any reduction in AUMs or adjustments in utilization levels due to wildlife use the RMP should direct the BLM to provide multiple year monitoring data to support the reductions and provide reasonable alternative areas to graze to replace the AUMs lost due to excess wildlife use. No AUMs will be reduced due to excessive wildlife use in areas where wildlife population objectives have been met or exceeded.

3.6.7 Livestock Grazing Management

On page 3-176 it states that "When rangelands are not meeting resource objectives, the BLM implements changes in grazing management." However, the Wyoming Standards for Healthy Rangelands applies to all resource uses on public land, therefore if resource objectives are not being met due to a use other then livestock grazing then that use should be changed, not grazing. This policy could have significant impacts on the lessee because they have no control over other resource uses and cannot adjust their operations nor should they have to because of poor management of other resource uses.

Prior to any changes in grazing management because rangeland objectives are not being met the BLM must provide multiple year monitoring data (3 of 5 years) to document that grazing is the cause. If other resource uses are the cause of rangeland objectives not being met then that resource use will be changed. No changes in grazing management will be implemented as a result of other resources not meeting rangeland standards. Or if the resource has been used to a degree where livestock grazing is not available other reasonable areas will be provided to replace lost AUMs as a result of other resource use.

Table 2-5 Objective LR10.2 provides for the establishment of voluntary reserve common allotments but they are not defined or locatable on any maps. Do these allotments currently exist? Please disclose what a reserve common allotment is, where they are located, how they will be managed, and the AUMs available in these allotments.

Animal Unit Month Allocations

The use of the terms active use, permitted use and authorized use are confusing. Is active and authorized use the same? For long-term planning purposes which use can operators plan on and why is there no mention of grazing preference and those AUM's? Please include a description of these terms, include grazing preference and AUMs held in suspension in the existing conditions so it is clear what is potentially allowed for grazing.

In Appendix P the AUM's in column 7 are labeled Active Use however there should also be a column for Preference which includes active use and use held in suspension. This will disclose the total number of animal unit months on public lands apportioned and attached to base property owned or controlled by a permittee, lessee, or an applicant for a permit or lease.

4.6.7.1 Methods and Assumptions

Despite the fact that livestock grazing has existed in the Big Horn Basin for over 100 years it appears to be the first resource use that gets eliminated or AUMs reduced in favor of other resources (i.e. wildlife, special status species). If these areas are worthy of special designation or listing they most likely evolved with the livestock grazing and therefore grazing should not be penalized due to these designations. Please include the following in methods and assumptions:

"If livestock grazing has historically existed prior to wildlife management areas, special use areas or listing of special status plants or animals then the management for these species or within these areas will not affect livestock grazing allocations."

4.6.7.2 Summary of Impacts by Alternative

The impacts of Alternative B are understated. This alternative would eliminate livestock grazing in the Big Horn Basin to such a level that it would not be sustainable.

4.6.7.3 Detailed Analysis of Alternatives

Special Designations

Range improvements within special designation areas will be approved with mitigations.

Resources

The following paragraph identifies several wildlife areas that will have significant impacts on livestock grazing yet the impacts are not disclosed.

> Wildlife and special status species habitat management would affect livestock grazing by restricting the placement of range improvement projects and potentially affecting the ability to implement grazing management practices. Management of greater sage-grouse habitat, white-tailed prairie dog towns, and the Bighorn River HMP/RAMP and Yellowtail Wildlife Habitat Management Area would affect the location, cost, required mitigation, and design standards and BMPs of range improvements. In addition, the maintenance of sagebrush and understory diversity in crucial seasonal greater sage-grouse habitat may result in an adverse impact by reducing the time livestock could graze in an area, changes in seasons of use, and, in some cases, result in temporary removal of livestock until vegetation treatments are in place. In areas where DPC is being met, current grazing practices would continue and there would be no adverse impacts. Wild horses and livestock generally rely on the same resources, so the appropriate management level (i.e., herd size) of wild horses in the Planning Area may affect forage availability for livestock. The initial appropriate management levels in the two HMAs do not vary across alternatives.

Please provide the AUMs that could be affected due to maintenance of sagebrush and understory diversity in crucial seasonal greater sage-grouse habitat. If DPC is going to be used to regulate livestock grazing please provide the number of acres that have achieved DPC (or not) and the impacts to grazing as a result of DPC.

Wild horse herds will be reduced before livestock when forage availability cannot support both resource uses. See wildlife comments.

Please provide the policy, law, or regulation that allows preferential use by wildlife over livestock.

Proactive Management

Alternatives

The RMP states the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing yet the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. Provide the impacts for management action that limit, reduce, or prohibit AUMs.

Resource Uses

Please provide the data and best available science to support the designation of elk parturition habitat to justify no grazing in these areas.

Proactive Management

Please provide information on reserve common allotments and the environmental consequences they will have on livestock grazing.

4.9 Cumulative Impacts

The cumulative impacts section understates the impacts on livestock grazing for Alternative D because it does not take into consideration other resource uses that are in conflict, inconsistent or incompatible with livestock grazing.

Glossary

Upon review of the glossary definitions of surface disturbing activities, inconsistencies were discovered in the definitions between RMPs. According to Keith Grant and Dan Rice (LGCA members), Mr. Hiner reported that the definitions found within the glossary are policy and are consistent with the definitions of other RMPs. James K. Murkin, Acting Associate Wyoming State Director of the BLM, released Information Bulletin No. WY-2007-029 on September 4, 2007. The Information Bulletin, with the subject line "Guidance for Use of Standardized Surface Use Definitions," is germane to the incorrect definition of "surface disturbing activities" in the Draft RMP/EIS. As a guidance tool based on requests from field managers, Mr. Murkin prepared the bulletin to standardize the definitions of commonly used terms in RMPs and EISs. Clearly, by reviewing the five definitions below, the BLM has failed to implement the Information Bulletin. The following discloses the differences in definitions of surface disturbing activities between RMPs for Rawlins, Casper, Kemmerer, Grass Creek, and Bighorn Basin planning areas.

Rawlins RMP:

> Surface Disturbance: Any action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lot and tanks).

Casper RMP:

> Surface-disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of land surface and vegetation. These activities range from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit, and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction.

Kemmerer RMP:

> Surface-disturbing Activity: An action created through mechanized or mechanical means that would cause soil mixing or result in alteration or removal of soil or vegetation and expose the

> mineral soil to erosive processes. Used in the literal context of actual, physical disturbance and movement or removal of the land surface and vegetation. Examples of surface disturbance include construction of well pads, pits, reservoirs, pipelines, and facilities (e.g., parking lot and tanks).

Grass Creek RMP:

> Surface-Disturbing Activities (or Surface Disturbance): The physical disturbance and movement or removal of the land surface and vegetation. It ranges from the very minimal to the maximum types of surface disturbance associated with such things as off-road vehicle travel or use of mechanized, rubber-tired, or tracked equipment and vehicles; some timber cutting and forest silvicultural practices; excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction.

Bighorn Basin RMP Revision:

> Surface-Disturbing Activities: These are Public Land resource uses/activities that disturb the endemic vegetation, surface geologic features, and/or surface/near surface soil resources beyond ambient site conditions. Examples of surface-disturbing activities include: construction of well pads and roads, pits and reservoirs, pipelines and power lines, and most types of vegetation treatments (e.g., prescribed fire, etc.). NOTE: Some resource uses, commodity production and other actions that remove vegetative growth, geologic materials, or soils (e.g., livestock grazing, wildlife browsing, timber harvesting, sand and gravel pits, etc.) are allowed, and in some instances formally authorized, on the Public Lands. When utilized as a land use restriction (e.g., No Surface Disturbing Activities), this phrase prohibits all resource use or activity, except those uses and activities that are specifically authorized, likely to disturb the endemic vegetation, surface geologic features, and surface/near surface soils.

Review of the preceding definitions revealed that only the Draft Bighorn Basin RMP is considering livestock grazing, wildlife browsing, and surface fire disturbance activities. This inclusion is inconsistent with other surface disturbing activities RMP glossary definitions. Surface disturbing activities should be limited to mechanical means, especially when there is a change in soil composition. This would remain consistent with other RMP definitions. The BLM must remove livestock grazing, wildlife browsing, and fire from the definition of surface disturbing activities to remain consistent with other RMP definitions.

The Grass Creek RMP definition is very clear and should be used in the Big Horn Basin RMP. It does not consider livestock grazing and wildlife browsing as surface disturbing activities as is implied in the Big Horn Basin Draft RMP definition. The implication in the definition that unless “authorized” grazing and wildlife browsing is considered surface disturbing needs to be supported by some research or the best available science for this determination.

5. Mitigations

1. The BLM must remove footnote 1 from Table W-1 in Appendix W.
2. Prior to any reduction in AUMs or adjustments in utilization levels due to wildlife use the BLM must provide multiple year monitoring data (3 of 5 years) to support the reductions and provide reasonable

alternative areas to graze to replace the AUMs lost due to wildlife excess use. No AUMs will be reduced due to excessive wildlife use in areas where wildlife population objectives have been met or exceeded.

3. The BLM will provide the impacts to AUM's from decreased utilization levels for allotments not meeting or making acceptable progress towards meeting rangeland health standards.
4. Prior to any changes in grazing management because rangeland objectives are not being met the BLM must provide multiple year monitoring data (3 of 5 years) to document that grazing is the cause. If other resource uses are the cause of rangeland objectives not being met then that resource use will be changed. No changes in grazing management will be implemented as a result of other resources not meeting rangeland standards. Or if the resource has been used to a degree where livestock grazing is not available other reasonable areas will be provided to replace lost AUMs as a result of other resource use.
5. The BLM shall disclose what a reserve common allotment is, where they are located, how they will be managed, and the AUMs available in these allotments.
6. Despite the fact that livestock grazing has existed in the Big Horn Basin for over 100 years it appears to be the first resource use that gets eliminated or AUMs reduced in favor of other resources (i.e. wildlife, special status species). If these areas are worthy of special designation or listing they most likely evolved with the livestock grazing and therefore grazing should not be penalized due to these designations. The BLM shall include the following in methods and assumptions:

   > If livestock grazing has historically existed prior to wildlife management areas, special use areas or listing of special status plants or animals then the management for these species or within these areas will not affect livestock grazing allocations.

7. Range improvements within special designation area will be approved with mitigations by the BLM. Wild horse herds will be reduced before livestock when forage availability cannot support both resource uses. See wildlife comments.
8. The BLM will provide the policy, law, or regulation that allows preferential use by wildlife over livestock.
9. The BLM will provide the impacts for management action that limit, reduce, or prohibit AUMs.
10. As stated by Caleb Hiner (BLM), definitions in RMP glossaries are considered policy. To be consistent, the BLM shall remove livestock grazing from the definition of "surface disturbing activities" in the RMP/EIS.
11. The BLM will remove livestock grazing, wildlife browsing, and fire from the definition of surface disturbing activities to remain consistent with other RMP definitions. This would remain consistent with other RMP definitions used by surrounding district offices (e.g. Casper, Kemmerer, and Rawlins).
12. In support of custom and culture for the Bighorn Basin agricultural operations, the LGCA fully supports continued Grazing Preference as allowable and sustainable for local producers.

6. Conclusion

The plan states that the current AUMs of 305,887 will only be reduced by 1–2% over the life of the Plan. However, according to the Plan, the direct impacts to livestock grazing result from management actions that change AUM allocations or restrict livestock grazing. Yet, the only disclosure of impacts is for surface disturbing activities and closures. There are no direct impacts disclosed under any of the alternatives for management actions that change AUM allocations. There are no impacts disclosed for management actions relating to wildlife habitat, special status species, special designations, etc., although it states that "when rangelands are not meeting resource objectives, the BLM implements changes in grazing management." There are also several areas in the management action Table 2-5 (RMP/EIS pg. 2-160 – 162) that states management must be consistent with "other resource objectives," but does not disclose which resources or objectives. These other resource management actions could have significant impacts to livestock grazing but are not disclosed in the RMP/EIS. These statements should be removed from management actions if the impacts cannot be disclosed.

Alternative B restricts grazing to such an extent that livestock grazing will be unsustainable in the Big Horn Basin. Alternative A and Alternative C both maintain the culture and economic viability of livestock grazing. A combination of these alternatives should be considered in the Final RMP/EIS.

15. SPECIAL DESIGNATIONS AND OTHER MANAGEMENT AREAS

The BLM produced and released a Draft Areas of Critical Environmental Concern (ACEC) Report on February 26, 2010. Although this report was never finalized, the BLM has carried forward a number of the ACECs in the Draft RMP/EIS. These comments are reflective of the LGCA's comments on the draft report as these comments do not appear to have been taken into account to any significant degree during preparation of the RMP/EIS.

Our overarching concern with any ACEC is the fact that this designation focuses on the often undocumented environmental values of an area to the potential detriment of other uses and thus narrows management flexibility. In Appendix F, page F-4, this special ACEC designation appropriately portrays this classification in the same sentence as wilderness study areas, another narrow management classification.

> Unlike other special designations, such as wilderness study areas (WSAs), the designation of an area as an ACEC does not by itself automatically prohibit or restrict other uses in the area (with the exception that a mining plan of operation is required for any proposed mining activity within a designated ACEC). However, to be considered for designation, special management beyond the standard provisions established by the RMP must be required to protect relevant and important qualities (described below).

The LGCA believes that the ACEC designation is one more lost opportunity for the congressionally-mandated multiple use and sustained yield direction for our public lands. The RMP notes in Appendix F (pg. F-4) that the nomination process can be accomplished by the public or by BLM staff. The LGCA believes that any ACEC nomination by the public during the scoping process needs to be weighed against competing and valid arguments to minimize management restrictions including ACECs within the planning area.

The ACEC evaluation process detailed in the Draft ACEC report of February 26, 2010 was not carried forward in the RMP/EIS or in the appendices. Some of the LGCA comments on individual proposed ACECs specifically referred to the evaluation process which determines if the ACECs meet the importance and relevance criteria. The LGCA's concerns regarding this process remain and are summarized below.

However, the negotiated agreement regarding AFMA (coined Alternative D-3 at the time), which allows constrained energy development on 402,690 acres, as well as proposing ACECs within AFMA, is supported by the LGCA. ACECs anywhere else in the Bighorn Basin are not supported by the LGCA, only those within AFMA (See Appendix H for further information regarding AFMA and the negotiated agreement).

The deficiencies in the Draft ACEC report include a lop sided public nomination process that focused more on special interest groups' proposals, without the counterbalance benefit of other local expertise, and the generous use of un-cited and un-quantified assumed environmental values. The frequent,

unnecessary, and subjective use of technical terms attempts to give the appearance of authority and importance but often times without supporting data. As an example of less than meaningful techno-speak, the following paragraph is used as the rationale for determination of "Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change."

> The Trapper-Medicine Lodge area serves as a recharge area for aquifers interbedded within the Paleozoic and Mesozoic section. The sediments dip gently westward at about six degrees in the homocline that is being stripped of its younger sediment by erosion. The resulting configuration is one of broad dipslopes composed of successively older units as one proceeds upstream in various drainages in the area. The Madison aquifer is the source of municipal water for the communities of Worland, Ten Sleep, and Hyattville, and most recently Basin, Greybull, Manderson, and Kirby. The water provides irrigation water for thousands of acres within the Bighorn Basin. This aquifer is vulnerable to adverse change.

While this rationale has the sound and appearance of importance we do not see supporting documentation or citations to allow us to agree with its technical merit to justify the special geologic qualities of the area. Much of the state of Wyoming is a recharge area for many aquifers regardless of the interbedding between geologic formations. Moreover, the Madison Limestone (the aquifer in question) is exposed over a large portion of the entire western side of the Big Horn Mountains and thus received recharge over this large area, not just in the area of the ACEC. It is not clear why the erosional environment makes this area special. Huntoon's (1985) article in the journal *Groundwater*, shows very large areas of Paleozoic aquifers across Wyoming. As County Commissioners and Conservation District Supervisors and staff, the LGCA believes that all municipal and irrigation waters are important. Please elaborate why the dip of the bedding is important for the Spanish Point Karst ACEC. In quantifying the importance of the area, please provide additional information as to why this specific area of the Madison Limestone aquifer is any more vulnerable to adverse change than other aquifers.

The rationale used in the evaluation of relevance and importance criteria for ACECs is too generic and does not include data sets to confirm or deny the four noted importance criteria and the five relevance criteria. Table 1 in the Draft ACEC Report notes many of the key resource issues that are more attractive as a sound bite than as a data-focused decision criteria tool. For example, the justifications include such imprecise terms as "wildlife transition area, important recharge area for the Madison aquifer, fragile and unstable soils". The LGCA believes that these terms should be translated into meaningful quantitative terms and not used to improperly justify environmental resources that should be measurable with standard definitions. The LGCA believes that these evaluations would include US Fish and Wildlife Service or Wyoming Game and Fish approved critical or core wildlife habitats with narrative and spatial definitions, that important aquifer recharge areas are identified by spatial extent, the percent of the total contribution, and that soil definitions conform to Soil Science Society of America definitions and protocols used by certified soil scientists.

The LGCA believes that the evaluations of the ACECs should be backed up with other data sets, especially range data and rangeland health assessments to ensure that areas with long term traditional uses are not portrayed as "pristine or fragile" landscapes. The use of value laden terminology that describes wilderness values contradicts the reality of 100 plus years of use and stewardship in an ecologically resilient landscape.

Chapter 3, in the Draft RMP/EIS needs to provide specific data in the existing condition section to support ACEC designation. The Chapter 3 information on ACECs is not adequate to justify the need for special management nor does it describe the detail noted in the CEQ requirements for the affected environment (Sec. 1502.15 Affected environment. "Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced". The LGCA believes that the ACEC designation is very important and the BLM needs the best data available to make these decisions.

The BLM Planning Handbook notes:

> Designate ACECs and identify goals, standards, and objectives for each area, as well as general management practices and uses, including necessary constraints and mitigation measures (also see BLM Manual 1613). This direction should be specific enough to minimize the need for subsequent ACEC management plans. ACECs must meet the relevance and importance criteria in 43 CFR 1610.7-2(a) and must require special management (43 CFR 1601.0-5(a)) to: a) Protect the area and prevent irreparable damage to resources or natural systems; and, b) Protect life and promote safety in areas where natural hazards exist.

Given the long term history of use of resources in the Bighorn Basin, we have not seen compelling rationale that these areas "require special management" as noted in the special area designation section of the BLM Planning Handbook.

Affected Environment

3.7.1.1 Existing Areas of Critical Environmental Concern

The first paragraph under the Big Cedar Ridge section lacks citations for the fossilized plants found within the area. The BLM will provide citations for the research documenting the fossilized plant communities found, and the rationale for, preservation of these plant communities. This paragraph also states that fossilized plant communities are very rare. The BLM must cite the source that discloses that the plant communities are very rare.

The second paragraph, under the Big Cedar Ridge section, discusses the popular recreational activity of fossil collecting within this ACEC. It seems contradictory that the ACEC is designated to protect the intact fossil record but the public is allowed to collect and remove fossils. The BLM should either protect this area, with substantiated documentation, or remove the ACEC designation to allow for recreational fossil collecting.

The first paragraph under the Red Gulch Dinosaur Tracksite section states that the tracksites are one of only a few found in the world. This is the first of three similar statements. Are the few that are found in the world all in Wyoming? The BLM shall cite the source of this information and identify the other known areas of dinosaur track occurrences in or outside of Wyoming.

The Spanish Point Karst ACEC designation is proclaimed as needed because the area is an important recharge source for the Madison Aquifer. The Madison Aquifer is found beneath eight states in the U.S. and Canada: Montana, North Dakota, Wyoming, South Dakota, Nebraska, Alberta, Saskatchewan, and Manitoba. Limestone, Madison limestone in particular, rims the western flank of the Big Horn Mountains where Spanish Point Karst ACEC is found. Substantiate this ACEC designation by citing research that validates this area as of greater importance than other areas in the Big Horn Mountains with similar geologic and hydrologic settings or remove the ACEC designation.

3.7.1.2 Existing ACECs with Proposed Expansions

The Carter Mountain ACEC designation cites protecting fragile soils and alpine tundra. Why are these soils deemed fragile? Alpine tundra exists throughout the Beartooth Plateau and Absaroka Mountains. What makes this area of tundra more important and deserved of protection than other areas of alpine tundra? Cite the research that delineates these soils as fragile and the research separating the alpine tundra on Carter Mountain as more important than other areas of alpine tundra. The BLM cites the scenic value as well, as elk and mule deer winter ranges, for proposed expansion of the Carter Mountain ACEC. Scenic areas and winter ranges exist throughout the entire Absaroka Front. Cite the research that separates this area of scenic beauty from other beautiful areas on the Absaroka Front. Also, cite the research substantiating that this area of crucial winter range is more important than other crucial winter ranges. If the BLM cannot substantiate the scientific facts presented to expand the Carter Mountain ACEC, then the ACEC designation should be removed.

The Carter Mountain ACEC proposed expansion cites the same fragile soils, alpine tundra, and crucial winter range without any references to validate this information. It also states that raptors, a BLM special status species, and special status species plants are found in the area. There is not a list of raptors or plants, or reference to data to support this claim. Provide the references to this information or remove the ACEC designation.

The Five Springs Falls ACEC designation is based on four nearby endemic rare and sensitive plant species. The plant species are not listed and neither is a data source(s) for this information. Cite the source of the information used in the ACEC designation or remove the ACEC designation.

The Little Mountain ACEC is proposed for expansion in part to protect potential lynx habitat. The area contains six lynx analysis units (LAU), three of which contain very little forested vegetation (2009 NAIP aerial photo review); one of which is an island of forested vegetation surrounded by open sage/grasslands, removing connectivity to other forested areas. The three forested LAUs appear to have multi-storied hare habitat on the northern and eastern aspects indicative of the thick coarse texture of the forest vegetation

disclosed on the 2009 NAIP aerial photos. All forested areas within the LAUs are narrow stringers of forest, not large expansive forested areas typical of potential/suitable lynx habitat. Only 6,821 out of 89,145 acres are in LAUs, half of which are at best questionable. There are no known occurrences of lynx or critical lynx habitat in the Planning Area. Removal of the potential lynx habitat as one criterion for the ACEC expansion nomination must occur by the BLM. The BLM should consider reviewing expansion, only incorporating within the ACEC the curl-leaf mountain mahogany area for protection. Greater sage-grouse habitat and winter range can be found throughout the entire Planning Area, making the remaining motives for this ACEC expansion dubious. The BLM should either provide a solid science-based justification for this expansion or remove the expansion altogether.

3.7.1.3 Proposed ACECs

The Chapman Bench proposed ACEC rationale cites sagebrush habitat used by sensitive bird species and other wildlife. Sage grouse, mountain plover, and long-billed curlew are cited to use the area. The sensitive bird species have evolved over time to thrive in disturbed areas (Beauvais and Smith 2003; Dechant et al. 2002b; Knopf and Wunder 2006; Manning and White 2001). Why protect this area from surface disturbance when the sensitive species in the area thrive on surface disturbance? Remove the NSO and replace the constraint with a TLS for breeding/rearing seasons on Chapman Bench ACEC to allow surface disturbance commensurate with the disturbance regimes needed by these sensitive species. Also, there is no map, data, or references to show where the Audubon Society important bird area actually is located. The BLM must cite this information, as it is a rationale component for designating Chapman Bench an ACEC.

The Rainbow Canyon is proposed for ACEC status due to the Cloverly Formation and scenic badlands. This designation seem arbitrary as there are large areas of badlands in the Bighorn Basin that are scenic, and the Cloverly Formation rims a significant portion of the foothills of the Big Horn Mountains (GIS Bedrock 500K map review). What makes this area outstanding compared to other areas of scenic beauty within the Cloverly Formation along the foothills of the Big Horn Mountains? There is no substantive rationale for this designation and the BLM should remove the proposed ACEC designation.

Rattlesnake Mountain is proposed for ACEC designation by the BLM. Yet, the agency rationale for designation is generalized, without any supporting documentation. Winter ranges occur throughout the Absaroka Front, while elk parturition areas are an out of date concept. Parturition areas are ever changing with the reintroduction of wolves and an expanding grizzly bear population. The cold water fishery of the North Fork of the Shoshone River is misrepresented when considering that no reach of the river flows through the proposed ACEC. Sensitive plants species, cited as a portion of the designation, are not identified. Either cite the research, data, and analysis of these designation rationales or remove the ACEC designation.

As with Rattlesnake Mountain, the criteria disclosed by the BLM for proposing Sheep Mountain as an ACEC is generalized and sans research, data, or analysis citations. Winter ranges are found up and down

the Absaroka Front and parturition areas for elk are an out of date designation. Parturition areas are ever changing with the re-introduction of the wolves and the thriving grizzly bear population. The existence of potential lynx habitat is misleading since there are no LAUs within the area, it is almost completely lacking of forested vegetation, there is no defined lynx habitat, and no critical lynx habitat in the area. Are the visual alignments of the solstice not available in the Rattlesnake Mountain ACEC, which is only 3.5 miles away? Are there not other areas providing visual alignment of the solstice? The BLM shall remove the ACEC designation or properly substantiate the designations with research, data, and analysis.

Mitigations

Prior to issuing a Final RMP/EIS, the BLM should perform the following mitigations for the Special Designations and Other Management Areas section:

1. The BLM will substantiate the Spanish Point Karst ACEC designation by citing research that validates this area as an area of greater importance than other areas of the Big Horn Mountains with similar geologic and hydrologic settings or remove the ACEC designation.
2. If the BLM cannot substantiate the scientific facts presented to designate Carter Mountain as an ACEC, then the designation will be removed by the agency.
3. The Five Springs Falls ACEC designation is based on four nearby endemic rare and sensitive plant species. The plant species are not listed; neither is the data source for the information provided. The BLM shall cite the source of the information used in the ACEC designation or remove the ACEC designation.
4. The BLM will remove the NSO constraint and replace the constraint with a TLS for breeding/rearing seasons on Chapman Bench ACEC to allow surface disturbance commensurate with the disturbance regimes needed by these sensitive species.
5. The Rattlesnake Mountain proposed ACEC designation rationales are generalized without any references to substantiate. The BLM will either cite the research, data, and analysis of the designation rationales or remove the ACEC designation.
6. The Sheep Mountain proposed ACEC is based on generalized rationales sans any research, data, or analysis to corroborate the designation. The BLM shall remove the ACEC designation or properly substantiate the designation with research, data, and analysis for the proposal rationale.

Conclusion

The continuous overarching theme of the ACEC evaluations, Affected Environment, and Environmental Consequences sections is that the rationale for ACEC designations is based on scientific fact and research. However, each proposed ACEC lacks references, data, and analysis to substantiate the claims extended by the BLM. CEQ Section 1502.15 mandates that data and analysis in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply

referenced. Along with ACEC designation, come major management actions or restrictions on multiple uses and resource development. Restrictions on resource development cause major socioeconomic impacts. CEQ Section 1502.15 states less important material are at the least referenced. ACEC designations are far beyond "less important," yet the BLM fails to cite or reference data or analysis for the ACEC designations. The BLM will cite all research, data, and analyses used for the ACEC designations or remove them from potential nomination.

16. SOCIOECONOMICS

The Socioeconomics sections of the RMP/EIS were analyzed in terms of how well the BLM utilized Appendix D of the BLM Land Use Planning Handbook and the adequacy of the data used in the impacts analysis. The following findings guide the analysis of the individual sections:

- The BLM failed to conduct the required economics workshop, which allows the public to "identify desired economic and social conditions" and to "collaborate with BLM staff members to identify opportunities to advance local economies and social goals through planning and policy decisions." This failure has lead to a disconnect between the concerns of the communities of the Planning Area and the BLMs socio-economic analysis.
- The impact analysis does not satisfy Table D-3 of Appendix D. In particular, the impact analysis does not describe or quantify impacts to particular communities (the geographic dispersion of impacts).
- The RMP/EIS lacks adequate data from other resource areas, in particular, mining and grazing. By underestimating potential effects from these areas the BLM and the LGCA are missing an opportunity to develop policies and mitigations should there be an oil and gas boom or a vast reduction in AUMs due to restrictions on land use.

Relevant Regulatory Guidelines

Relevant Items of Appendix D of the BLM Land Use Planning Handbook

Appendix D: Social Science Considerations in Land Use Planning Decisions provides "guidance on integrating social science information into the planning process." Frustration continues from the viewpoint of the LGCA due to the lack of integration of social science during the entire planning process. The BLM held a workshop in October 2008; however, it did not satisfy the requirements listed in Appendix D. A second workshop was requested and scheduled, but later cancelled by the BLM. The BLM has held meetings with the LGCA and welcomed their participation in developing and commenting on the RMP/EIS, but the appropriate level of socio-economic analysis has been lacking. Below are the required elements of the economics strategies workshop, topics to be addressed from Table D-2, and the dimensions of the impacts to be considered from Table D-3. These criteria were used to review the RMP/EIS.

The requirements of the economics strategies workshop are:

1. Imparting skills on analyzing local and regional economic social conditions and trends;
2. Assisting community members to identify desired economic and social conditions; and
3. Collaborating with the BLM staff to identify opportunities to advance local economies and social goals through planning and policy decisions within the authority of the BLM, its cooperating agencies, or other partners (Bureau of Land Management 2005).

An agenda from the Little Snake Office of the BLM has been included (Appendix D of this comment document) as an example of the topics that should be addressed in the economics strategy workshop. An economic strategy workshop allows interested government leaders and the public to engage in a discussion concerning the importance and ranking order of the topics addressed in Table D-2 in the BLM Land Use Planning Handbook. In addition, it provides an opportunity to "advance local economies and social goals," including ranching, oil and gas, and recreation.

Table D-2 in the BLM Land Use Planning Handbook is an essential tool for the socio-economic planning process. It contains 27 topics of socio-economic information. The economics strategies workshop should have provided a forum for the BLM and the local cooperating agencies to review these items and determine together the ranking of these items by level of importance. A copy of this checklist can be found in Appendix E to this comment document. The LGCA previously commented on several of these topics and the BLM provided additional analysis in some of the areas. However, there are a few topics which are not yet adequately addressed. In particular, the communities of place, under social organization and institution, states that "Local and regional population centers relative to planning area effects may differ by community."

Table D-3 in the BLM Land Use Planning Handbook contains seven aspects that are relevant to decision making. The BLM Land Use Planning Handbook states that "a well-crafted impact analysis should describe the aspects listed in Table D-3." The LGCA previously commented on these aspects in the RMP/EIS and the BLM provided additional analysis in some of the areas in the RMP/EIS. However, there are a few aspects which are not yet adequately addressed. The space aspect, for example, indicates that impact analysis should address impacts across multiple geographic scales. In particular, the impact analysis should assess how alternatives will affect individual communities within the Planning Area. However, the RMP/EIS describes impacts across the region as a whole, with no analysis of impacts to individual communities.

2. Resource Management Alternatives

The current alternatives of Chapter 2 contain little socioeconomic information. Section 2.3.7 Socioeconomic Resources in the RMP/EIS states that "None of the alternatives considered and subsequently eliminated from detailed analysis dealt with this resource." However, in Section 2.3 Alternatives Considered but not Carried Forward for Further Analysis, these alternatives include topics such as:

- No new oil and gas leasing
- Emphasize the protection of resources by removing human resources
- Prohibit or exclude wind energy, oil and gas leasing, off-highway vehicle use, and livestock grazing
- Suspend or eliminate all existing federal minerals leasing

Each of these has the potential to affect the local communities. As the alternatives described in this section were not carried forward for detailed analysis the inclusion of these under socioeconomics should not substantially alter the preferred alternative. However, we felt it was important to highlight the lack of effort applied to the topic of socioeconomics.

Table 2-4 in the RMP/EIS Key Terms and Concepts by Resource Area also highlights the lack of socioeconomic consideration. The only term or concept that pertains to socioeconomics is mitigation. This carries the implication that socioeconomics will not be considered until after all other decisions are made and then the effects to the local communities will be mitigated. Socioeconomics should also be listed for the following concepts or terms:

- Cooperation with agencies/government/landowners/stakeholders
- Geothermal
- Livestock grazing
- Migration corridors
- Mineral Leasing/Lease
- Motorized vehicles concepts and terms
- Oil and gas
- Public Access
- Rangeland
- Recreation
- Renewable energy (wind, biomass, solar)
- Timber harvest/firewood (personal use)/poles
- Well (oil and gas)
- Withdrawal
- Wyoming Standards for Health Rangelands

Each of these resource topics has a potential effect of the human communities of the planning area. Alternatives dealing with these concepts should be considered from a socioeconomic viewpoint.

3.8 Socioeconomic Resources

3.8.1 Social Conditions

On page 3-204, this section states that it "concerns the custom, culture, and history of the area as it relates to human settlement, as well as current social conditions." However, the relevant sections simply refer the reader to a different section of the document, the Visual and Cultural Resources section. This referenced section does not contain economic and social history. This information is crucial to understanding the interconnectedness of the communities of the planning area to the lands under BLM management.

Population and Demographics

On page 3-207, this section states that "at the local level, an aging population does not necessarily create substantial problems." This statement does not consider the implications of a smaller portion of the population being of working age. The smaller portion of people working, coupled with the wage disparity between jobs in the mining industries and those in service industries, create a situation in which it is often difficult for employers to find workers at a wage they can pay. This can become a challenge for communities, particularly if the mining industry experiences a boom.

Transient and Seasonal Populations

Transient populations in the oil and gas industry, particularly during boom years, are difficult to quantify. Also, many oil and gas workers live in a population center in one county, but work in another county. This is an important aspect of the population and the analysis would benefit from a more detailed description of these occurrences.

Custom, Culture, and Social Trends

Economic and Social History

On page 3-211, this section refers the reader the Cultural and Visual Resources Section. However, the referenced section contains no history of how the communities in the planning region developed. The role that mining and ranching had in developing and shaping the communities of the communities, and the importance of the multiple-use aspect of public lands, is vital to understanding how the communities are affected by policies of the RMP/EIS. For instance, in part due to revenues obtained from activities on federal lands, Wyoming residents pay no personal, state income tax. In addition, the growing role of recreation and amenity ranches is also important to understand the present conflicts.

Non-Market Economic and Social Values

Multiple-use management of public lands is an essential part of the custom of the region. The additional layers of protection and management of particular areas of BLM lands are a change to this custom that needs to be explained.

3.8.2 Economic Conditions

Economic Activity: Mining, Including Oil and Gas

On page 3-217, this section states that "Because the BLM manages subsurface minerals in excess of the surface lands it administers, its decisions can have a potentially large effect on mining in the Planning Area…From an economic perspective, mining is a key contributor to the economic well-being of the Planning Area and therefore the BLM's management decisions in this area could have a potentially large effect on economic conditions." For this reason, it is imperative that the RMP/EIS adequately describes and quantifies that mining industry.

The communities of the Planning Area value the multiple-use characteristic of the public lands. The majority of their public infrastructure is funded by oil and gas development, but they realize that sustainable use is important to the future recreational enjoyment of the lands. It is important to the LGCA that the costs and benefits of oil and gas exploration and development under each alternative are presented as accurately as possible to decision-makers. In order to accomplish this, economic benefits from oil and gas and costs of stipulations and mitigation should be provided in the highest level of detail possible.

Wyoming's oil and gas industry is the largest contributor to the economic health at all levels, from individual employment to state revenues. It allows the state to retain its outdoor cultural heritage with ranching, recreational opportunities, and vast open spaces. It helps to provide energy security to the entire country.

Economic Activity: Recreation

This section would benefit from data on travel and tourism in Park County that is attributable to Yellowstone National Park. This would help the reader to assess recreation attributable to BLM.

Economic Activity: Livestock Grazing

Table 3-62 on page 3-220 details the trend in the increase in number of farms, accompanied by a decrease in the acres. A narrative describing this trend, subdividing large commercial ranches into small amenity based ranchettes, would help the reader understand the current state of ranching.

There is a large collection of data on the social and economic benefits of the large scale working ranches in the Planning Area. Some of the essential information and data regarding the benefits of ranches, the trend of fragmentation, and the costs of fragmentation are listed below:

Benefits (Ecological, Social, Cultural and Economic)

- "Ranches are said to safeguard rangeland ecosystems services, protect open space, and maintain a unique and cherished American heritage while maintaining local property tax revenue and agricultural economics and cultures (Brunson and Huntsinger 2008, p.137)."

- "Under nineteenth century land disposition policies, more productive and well-watered rangelands were claimed by private landowners, along with critical wildlife habitat. Much evidence exists that under extensive rangeland livestock production these lands have been stewarded reasonably well. Researchers have found that biodiversity levels are higher on private ranch lands than they are on public lands (Synder 2006)."
- "Habitat for 95% of all federally threatened and endangered flora and fauna is on private lands in the United States, and 262 of these species (19%) survive only on private parcels (Brunson and Huntsinger 2008, p.139)."
- In Wyoming, winter range for big game is 56% private land (Coupal 2004, p. 2).
- "The culture of the American West, with its themes of heroic deeds in a larger-than-life landscape and a struggle against adversity both anthropogenic and natural, has relied heavily on images of livestock production (Brunson and Huntsinger 2008, p.140)."
- "This tradition [public lands grazing] has been part of the western North American landscape since the 17th century, and may be considered an element of ranching culture (Brunson and Huntsinger 2008, p.141)."

Fragmentation Trend

- "As many as 45% of US ranches are being sold each decade (Brunson and Huntsinger 2008, p.138)."
- During the period from 1990 to 2001 one-fourth of the large agricultural operations in the Greater Yellowstone Ecosystem were sold (Gosnell et al., 2006, p. 748).
- Only 25% of the ranches sold from 1990 to 2001 in the Greater Yellowstone Ecosystem were sold to traditional ranchers. Amenity buyers bought 44% of the ranches that sold and investors bought 12% (Gosnell et al 2006, p. 749).

Costs of Fragmentation

- "Anecdote and our interviews with public land managers suggest that amenity-oriented owners are more open to changes (especially reductions) in grazing permits (Gosnell et al. 2006, p.751)."
- "Loss of local knowledge should be a concern regarding both public lands and common problems like water and weeds, suggesting the need for efforts to build bridges between new and established landowners (Gosnell et al. 2006, p. 755)."
- "The current transition probably implies a long period of instability in ranchland status and uncertainty about the role ranchlands will play in maintaining the ecological integrity of the Greater Yellowstone Ecosystem (Gosnell et al. 2006, p.756)."

- Natural resource lands within fragmented landscapes are also harder to manage from a logistical as well as a legal standpoint. Prescribed burning and some forms of invasive species control are more difficult when small, unmanaged lands are intermixed with extensive rangelands…Public land conflicts also increase with more people using the lands more frequently (Snyder 2006, p.4)."

An important variable in the viability of ranching in the west is the continuation of federal allotments for livestock grazing. Following is some of the data that exists highlighting the effect of reductions or uncertainty with regard to the future of federal grazing permits:

- "Seventy percent of public land permittees …had adopted a passive, "wait-and-see" management strategy(ies) rather than taking steps to improve viability of their operations (Brunson and Huntsinger 2008, p.141)."
- "It is likely that if federal forage resources are lost, or if land values become high enough, ranchers will sell their private parcels. Further, if neighboring ranches are sold for development, and ranchers experience a loss in local infrastructure and community, they also will be more likely to sell their ranches for development (Snyder 2006, p.3)."

4. Environmental Consequences

The impacts by alternative described in the Environmental Consequences section are based on the data inputs described in Appendix X of the RMP/EIS, Economic Impact Analysis Methodology. Unfortunately, the input data for oil and gas is considered vastly underestimated by the LGCA and those in the oil and gas industry. Also, the ambiguity surrounding the possible reductions in AUMs by alternative has created inaccurate input data and impacts for ranching.

By vastly underestimating the potential output of oil and gas in the Planning Region during the next twenty years, the RMP/EIS fails to accurately capture the impacts on the social and economic resources of the planning region. Table 4-5 and 4-7 of the RMP/EIS provide that projections for oil and gas wells and production during the 20 years of the plan based on the RFD. Alternative C, the highest production alternative, is projected to have 1,257 wells drilled and decreasing production amounts each year of the plan for both oil and gas. An analysis conducted on the 571,278 acres of Lands with Wilderness Characteristics in the BLM's original inventory, indicated the potential for 569 wells. These lands compose 18% of the surface area managed by BLM and 14% of the Federal Mineral Estate acres in the Planning Area. Carrying the potential to the remaining acres, our analysis indicates that the number of potential wells could be as high as 4,064 wells drilled.

On the impact side, according to Table 4-23 of the RMP/EIS, the impacts on annual employment from oil and gas range from 505 jobs to 1,263 jobs. The LWC analysis indicated that the 14% of federal mineral lands have the potential to create 434 jobs annually from drilling and completion of wells (see Appendix C to this comment document - Economic Analysis of Lands with Wilderness Characteristics). If this is

applied to the entire planning region the potential annual employment could be as high as 3,100 annual jobs. This is a vast difference from the RMP/EIS and according to industry experts may still be an underestimation. For further information on the potential of the region see the oil and gas section.

Neither the RFD nor the RMP/EIS analyzes the economic and employment potential of unconventional oil and gas plays in the Mowry Shale Formation of the Bighorn Basin. Additionally, the RMP/EIS does not adequately disclose the constraints associated with resources protections in the Mowry Shale Formation. To accurately assess constraints in the Mowry Shale Formation, the LGCA conducted a risk assessment (Map 1) (see Mineral Resources comments). Further, the LGCA used IMPLAN, an economic input-output model, to determine potential employment and tax revenue from the Mowry Shale Formation over the 20-year life of the RMP. The end product of modeling discloses that the Mowry Shale Formation could generate, depending on the level of constraints, from 1.2 million to 2.3 billion dollars in tax revenues (Table 16) and 632 to 11,499 direct employment opportunities (Table 17) over the estimated 20-year life of the RMP. The data included in Table 16 and Table 17 are estimates. Depending upon the actual volume of minerals in the Mowry Shale Formation, projections below could be lesser or greater.

Table 16 Potential Taxes Generated from the Mowry Shale Formation over the Life of the RMP

RMP/EIS Oil & Gas Constraints	Output	FMR Taxes	Severance Taxes	Ad Valorem Taxes (rate=.07296)	Total Taxes
Standard	$507,132,196	$63,391,525	$26,624,440	$32,375,319	$122,391,284
Moderate	$9,262,171,232	$1,157,771,404	$486,263,990	$591,297,011	$2,235,332,405
Total	$9,769,303,428	$1,221,162,929	$512,888,430	$623,672,331	$2,357,723,689

Table 17 Employment Potential in Leased Acres of the Mowry Shale Formation over the Life of the RMP

RMP/EIS Oil and Gas Constraints	Leased Acres	Potential Wells	Direct Employment			
			Drilling Employment	Complete Employment	Extraction	Total Direct Employment
Standard	53,725	84	311	223	99	632
Moderate	1,077,146	1,683	6,227	4,466	173	10,866
Total	1,130,871	1,767	6,538	4,689	272	11,499

5. Mitigations

1. In order to successfully create an RMP/EIS for the Bighorn Basin, the BLM shall discuss with the LGCA and the public the items on the checklist that are most relevant to the local communities and opportunities to advance local communities through planning and policy.
2. The BLM will ensure that the data used from other resource areas is accurate. The BLM will consider an oil and gas boom scenario (based on new information such as Enhanced Oil Recovery) in the planning region and assist in the development of mitigation measures for oil and gas to follow should a boom occur. In addition, the BLM shall address the issue of the interconnectedness of large

scale ranches and BLM lands and how to mitigate should policies that result in reduction of useful AUMs occur.

3. The BLM will include the social and economic history of the Bighorn Basin, in particular the interconnectedness of communities and public lands. This information is important to assess the social and economic role that the decisions of the BLM have on the communities.
4. The BLM shall complete impact analyses for individual communities within the Planning Area. Each community is socioeconomically unique. Action alternative will have different impacts on individual communities.

6. Conclusion

The public lands managed by the BLM play an integral role in the communities of the Planning Area. An RMP/EIS that will guide the management of these areas is a critical document for these communities. The LGCA and the public should have had the chance to discuss issues with the BLM at the beginning of the process. This would also have allowed the LGCA and BLM to discuss ways to promote economic and social goals of the community through policies of the BLM. The balance between commercial, recreational, and ecosystem uses of the region requires policies and mitigation for resource conflicts that will arise. If the RMP/EIS uses incorrect data to come to the conclusion that there will be little to no impact to the communities, then the chance is missed. Should the RFD be a vast underestimation of the oil and gas potential of the Planning Area, the communities will be faced with boom cycles without adequate planning and mitigation in place. The LGCA view this as the opportunity to address these issues with the BLM and have mitigation measures within the RMP/EIS for oil companies to use as guidelines. Also, if land restrictions under the different alternatives negatively affect ranchers' abilities to use AUMs, and this has been missed in the analysis, then the chance has been missed to develop policies and mitigations in this area as well.

17. CONCLUSION

It is paramount that the BLM address and correct the significant inadequacies highlighted by the LGCA for the RMP/EIS. The intent of the LGCA is to actively collaborate with the BLM as the agency revises the RMP/EIS to address the numerous concerns expressed in the comment document. As representatives of the citizens of the Bighorn Basin and advocates of responsible multiple uses, it is the firm position of the LGCA that the BLM acknowledge that as currently written the RMP/EIS does not provide the level of detail and analysis necessary to make planning decisions for the next 20 years. Unequivocally, the LGCA is eager to work, and collaborate, with the BLM moving forward in the process.

An additional apprehension which the LGCA posits is in regard to the increased level of rules, regulations, and restrictions advanced by the BLM in the RMP/EIS. The LGCA concerns regarding the BLM's ability to administer and manage the array of directives and policy as part of the RMP/EIS suggests that the BLM continue the cooperating agency relationships with the Counties, Conservation Districts, and State agencies. A continuing relationship will allow the LGCA to continue to provide appropriate technical, and in some cases, financial assistance. Since federal budgets for monitoring and implementing projects are anticipated to be constrained in the future, it may be to the interest of all parties to continue to cooperate on future projects.

Weight and priority given to wildlife and vegetative resources at the expense of multiple resource uses will have the affect of crippling the economy and stifling the culture, customs, and traditions so important to the local governments and residents of the Bighorn Basin. Making the situation more alarming is that findings and conclusions in the RMP/EIS are not rooted in science and field-verified data, but partisan, over-reaching assumptions and aspirations that encapsulate the vision the BLM has of the Bighorn Basin. The LGCA recognizes that the BLM is in fact one of many stakeholders in the Planning Area. Conversely, the BLM appears to dismiss the importance of stakeholders who do not share the same management philosophy as the agency. Such an attitude is short-sighted, flawed, and not in keeping with the BLM's mission to "to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations." Section 302 of FLPMA is clear in stating: "the Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act."

In addition to the expressed concern the LGCA has with the primacy given to wildlife species and habitat protection is the apparent understated oil and gas development potential presented in both the RMP/EIS and RFD. Marathon Oil has stated that in their professional opinion the RFD is understated by a factor of 25 to 50. Using a conservative estimate that the RFD is understated by a factor of 10, well potential in the Mowry Shale currently under lease would increase exponentially. In the entire Mowry Shale formation, both leased and non-leased, the well potential would increase even more. Economically, an underestimate at such a scale would have impacts that ripple throughout and beyond the Bighorn Basin. At minimum, the oil and gas development sections of the RMP/EIS must be updated to reflect true

potential. Realistically, it needs to be revised wholesale and impacts from increased development should be analyzed across all affected resources.

In the opinion of the LGCA, the mitigations developed and incorporated in the comment document are a necessary protection against unwarranted BLM management actions that will adversely affect multiple parties in the Bighorn Basin. With the mitigations in place and noted in the administrative record, the next step is for the BLM to open all lines of communication with the LGCA and stakeholders to work toward a solution for rectifying numerous issues, crossing all resource areas, in the RMP/EIS. With enthusiasm the LGCA will work in partnership with the BLM to reach solutions to as many or all of the problem areas in the RMP/EIS. As both community members and public officials with decades of experience with and knowledge of resource uses and issues in the Bighorn Basin, the LGCA will bring a wealth of knowledge to the RMP/EIS correction process. It is in the best interest of all parties involved and affected that the RMP, when finalized, is a planning document worthy of the beauty, diversity, and specialness that is the Bighorn Basin. Any less than a well-crafted RMP that both protects and utilizes resources to their potential in the Planning Area is a failure that will threaten sense of place and future remunerative and recreational pursuits throughout the Bighorn Basin.

18. REFERENCES

Altermatt, Jerry. 2010. [Personal communication]. Wildlife Biologist. Wyoming Game and Fish Department. Cody, Wyoming.

Attanasi, E. D. 1998. *Economics and the 1995 national assessment of United States oil and gas resources*. Circular 1145. Washington: United States Government Printing Office.

Ballard, Warren, Daryl Lutz, Thomas W Keegan, Len H Carpenter, and James C deVos. 2001. Deer-predator relationships: a review of recent North American studies with emphasis on mule and black-tailed deer. *Wildlife Society Bulletin* 29, no. 1 99–115.

Barret, S., D. Havlina, J. Jones, W. Hann, C. Frame, D. Hamilton, K. Schon, T. DeMeo, L. Hutter, and J. Menakis. USDA Forest Service; USDA Department of the Interior; The Nature Concervancy. 2010. *Interagency Fire Regime Condition Class Guidebook, Version 3.0*. www.frcc.gov. (accessed June 1, 2011).

Beall, R. C. 1974. Winter habitat selection and use by a western Montana elk herd. Dissertation, The University of Montana, Missoula.

Beauvais, Gary P. and Rebekah Smith. 2003. Model of breeding habitat of the mountain plover in western Wyoming. *Western North American Naturalist* 63, no. 1 88–96.

Bentz, Jerry A. and Paul M. Woodard. 1988. Vegetation characteristics and bighorn sheep use on burned and unburned areas in Alberta. *Wildlife Society Bulletin* 16, no. 2 (Summer): 186–193.

Berger, J., K. Berger, and J. Beckman. 2006. *Wildlife and energy development: Pronghorn of the Upper Green River Basin–Year 1 summary*. Jackson, WY: The Wildlife Conservation Society.

Blaisdell, James P., Robert B. Murray, and E. Durant McArthur. USDA Forest Service. 1982. *Managing Intermountian rangelands-sagebrush-gras ranges*. Gen. Tech. Rep. INT-134. Ogden, UT.

Bleich, Vernon C., Heather E. Johnson, Stephan A. Holl, Lora Konde, Steven G. Torres, and Paul R. Krausman. 2008. Fire history in a chaparral ecosystem: implications for conservation of a native ungulate. *Rangeland Ecology & Management* 61, no. 6 571–579.

Bradley, Anne F., Nonan V. Noste, and William C. Fishcer. USDA Forest Service. 1992. *Fire ecology of forests and woodlands in Utah.* Gen. Tech. Rep. INT-287. Ogden, UT.

Braun, Clait E. 1988. Sage grouse declines in western North America: What are the problems?

———. 2002. Sage-grouse habitat needs and management issues in the Upper Green Valley of Wyoming. Fact Sheet. October.

Braun, Clait E., Olin O. Oedekoven, and Cameron L. Aldridge. 2002. Oil and gas development in western North America: Effects on sagebrush steppe avifauna with particular emphasis on sage grouse. Paper presented at 67th North American Wildlife and Natural Resources Conference, 10.

Brown, Natalia A., Kathreen E. Ruckstuhl, Steve Donelon, and Corey Corbett. 2010. Changes in vigilance, grazing behavior, and spatial distribution of bighorn sheep due to cattle presence in Sheep River Provincial Park, Alberta. *Agriculture, Ecosystems, and Environment* 135, 226–231.

Bureau of Land Management. 2005. *BLM Land Use Planning Handbook*. Handbook/H-1601-1. 03/11/2005.

Buseck, Rebecca S., Douglas A. Keinath, and Matthew H. McGee. 2004. *Species assessment for sage thrasher in Wyoming*. USDI BLM. Cheyenne, WY: December.

Butler, Larry D., James B. Cropper, Rhett H. Johnson, Arnold J. Norman, and Patrick L. Shaver. 1997. *National range and pasture handbook*. U.S. Department of Agriculture, Natural Resources Conservation Service, Grazing Lands Technology Institute. September.

Cassirer, E. Frances, David J. Freddy, and Ernest D. Ables. 1992. Elk responses to disturbance by cross-country skiers in Yellowstone National Park. *Wildlife Society Bulletin* 20, no. 4 (Winter): 375–81.

Christensen, Alan G., L. Jack Lyon, and James W. Unsworth. 1993. *Elk management in the Northern Region: Considerations in forest plan updates or revisions*. U.S. Department of Agriculture, Forest Service, Intermountain Research Station. General Technical Report INT-303. Ogden, UT: Intermountain Research Station. November.

Connelly, John W., S. T. Knick, Michael A. Schroeder, and S. J. Stiver. 2004. Conservation assesment of greater sage-grouse and sagebrush habitats. Cheyenne, Wyoming.

Connelly, John W., Michael A. Schroeder, Alan R. Sands, and Clait E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28, no. 4 967–85.

Coughenour, Michael B., Francis J. Singer, and James J. Reardon. 1994. *The Parker transects revisited: Long-term herbaceous vegetation trends on Yellowstone's northern winter range*. Denver, CO: National Park Service.

Dechant, Jill A., Marriah L. Sondreal, Douglas H. Johnson, Lawrence D. Igl, Christopher M Goldade, Melvin P. Nenneman, and Betty R. Euliss. 2002a. *Effects of management practices on grassland birds: Baird's sparrow*. Jamestown, ND: Northern Prairie Wildlife Research Center.

———. 2002b. *Effects of management practices on grassland birds: mountain plover*. Jamestown, ND: Northern Prairie Wildlife Research Center.

deVos, James C, M. R. Conover, and N. E. Headrick. 2003. *Mule deer conservation: issues and management strategies*. Utah State University, Logan, Utah, USA: Berryman Institute Press.

Dibb, Alan and Michael Quinn. 2008. Response of bighorn sheep to restoration of winter range: revisited. Biennial Symposium of the Northern Wild Sheep and Goat Council 16, 129–136. Heber Valley, Utah.

Dieni, Scott J. and Stephanie L. Jones. 2003. Grassland songbird nest site selection patterns in northcentral Montana. *The Wilson Bulletin* 115, no. 4 (December): 388–396.

Dobkin, David S. 1994. *Neotropical migrant landbirds in the Northern Rockies and Great Plains: A handbook for conservation and management*. U.S. Department of Agriculture, Forest Service, Northern Region. Bend, OR: The High Desert Museum.

Doherty, Kevin E., David E. Naugle, Brett H. Walker, and Jon M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. *The Journal of Wildlife Management* 72, no. 1 (January): 187–95.

Edge, W. Daniel, C. Les Marcum, and Sally L. Olson-Edge. 1988. Summer forage and feeding site selection by elk. *The Journal of Wildlife Management* 52, no. 4 (October): 573–77.

Eichhorn, Larry C. and C.Robert.Watts. 1984. *Plant succession on burns in the river breaks of central Montana*. Proceedings, Montana Academy of Science. 43: 21-34.

Energy Information Administration. Office of Oil and Gas, Reserves and Production Division. 2006. *Technology-based oil and natural gas plays: shale shock! Could there be billions in the Bakken!* November.

ERG. 2006. Pinedale anticline project wildlife monitoring data trend analysis. Pinedale, WY.

Faaborg, John, Margaret Brittingham, Therese Donovan, and John Blake. 1993. *Habitat fragmentation in the temperate zone: A perspective for managers*.

Fidelity Exploration and Production Company. 2010. Comment document. March 4, 2010.

Fox, J. E. and G. L. Dolton. USDI USGS. 1995. *Bighorn Basin Province (034), in 1995 National Assessment of United States Oil and Gas Resources*. http://certmapper.cr.usgs.gov/noga/broker1995.jsp?theProvince=34&thePage=basin&theServlet=NogaMainResultsServ. (accessed March 6, 2010).

Ganskopp, David and Martin Vavra. 1987. Slope use by cattle, feral horses, deer, and bighorn sheep. *Northwest Science* 61, no. 2 74–81.

Gill, R Bruce. Colorado Division of Wildlife. 1999. *Declining mule deer populations in Colorado: reasons and responses.* Report to the Colorado legislature. November 1.

Green, M. T., Peter E. Lowther, S. L. Jones, S. K. Davis, and V. H. Dale. 2002. *Baird's sparrow, the Birds of North America Online (A. Poole, Ed.).* Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/638. Ithaca, NY: Cornell Lab of Ornithology.

Gregg, Michael A., John A. Crawford, Martin S. Drut, and Anita K. DeLong. 1994. Vegetational cover and predation of sage grouse nests in Oregon. *Journal of Wildlife Management* 58, no. 1 162–166.

Hansley, Paula L. and Gary P. Beauvais. 2004a. *Species assessment for Brewer's sparrow in Wyoming*. USDI BLM. Cheyenne, WY: September.

———. 2004b. *Species assessment for sage sparrow in Wyoming*. USDI BLM. Cheyenne, WY: September.

Herrod, Wilson H. 2010a. Big Horn Basin: future exploration potential. Herrod Geoscience Consulting, LLC.

———. 2010b. Fractured Mowry Shale Lease Play Big Horn Basin, Wyoming. Herrod Geoscience Consulting, LLC.

———. 2010c. Gas production from fractured shales. Herrod Geoscience Consulting, LLC.

Hillis, J. Michael, Michael J. Thompson, Jodie E. Canfield, L. Jack Lyon, C. Les Marcum, Patricia M. Dolan, and David W. McCleery. 1991. Defining elk security: The Hillis paradigm. In *Proceedings of Elk Vulnerability Symposium*. ed. Christensen, A. G., L. J. Lyon, and T. N. Lonner, Bozeman, MT: Montana State University.

Holloran, Matthew J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. PhD dissertation, University of Wyoming,, Laramie. December.

Holloran, Matthew J. and Stanley H. Anderson. 2005. Greater sage grouse response to natural gas field developments in western Wyoming: Are regional populations affected by relatively localized disturbances. 70th North American Wildlife and Natural Resources Conference.

Holloran, Matthew J., Rusty C. Kaiser, and Wayne A. Hubert. 2010. Yearling greater sage-grouse response to energy development in Wyoming. *The Journal of Wildlife Management* 74, no. 1 65–72.

Holloran, Matthew J., Alison Lyon, and Stanley H. Anderson. 2004. Sage grouse response to natural gas field development during the breeding season in western Wyoming. PowerPoint.

Hurley, Kevin. 2010. [Personal communication]. Wildlife Biologist. Wyoming Fish and Game. Cody, WY.

Irwin, L. L. and J. M. Peek. 1983. Elk habitat use relative to forest succession in Idaho. *Journal of Wildlife Management* 47, 664–72.

Knopf, Fritz L. and M. B. Wunder. 2006. *Mountain Plover, The Birds of North America Online (A. Poole, Ed.).* Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/211. Ithaca, NY: Cornell Lab of Ornithology.

Leege, T. A. 1968. Prescribed burning for elk in northern Idaho. Tall Timbers Fire Ecological Conference Proceeding, 235–54.

Luman, D. and W. Neitro. 1980. Preservation of mature forest seral stages to provide wildlife habitat diversity. Transcations of the North American Wildland and Natural Resources Conference, 45 pp.

Lyon, L. J. 1979. Habitat effectiveness for elk as influenced by roads and cover. *Journal of Forestry* 77, no. 10 (October): 658–60.

Lyon, L. Jack. 1983. Road density models describing habitat effectiveness for elk. *Journal of Forestry* 81, no. 9 (September): 592–95.

Lyon, L. Jack, T. N. Lonner, and J. P. Weigand. 1985. *Coordinating elk and timber management*. Montana Department of Fish, Wildlife and Parks. Final Report of the Montana Coop. Elk-logging Study, 1970-1985. Bozeman, MT.

Mace, Richard D. and Timothy L. Manley. Montana Fish, Wildlife, and Parks. 1993. *South Fork Flathead River grizzly bear project: progress report for 1992*. April.

Manning, Ann E. Ellison and Clayton M. White. 2001. Breeding biology of mountain plovers in the Uinta Basin. *Western North American Naturalist* 61, no. 2 223–228.

Marathon Oil Company. 2010. Memorandum to Bureau of Land Management District Manager regarding the Bighorn Basin Planning Area Reasonable Foresseable Development. Memorandum. March 3.

Marcum, C. Les. 1975. Summer-fall habitat selections and use by a western Montana elk herd. PhD thesis, The University of Montana, Missoula.

Meffe, Gary K. and C. Ronald Carroll. 1994. Habitat fragmentation. In *Principles of conservation biology*. Chap. 9, 237–63.

Miller, Brian, Gerardo Ceballos, and Richard Reading. 1994. The prairie dog and biotic diversity. *Conservation Biology* 8, no. 3 (September): 677–681.

MTFWP. 2004. *Montana statewide elk management plan*. Wildlife Division. Helena, Montana.

Naugle, David E., B. L. Walker, and K. E. Doherty. 2006. *Sage grouse population response to coal-bed natural gas development in the Powder River basin: Interim progress report on region-wide lek-count analysis*. Missoula, MT.

Oregon Department of Fish and Wildlife. 2011. *Oregon mule deer initiative plan*. January.

Perry, Charles and Robert Overly. 1976. Impact of roads on big game distribution in portions of the Blue Mountains of Washinton. In *Proceedings of the Elk-logging-road symposium*. ed. Hieb, Susan R., 62–68. Moscow, Idaho: University of Idaho.

Rotenberry, J. T, M. A. Patten, and K. L. Preston. 1999. *Brewer's sparrow, the Birds of North America Online (A.Poole, Ed.)*. Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/390. Ithaca, NY: Cornell Lab of Ornithology.

Rowland, Mary M. 2004. *Effects of management practices on grassland birds: Greater sage-grouse*. Jamestown, ND: Northern Prairie Wildlife Research Center. March.

Sawyer, Hall, Matthew J. Kauffman, and Ryan M. Nielson. 2009. Influence of well pad activity on winter habitat selection patterns of mule deer. *Journal of Wildlife Management* 73, no. 7 (1052–61):

Sawyer, Hall, Ryan M. Nielson, Fred Lindzey, and Lyman L. McDonald. 2006. Winter Habitat Selection of Mule Deer before and during Development of a Natural Gas Field. *The Journal of Wildlife Management* 70, no. 2 396–403.

Sawyer, Hall, Ryan M. Nielson, Fred G. Lindzey, Lorraine Keith, Jake H. Powell, and Anu A. Abraham. 2007a. Habitat selection of Rocky Mountain elk in a nonforested environment. *Journal of Wildlife Management* 71, no. 3 868–874.

Sawyer, Hall, Ryan M. Nielson, Dale Strickland, and Lyman Lyman McDonald. 2007b. *Sublette mule deer study (phase II) Final Report: Long-term monitoring plan to assess potential impacts of energy development on mule deer in the Pinedale anticline project area, 2001–2007*. Annual Report. Cheyenne, WY: Western EcoSystems Technology, Inc. January.

Schommer, Timothy J. and Melanie M. Woolever. 2008. *A review of disease related conflicts between domestic sheep and goats and bighorn sheep*. Gen. Tech. Rep. RMRS-GTR-209. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Scott, Warren. 2011. [Personal communication]. Mine Superintendent. Bentonite Performance Minerals, LLC. Lovell, Wyoming. August.

Smith, Tom S., Perry J. Hardin, and Jerran T. Flinders. 1999. Response of bighorn sheep to clear-cut logging and prescribed burning. *Wildlife Society Bulletin* 27, no. 3 (Autumn): 840–845.

Stone, D. S. 1967. Theory of Paleozoic oil and gas accumulation in Big Horn Basin, Wyoming. *The American Association of Petroleum Geologists Bulletin* 51, no. 10 2056–2115.

Toweill, Dale E. and Jack Ward Thomas. 2002. *North American elk: Ecology and management*. Washington, DC: Smithsonian Institution Press.

Unsworth, James W., David F. Pac, Gary C. White, and Richard M. Bartmann. 1999. Mule deer survival in Colorado, Idaho, and Montana. *The Journal of Wildlife Management* 63, no. 1 (Jan): 315–326.

USDA. Forest Service. 2002. *Field guide: Invasive plant inventory, monitoring, and mapping protocol*. U.S. Department of Agriculture, Forest Service.

———. Forest Service. 2007. *Fire regime condition class (FRCC) based on map tool national protocol with rapid assessment BpSs and R1VMAP and SILC for Montana*. Missoula, MT: USFS Northern Region. http://www.fs.fed.us/r1/gis/thematic_data/frcc_vmp_bpss_mt_29jul05.htm. (accessed .

USDA. 2008. Rocky Mountain Region, Forest Health Management, Aerial Detection Survey (ADS). r208_dmg. http://www.fs.usda.gov/wps/portal/fsinternet/!ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPwhQoY6BdkOyoCAPkATlA!/?ss=1102&navtype=BROWSEBYSUBJECT&navid=140000000000000&pnavid=null&recid=null&actid=null&groupid=null&ttype=main&pname=Region 2- Forest & Grassland Health. (accessed June 1, 2011).

———. Forest Service. 2011. *Draft analysis of the management situation*. Cody, WY: Shoshone National Forest. June.

USDA, USGS, The Nature Conservancy, and USDI. 2011. *Landfire*. http://www.landfire.gov/models_EW.php (accessed June 1, 2011).

USDA, Forest Service and USDI. 2010. LANDFIRE. (Database). 1.1.0. USDA, USDI. http://www.landfire.gov/index.php (accessed 10-28-2010).

USDI. Geological Survey. 2008a. *Assessment of undiscovered oil and gas resources of the Bighorn Basin Province, Wyoming and Montana, 2008*. National assessment of oil and gas fact sheet.

———. U.S. Geological Society. 2008b. *National assessment of oil and gas fact sheet: Assessment of undiscovered oil resources in the Devonian-Mississippian Bakken Formation, Williston Basin Province, Montana and North Dakota*. Fact Sheet 2008-3021.

———. Stilwell, Dean P.; Davis-Lawrence, Stan W.; Elser, Alfred M. 2009a. Draft reasonable foreseeable development scenario for oil and gas, Bighorn Basin Planning Area, Wyoming. May 6.

———. Bureau of Land Management. 2009b. *Solid mineral occurrence and development potential report: Bighorn Basin resource management plan revision project*. Wyoming: April 9.

———. BLM. 2010. *Absaroka Front Management Area: Energy Exploration, Economics, Wildlife Biology, and Development Issues*. November.

Walker, Brett L., David E. Naugle, and Kevin E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. *Journal of Wildlife Management* 71, no. 8 2644–654.

Wallestad, Richard and Duane Pyrah. 1974. Movement and nesting of sage grouse hens in central Montana. *Journal of Wildlife Management* 38, no. 4 (October): 630–633.

Wambolt, Carl L. and Gene F. Payne. 1986. An 18-year comparison of control methods for Wyoming big sagebrush in southwestern Montana. *Journal of Range Management* 39, no. 4 (July): 314–19.

Watts, Myles J. and Carl L. Wambolt. 1996. Long-term recovery of Wyoming Big Sagebrush after four treatments. *Journal of Environmental Management* 46, 95–102.

West, Neil E. and Terence P. Yorks. 2002. Vegetation responses following wildfire on grazed and ungrazed sagebrush semi-desert. *Journal of Range Management* 55, 164–70.

WGFD. 2008. *Multi-state sage-grouse coordination and research-based recommendations*. Letter to Terry Cleveland and John Emmerich. January 29.

———. 2009a. Harvest Summary. 2009.

———. 2009b. *Recommendations for development of oil and gas resources within important wildlife habitats*. Cheyenne, Wyoming: November.

Wiens, John A. and John T Rotenberry. 1981. Habitat Associations and Community Structure of Birds in Shrubsteppe Environments. *Ecological Monographs* 51, no. 1 (March): 21–42.

Wyoming Enhanced Oil Recovery Institute. 2011. Facts regarding future development of enhanced oil recovery in the Bighorn Basin. June 17.

Wyoming Oil and Gas Commission. 2011. Bighorn Basin Oil Statistics. PowerPoint. January.

Young, James A. and Raymond A. Evans. 1989. Dispersal and germination of big sagebrush (*Artemisia tridentata*) seeds. *Weed Science* 37, no. 2 (March): 201–6.