

**PEER Rebuttal of Conclusions by BLM Scientific Integrity Officer
Regarding the 2011 Scientific and Research Misconduct Complaint on
Exclusion of Livestock Grazing Impacts from Landscape Assessments
January 24, 2013**

The document contains a review and detailed rebuttal of the Bureau of Land Management's (BLM) rejection of the PEER complaint that the agency intentionally excluded livestock grazing as a disturbance factor from the Rapid Ecoregional Assessments (REAs) conducted by BLM. This complaint was forwarded to the agency under the Departments of the Interior (DOI) Procedures for Reporting and Resolving Allegations Regarding Loss of Scientific and Scholarly Integrity (Chapter 3 of Part 305 of the Departmental Manual (305 DM 3)).

Background on the REA Process:

By way of overview, it is important to recognize that the BLM Rapid Ecoregional Assessments (REAs) were initiated to –

“...identify, assemble, synthesize, and integrate existing information about native species, aquatic and terrestrial resources, and environmental change agents to provide information that will help BLM land managers in the ecoregion understand resource status and the potential for change of this status from a broad landscape viewpoint. ... This information will be used by the BLM to assist it with its land management responsibilities, including planning land use, developing best-management practices, authorizing uses, and establishing conservation and restoration priorities. This information may be made available to the public.” (BLM Rapid Ecoregional Assessment Statement of Work). Detailed descriptions of specific REA Statements of Work and contracts are available online at: <http://iq.govwin.com/corp/library/searchresults.cfm>

The first three tasks that make up Phase I of the REAs are most relevant:

PHASE I TASK 1 (Task I-1) – Identify regionally significant conservation elements and change agents affecting them, and prepare conceptual models to identify causal links.

PHASE I TASK 2 (Task I-2) – Identify and evaluate the suitability of data to address each conservation element and change agent, either actual data (reword), or existing data to support modeling the information if existing data could not be identified.

PHASE I TASK 3 (Task I-3) – Develop methods and approaches, including all GIS process models, to address the defined management questions

PHASE I TASK 4 – Prepare a work plan to conduct the analyses

PHASE II tasks – Conduct analyses

What follows are our specific comments about findings from the BLM Scientific Integrity Officer. These findings are contained in a letter dated January 2, 2013 from Mr.

Louis Brueggeman on behalf of BLM, which is quoted extensively with page references are in **bold**. Responses by PEER are in *italics*:

First Allegation – “BLM committed scientific and scholarly misconduct by intentionally circumventing policy that ensures the scientific integrity of the REAs, hence potentially influencing the resultant information upon which future resource management decisions will be based”, specifically, livestock grazing as a change agent was intentionally excluded from the first six REAs as a result of interference in the scientific process by WO and other staff (§3.5 M (a) intentional circumventing policy that ensures the integrity of science and scholarship, and (b) actions that compromise scientific and scholarly integrity).

Discussion (PAGE 2):

“BLM conducted these REAs in order to further inform its land management decision-making based on an Ecoregional scale regarding certain change agent. The BLM required each of the REAs to address the four change agents of climate change, Wildland fire, invasive species, and urban and industrial development, and, in addition, each AMT could also identify other change agencies, such as grazing, if they found it feasible.”

Comment by Complainant: We contend that, while acknowledged by the AMTs as a significant change agent in these assessments, they intentionally failed to subject it to an honest, rigorous, and true test of feasibility.

The language of the REA Statement of Work Task (see below) clearly spells out that the objective of the task was for contractors to develop a base ecoregion model, select core conservation elements and change agents (CAs) that influence these conservation elements (CEs), drawing on their expertise, literature, input from agencies and others to make recommendations for inclusion of CEs and CAs to the AMT.

The potential feasibility of treating a CA or CE was not relevant to the scientific discussions during Task I-1, which addressed the ecological relevance of the core CEs, the significant CAs that influence them. From the start of the REA, it was accepted that many desired components of the REAs would be unfeasible, or beyond the scope of the REA time and resource constraints.

Feasibility was linked to (a) data availability and quality (the purpose of Task I-2), or, lacking adequate existing data, (b) modeled output based on existing data of acceptable quality and an approved GIS process model (the purpose of Task I-3).

3.1 Task 1: Refine Management Questions and Select Conservation Elements

“Objective

The objective of this task is to produce finalized lists of ecoregion-specific management questions, develop a base ecoregion model, select core conservation elements and the change agents that influence these elements, and determine the output products that will guide the REA effort.”

As subsequently stated in the Work Effort section with passages underlined for emphasis:

“The general approach for this task is for the Contractor to work with and gain input from the AMT and BLM regional and national technical teams to refine the preliminary resource values, change agents, and management questions that were developed during assessment initiation into final management questions and conservation elements. To do this the Contractor shall apply its expertise, use the scientific and gray literature (non-peer reviewed documents, such as proceedings of meetings, consultant reports; gray literature will be clearly noted as such), and collect input from agencies and organizations to make recommendations to the AMT on conservation elements, change agents, and management questions.” (*BLM Rapid Ecoregional Assessment for the Colorado Plateau Ecoregion, Statement of Work, page 28*)

The first six REAs all identified livestock grazing as a change agent. The AMTs agreed that livestock grazing WAS a significant change agent, defined in the Statements of Work as:

“An environmental phenomenon or human activity that can alter/influence the future status of resource condition. Some change agents (e.g., roads) are the result of direct human actions or influence. Others (e.g., climate change, wildland fire, invasive species) may involve natural phenomena or be partially or indirectly related to human activities.”

Although all six AMTs acknowledged the importance of livestock grazing to the understanding of current and future condition of resources in the face of climate change, grazing was dropped. At the first Colorado Plateau REA Workshop (Workshop Minutes, Colorado Plateau Rapid Ecoregional Assessment (REA) Workshop Summary, Lakewood, Colorado, August 10, 2010), the topic of grazing was introduced as controversial. The REA Project Manager stated that the possibility that grazing might be included in the REAs was of concern by stakeholders and the Washington Office with regards to potential litigation. The Project Manager cautioned that inclusion of livestock grazing in the REAs might jeopardize future REA funding. The interjection of these concerns into the scientific dialog constitutes outside interference (305 DM 3.5.L) and apparent coercive manipulation (305 DM 3.7.C(1)) that resulted in a deviation of the clearly defined REA protocol in the Statement Of Work. This deviation occurred when the Project Manager and the AMT chose to seek guidance and direction from the Washington Office at that Workshop regarding how grazing should be treated, shaping and culminated in the loss of the integrity scientific and scholarly process.

The very acknowledgement that the AMT and Washington Office were influenced by outside concerns unrelated to the workshop's scientific dialogues, introduced bias and tainted the credibility of any future rationale for excluding grazing other than through a transparent, well defended, well documented, and legitimate feasibility evaluation.

“All six AMTs considered adding grazing as a change agent for their respective REAs early in the process. During several of the REA workshops, contractors, some partners, and BLM personnel expressed the belief that grazing is a significant change agent as the Ecoregional-level and that it should be included in the REAs. There was considerable and sometimes heated discussion about the topic.”

Comment by Complainant: These statements are true but, curiously, this BLM review fails to address the nature of this “considerable and sometimes heated discussion...” The minutes of the Colorado Plateau Task I-1 Workshop clearly document why there was and needed to be considerable and sometimes heated debate.

To recap: Early in the workshop, the topic of potential political fallout regarding the use of allotments in the REAs was raised. Then, when the presentation turned to the subject of significant disturbance factors or “Change Agents”, BLM chose to deal with grazing first, since it was considered potentially contentious. The REA Project manager and AMT set the discussion up by stating that the contractor scientists had focused on grazing. The REA participants disagreed, stating that livestock grazing was an important change agent in the ecoregion, and that there was no reason to treat it any differently than other change agents. The Project Manager interjected that the potential inclusion of livestock grazing was of concern to the Washington Office, and the AMT supported this, stating that this concern was also raised in prior stakeholder meetings. He stated that there were litigation worries and that, if grazing were included in the REAs, BLM feared that litigation would put a stop to future REAs. The “heated discussion” reflects the participant’s dismay (the contractor, BLM staff, USGS staff, and State Wildlife staff) at the suggestion that grazing be excluded on grounds other than lack of ecological or environmental relevance within the context of grazing as a change agent.

The responses to this included:

“We run the risk of not having a legitimate assessment if grazing is not considered.”

“It would be intellectually dishonest to ignore grazing.”

“We will be laughed out of the room if we don’t include grazing. If you have the other range of disturbances, you have to include grazing. We are evaluating all of it.”

“BLM is challenged by everyone on either side of the issue. But the REA is not a decision document, so there will be no litigation worries.”

“It would be conspicuous if grazing were absent, ...”

The group then agreed that grazing should be addressed, at least through the data acquisition and evaluation stage of the REA. To this, the Project Manager and AMT decided that “The grazing issue will require further discussion by the AMT and the Washington Office; they will specify how it should be addressed.” The contractors proposed management questions pertaining to grazing as a change agent were deferred pending AMT discussion of the issue and AMT compilation of grazing-related questions. Note – no other subject to decision was deferred pending WO direction.

“Initially, these discussions focused on why grazing should be considered a change agent {purpose of TASK 1}, and less on how {irrelevant during TASK 1} to evaluate grazing as a change agent.”

Comment by Complainant: This statement is true but, as the Workshop Minutes record, the contractor data manager pointed out, “Today’s workshop is not to deal with data issues. The next workshop will deal with data acquisition and quality.”

The Objective of the Task I-1 in which this discussion took place is clearly defined in the Statement of Work as: “The objective of this task is to produce finalized lists of ecoregion-specific management questions, develop a base ecoregion model, select core conservation elements and the change agents that influence these elements, and determine the output products that will guide the REA effort.”, while that of Task I-2 is defined as:

“The objectives of this task are to identify, evaluate, and recommend various datasets for assessing the current status of conservation elements, assessing the potential for future change to status, and answering the ecoregion management questions.”

“Several management questions were proposed, revised, included or deferred during the REA preparation process.”

Comment by Complainant: This statement is true, however how grazing was to be treated was left to the guidance and direction sought from the Washington Office – noting again that no other decision was deferred for WO direction.

“While there was general agreement that historic grazing practices, and current practices in some cases, have been a significant change agent, there was concern among the AMTs both about both how to represent grazing effects at the ecoregional-level, as well as how to ensure consistency among the REAs in the incorporation of grazing as a change agent.”

Comment by Complainant: The records show that the AMTs were in general agreement that livestock grazing was and is a significant change agent in the first ecoregional assessments. To suggest that that the AMTs expressed concern about how grazing effects

were to be represented at the ecoregion-level, as well as how to ensure consistency among REAs may be factual but is utterly irrelevant and disingenuous.

First, neither data availability or quality, nor potential modeling approach was relevant during Task I-1, so neither data availability nor modeling representation issues would have warranted guidance and direction from the Washington Office. The challenges presented in representing other distributions and effects at the ecoregional-level failed to trigger a call to the WO. Due to the centrality of its importance in these REAs, and the lack of treatment consistent with other change agents and conservation elements, these explanations simply highlight the fact that BLM differentially kept raising the bar for grazing, while accommodating a lowering of the bar for others.

(1) Data availability issue:

Prior the review of the contractor's data identification, acquisition, and evaluation findings & AMT review, there was no justification for excluding any CE or CA from inclusion in the process. Task I-2 was designed precisely to conduct a thorough data search and subject these data to rigorous evaluation. At the conclusion of Task I-1, the data availability of many subjects was unknown or uncertain. Exclusion of grazing at this stage was conspicuously contrary to the defined process afforded other CEs and CAs. This was reflected in comments of REA participants in the Colorado Plateau REA Workshop I.

The contractors could have evaluated BLM's own Land Health Standards evaluation (LHE) dataset, prepared by the WO in 2008 in response to a Freedom of Information Act (FOIA) request, later provided to USGS upon request, who, coincidentally, were at that time actually conducting an independent evaluation of these data. These data would have identified which of the 21,363 BLM allotments evaluated at the time of the dataset's creation had (a) failed to meet land health standards, (b) which of the allotment failures were attributable to livestock impacts, (c) which of these failures may have resulted from synergistic effects of livestock with other change agents, (d) which failures were clearly not attributable to livestock, and finally, (e) which allotments had yet to be evaluated, or recorded as evaluated, or gaps, which were also of interest to BLM as stated in the Statement of Work.

In addition, BLM maintains both permitted and billed AUMs by allotment. While BLM does not maintain complete records on actual use, billed use might have been used as a reasonable surrogate for actual AUMs within BLM allotments, as Veblen et al. (2011)¹ determined. The same types of data used to model other terrestrial animal distributions could also have been considered for comparable modeling of livestock spatial distributions, such as hydrologic, topographic, soils, and vegetation layers. This type of approach was proposed in the Northern Great Basin and Range and Snake River Plain REA, and based on the data needs identified in their Task I-2 memoranda, also appeared to have been contemplated

¹ Veblen, K., C. Aldridge, M. Casazza, T. Assal, and M. Farinha, 2011, "Range-wide Assessment of Livestock Grazing Across the Sagebrush Biome". USGS Open File Report 2011-1263

by the Colorado Plateau and Sonoran Desert REAs. The quality or applicability of these data was contingent upon their intended application and evaluation findings during Tasks I-2 & I-3.

(2) Data consistency issue:

This is another non-issue. First, BLM intended contractors to develop their own approaches and methods, subject to AMT approval to address management questions, rather than requiring that all contractors follow a prescribed set of methodologies. There were only limited attempts to standardize certain components, such as the use of specific climate simulation data and time horizons.

The whole premise of the REAs was that each should identify a suite of CEs and CAs, model their interactions and then combine these data into an index of ecological integrity, which was left up to the individual REA teams to develop. Even had two contractors independently conducted the same REA, they would for these reasons generated different results. The potential for differences between ecoregions was therefore, either intentional or a BLM design flaw.

For example, mule deer were identified as a conservation element in the Central Basin and Range, Colorado Plateau, Northern Great Basin and Range and Snake River Plains, Middle Rockies, Northwestern Great Plains, and Sonoran Desert REAs. While there was discussion about how to represent the species occurrence, potential distribution, and occupied habitat with an ecoregion, there was no discussion that contractors working on their respective REAs coordinate their efforts to “ensure consistency among the REAs”.

With regard to BLM’s LHE dataset, it is true that each state has sometimes expanded on the required Land Health Standards defined but all standards are required to comply with an original fallback set of standards. The guiding principles are defined as fallback standards and guidelines defined in 43 C.F.R. § 4180.2 (f)(1) and (f)(2) include:

“(f) In the event that State or regional standards and guidelines are not completed and in effect by February 12, 1997, and until such time as State or regional standards and guidelines are developed and in effect, the following standards provided in paragraph (f)(1) of this section and guidelines provided in (f)(2) of this section shall apply and will be implemented in accordance with paragraph (c) of this section. However, the Secretary may grant, upon referral by the BLM of a formal recommendation by a resource advisory

(1) Fallback standards.

(i) Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.

(ii) Riparian-wetland areas are in properly functioning condition.

(iii) Stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for the climate and landform.

(iv) Healthy, productive and diverse populations of native species exist and are maintained.”

(2) *Fallback guidelines.*

(i) Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils;

(ii) Management practices maintain or promote soil conditions that support permeability rates that are appropriate to climate and soils;

(iii) Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, ground- water recharge and stream bank stability;

(iv) Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform;

(v) Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;

(vi) Management practices maintain or promote the physical and biological conditions necessary to sustain native populations and communities;

(vii) Desired species are being allowed to complete seed dissemination in 1 out of every 3 years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow.);

(viii) Conservation of Federal threatened or endangered, Proposed, Category 1 and 2 candidate, and other special status species is promoted by the restoration and maintenance of their habitats;

(ix) Native species are emphasized in the support of ecological function;

(x) Non-native plant species are used only in those situations in which native species are not readily available in sufficient

quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;

(xi) Periods of rest from disturbance or livestock use during times of critical plant growth or regrowth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods shall be determined by the authorized officer.);

(xii) Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems;

(xiii) Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function;

(xiv) The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites; and

(xv) Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

[60 FR 9969, Feb. 22, 1995, as amended at 61 FR 59835, Nov. 25, 1996]”

Thus, all the methods are sufficiently consistent with respect to the fallback standards and guidelines across time and states with respect to passing or failing and whether livestock were the cause of failures. That BLM treats these data as consistent across all states and ecoregions is reflected in their own annual calculation and summation of status for all 21,363 grazing allotments totaling 157,433,251 acres that it administers (BLM Fiscal Year 2010 Rangeland Inventory, Evaluation, and Monitoring Report available online at:

http://www.blm.gov/wo/st/en/prog/more/rangeland_management/rangeland_inventory.html.)

(3) Options for representing grazing effects at the ecoregion-level:

This is also another non-issue, since this relevant to all CEs and CAs. The more important question is: why should portrayal of the general landscape-level spatial distribution of cattle be any more problematic than for modeling what are termed in the REAs as ‘Fine Filter’ conservation elements such as golden eagle, mule deer, or pygmy rabbit, or the effects of other change agents such as the risk of

cheatgrass invasion, or predicting where vegetation and soils might be vulnerable to OHV disturbance in the future? The answer is of course that it isn't.

Characterizing spatial distributions, whether habitat preference or risk of disturbance, all require care in model development, data quality, careful interpretation, and clear communications of uncertainties. There is certainly more information on cattle behavioral patterns and tendencies than for many of the species conservation elements modeled for the analyses. Actual livestock landscape selection and use behavioral data exists based on extensive radio tracking of herds. Identification of locations for new watering sources and other attractants takes advantage of knowledge of livestock behavior. The issue then may be that there is greater awareness of the complexity of "habitat selection" and use by cattle across different landscapes, vegetation, seasons, breed, age, as well as learned behaviors. There is of course comparable complexity in other species landscape use behaviors, whose models we can be comfortable with simply by virtue of a LACK of comparable knowledge.

An example of this was the decision to drop several management questions due to the model complexity issue:

Grazing "At AMT Workshop 4 it was determined that there was not suitable data to attempt to model grazing intensity at individual allotments across the ecoregion. Key factors such as slope, distance from water sources animals will travel, locations of piped-in or trucked-in water, etc. were not available across the ecoregion. The RRT for grazing will be consulted to devise an approach for grazing that can be used to answer the MQs." *(Northern Great Basin and Range and Snake River Plain Ecoregion REA Final Memorandum 4-c, page 33); and:*

Livestock grazing CA questions were not addressed at AMT Workshop 4 due to lack of time, although SAIC's proposed approach to modeling suitable grazing areas using physiographic and infrastructure inputs was discussed in the context of the livestock grazing CE. AMT members thought that grazing pressure in reality was far more complex than this type of modeling could predict and therefore the modeling would not be worth the effort. In particular, AMT members felt that there are too many other variables to consider, such as how the land is grazed that are potentially more important. For this reason, SAIC recommended and AMT concurred that these MQs (76, 77, and 78) be dropped." *(Northern Great Basin and Range and Snake River Plain Ecoregion REA Final Memorandum 4-c, page 45)*

By contrast, the AMT accepted modeling of coarsely mapped habitats or ranges, such as that for Mule deer (underlines added for emphasis):

Western Association of Fish and Wildlife Agencies (WAFWA): "The project involved using a Delphi (expert opinion) approach to map all mule and black-tailed deer habitat in North America and Mexico. To accomplish this, regional

representatives worked through state-based workshops to identify and delineate habitat on a state by state basis. Habitat areas were delineated on 1:250,000 sheet maps with a minimum mapping unit of approximately 6 square miles. Six categories of mule deer habitat were delineated, with 18 factors limiting or otherwise affecting the habitat. These data were digitized and compiled into a GIS database. This database can be used to assist in management programs such as habitat restorations that cross administrative boundaries.” (USU RS/GIS Laboratory, available online at: http://www.gis.usu.edu/current_proj/muledeer.html)

The WAFWA dataset accepted for use in at least one REA was based on expert opinion and was extremely coarsely mapped (6 square mile ‘minimum mapping units’). While the WAFWA data may be perhaps the best data available to map mule deer habitat, its acceptance while at the same time rejecting an attempt to model grazing intensity seems hardly justified. Infrastructure inputs, such as watering areas also affect wildlife, yet the absence of these watering areas were not used to justify exclusion of other species distribution models. As a consequence, the AMT dropped the following grazing-related questions:

“MQ 76. What areas of the landscape are low density vs. high density livestock grazed (streams, water developments, corrals, steep slopes, etc.)?”

MQ 77. Where are areas best suited to potential livestock cattle and sheep grazing based on environmental factors (such as slope, aspect, water availability, wild ungulate grazing)?

MQ 78. Where do grazing areas have the highest potential to increase invasive and/or noxious species occurrences?”

The complexities of cattle landscape distribution and use apply equally to mule deer as well, each responding to the same environment but in their own manner, but the coarseness of the mule deer habitat layer do not reflect the higher resolution complexities of its habitat selection and avoidance (see Stewart et al. 2002)². Of course the modeling approach and input data influence other species distribution characterizations. MaxExt models were used in some cases in the REAs. These models can be very data dependent on the nature of species observations, which can be biased in favor of where observations tend to be made – such as close to roads. These limitations were apparently acceptable in the case of mule deer and other species but spelled the death knell for livestock.

Elsewhere, while livestock grazing mapping was determined to be too complex to model due to lack of suitable data, similar shortcomings apparently did not prove an obstacle the case of modeling invasive species relative dominance:

Invasives “The main data sources for invasive species data will be the

² Stewart, K.M., R.T. Bowyer, J.G. Kie, N.J. Cimon, and B.K. Johnson. 2002. Temporospatial distributions of elk, mule deer, and cattle: resource partitioning and competitive displacement. *Journal of Mammalogy*, 83(1):229-244.

NISIMS database, BLM state office datasets and state data such as Nevada whose invasive data is kept by their natural heritage program (see Table 3- 2). Since modeling approaches for invasive species can be very data dependent on good observations, the RRT will be heavily relied upon to ensure that the approach used is suitable for the ecoregion and the requirements of the REA. The RRT will also be consulted for advice on ways to determine not only presence and absence but also relative dominance.” (*Northern Great Basin and Range and Snake River Plain Ecoregion REA Final Memorandum 4-c, page 32*)

“Unable to come to a resolution of this issue, the AMTs sought guidance from the WO.”

Comment by Complainant: This statement is false. The minutes of the Colorado Plateau REA Workshop 1 to which this refers documents that the dilemma surrounding grazing that triggered guidance and direction from the Washington Office was due to its controversial nature and fears of litigation rather than whether it should be addressed at least through the data acquisition stage. The decision to seek a resolution of the grazing issue from a party external to the REA science team constitutes intentional interference with the clearly defined process.

“The WO began discussion, but could not provide a *final answer and direction* {italics added} on how to solve the data problems using only available data (no new data can be collected during the REA). As a result, the AMTs elected not to include grazing as a change agent in these set of REAs.”

Comment by Complainant: This statement is technically true but further supports our contention of interference with the process by the AMTs, Project Managers, and the WO. Simply by accepting the request for guidance and direction from the AMTs, and deliberating on the issues (including the issue of prior litigation concerns and the concerns of stakeholders) the Washington Office compromised the integrity of the REAs, whether they could ultimately provide guidance and direction or not.

To have maintained the integrity, the WO should have responded by: (a) directing the AMTs and Project Managers that seeking their guidance and direction was inappropriate; and (b) directing the AMTs and Project Managers adhere to the established REA process protocol to maintain the integrity of the process to ensure credibility and validity of the program; or (c) simply responded to the data issue by providing the AMTs with the LHE dataset and then directing to them to adhere to the established REA process protocol to maintain the integrity, and ensure credibility and validity of the program.

The Washington Office compiled the LHE dataset in response to the FOIA request in 2008, yet did not provide these data to the contractors.

“For example, in the final product for phase 1 step 3 of the Central Basin and Range REA the following statement appears:

‘USGS commented that grazing should be included as a [Change Agent]. *This issue was discussed thoroughly in AMT 1 {italics added for emphasis} and AMT 2 workshops and it was decided to defer inclusion because there is no known data to adequately represent grazing on the landscape despite its importance {italics added for emphasis}. Because grazing is a fairly ubiquitous use, the REA would not likely benefit from spatial analyses of grazing and it is suggested that this be a special assessment outside of the REA.*’”

Comment by Complainant: Two issues must be addressed. Contrary to the argument that grazing is ubiquitous, that the REAs would not likely benefit from spatial analyses of grazing and the rationale that grazing can't be represented on the landscape, there is significant information about cattle grazing distribution and grazing in rangelands (Bailey et al. 1996)³. Gillen et al. (1984)⁴ provide an example of empirically derived preference indices broken into classes for both slope and distance from water found in their study. Pinchak et al. (1991)⁵ provide another independent source of cattle preference and distance from water across multiple seasons. Bailey (2005)⁶ discusses livestock “habitat”, a concept normally applied to conservation elements in the REAs, but provides a framework for construction of models characterize livestock habitat distribution in terms of readily derived abiotic factors such as horizontal and vertical distance from water, topography, thermal cover, etc. Harris et al. (2002)⁷ report relative preference indices of range sites for percent slope classes, distance-to-water classes, and aspect/topographic classes. Brock and Owensby (2000)⁸ found that their models developed to predict grazing distribution that relied primarily on abiotic variables proved to be reasonably good estimators of landscape-level grazing patterns. Stewart et al. (2002)⁹ even provide logistic-regression models of habitat selection for cattle, elk, and mule deer, the latter two identified as conservation elements in various REAs.

³ Bailey, D.W., J.E. Gross, E.A. Laca, L.R. Rittenhouse, M.B. Coughenhour, D.M. Swift, and P.L. Simms. 1996. Mechanisms that result in large herbivore grazing distribution patterns. *J. Range Management* 49:386-400.

⁴ Gillen, R.L., W.C. Krueger, and R.F. Miller. 1984. Cattle distribution on mountain rangeland in Northeastern Oregon. *J. Range Management* (37(6):549-553.

⁵ Pinchak, W.E., M.A. Smith, R.H. Hart, and J.W. Waggoner, Jr. 1991. Beef cattle distribution patterns on foothill range. *J. Range Management*. 44(3):267-275.

⁶ Bailey, D. 2005. Identification and creation of optimum habitat conditions for livestock. *Rangeland Ecol. & Management* 58:109-118.

⁷ Harris, N.R., D.E. Johnson, M.R. George, and N.K. McDougald. 2002. The effects of topography, vegetation, and weather on cattle distribution at the San Joaquin Experimental Range, California. *USDA Forest Service Gen. Tech. Rep. PSW-GTR-184*.

⁸ Brock, B.L., and C.E. Owensby. 2000. Predictive models for grazing distribution: A GIS approach. *J. Range Management* 53(1):39-45.

⁹ Stewart, K.M., R.T. Bower, J.G. Kie, N.J. Cimon, and B.K. Johnson. 2002. Temporal distributions of elk, mule deer, and cattle: resource partitioning and competitive displacement. *J. Mammalogy*, 83(1):229-244

Clearly the literature contains empirically derived models developed in various locations throughout the extent of the REAs that could have been compared and drawn upon to aid in the development of models to characterize grazing at the landscape scale.

The ready availability of published literature on the subject of representing grazing on the landscape serves to further reinforce our contention that the AMT interfered with the data discovery and evaluation component of the REAs by questioning whether an important change agent should be excluded on the basis of data issues prior to Task I-2.

“Grazing as a change agent was, therefore, excluded from this set of REAs, but for technical reasons discussed below (i.e., lack of an adequate means of including it), rather than by specific policy direction or any malfeasance.”

Comment by Complainant: Based on the evidence in the record and the arguments made above, this conclusion cannot be made. The AMTs felt it uniquely necessary to seek guidance and direction from the Washington Office on how to treat the grazing issue. The technical reasons provided by the AMTs were inappropriately applied prior to the processing steps clearly defined in the Statement of Work.

In addition, at least one REA Project Manager misrepresented the existence of an electronic LHE dataset, and ultimately the withholding of this dataset that was in the possession of both the NOC and the Washington Office. Only later, did BLM reject some contractor’s considerations to model grazing distribution patterns, citing a complete lack of data needed to model grazing at the landscape, when clearly such data exists in the rangeland management peer-reviewed literature.

“Neither the WO nor the Project Managers issued any direction to exclude grazing.”

Comment by Complainant: This statement is contains an element of truth which only masks its misleading nature. First - it was an REA Project Manager, rather than the AMT or participating REA scientists, who made the decision to deal with the issue of livestock grazing as a change agent out of order, because he knew that the issue was contentious, that stakeholders and the WO were concerned about its potential litigation that might jeopardize future funding for REAs. In addition, he stated right up front to workshop scientists that land health standards evaluation (LHE) data were not in a formalized database, (Workshop Minutes, Colorado Plateau Rapid Ecoregional Assessment (REA) Workshop Summary, Lakewood, Colorado, August 10, 2010). This data availability argument made during Task I-1 and associated with comments related to litigation worries and the potential loss of funding was inappropriate and clearly deviated from the established protocol. Data availability and quality issues were to reviewed and discussed at the end of Task I-2, following acquisition and evaluation of the LHE dataset

Secondly, it was the REA Project Manager and AMT who decided that the matter of potential inclusion of livestock grazing would require further guidance and direction from the WO. So, the Project Managers and AMTs sought direction from the WO – direction as to how the politically sensitive issue of livestock grazing was to be treated. That the WO did not ultimately provide such direction is irrelevant. The mere fact that the Project Manager and AMT sought direction and the WO deliberated on what guidance or direction it could provide is sufficient to find merit in our allegation.

“Instead, while its importance was recognized, the lack of resolution of these technical aspects of information regarding grazing impacts led to the issue being tabled.”

Comment by Complainant: This statement is not true, as detailed in previous comments above.

Second Allegation – “The zero tolerance of loss of integrity has been violated, in this case through the decision making to exclude grazing from consideration after its recommendation by contracted scientists”, specifically, the withholding of GIS grazing effects data layers from the contractors negated the validity of the REAs (§ 3.4 The Department ... will not tolerate loss of integrity in the performance of scientific and scholarly activities or in the application of science and scholarship in decision making ...).

Discussion (PAGE 3-5):

“The BLM intends its REAs to be based on existing and readily available geospatial datasets; they are not to involve data collection or transformation and the consequent burden on Field Offices.”

Comment by Complainant: The REAs were to be based on existing data, or if not existing, data generated from modeling approaches based themselves on existing data could be used. The definition of “geospatial data” was defined by Executive Order 12906, which was a Federal effort to address needs for quality spatial information. The formal definition of “geospatial data” is “information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the Earth.” (EO12906).

While the LHE data is in tabular rather than a GIS layer, the LHE data falls under this definition, because each record contains ~~the~~ reference to a specific geographic location (state code & allotment number) which, when concatenated, identifies the specific polygon of BLM’s GIS allotment layer to which the LHE record pertains. The joining and relating of tabular data to spatial features, such as points, lines, and polygons, lies at the very heart of GIS processing. In the Statement of Work, contractors are directed to:

“...review and summarize existing regional information, including BLM, Federal, State, and local datasets (Attachment **Error! Reference source not found.**), published and gray literature, expert opinions, prior assessments, and other pertinent information relative to assessment requirements. The Contractor should evaluate the adequacy and potential weaknesses of the various data sets to meet assessment objectives. The Contractor should identify data gaps that may prevent project objectives from being met. Based upon the datasets that are available *or can be generated (emphasis added)* the Contractor should determine how the data will be collected, internally-managed, and archived, and how resources will be used to ensure high quality data.”

Clearly “published and gray literature, expert opinions, prior assessments, and other pertinent information relative to assessment requirements” includes non-geospatial data which might be needed to parameterize proposed models to “generate” data.

“The 2010 Statement of Work that applies to the initial round of REAs makes this clear: ‘...the gathering, synthesizing, and interpreting currently available information from the literature or using data from inventories and monitoring.’ There was an expectation that some data might not be available, but that readily derived or modeled information might be used.”

Comment by Complainant: *These statements are true but further support our allegation that livestock grazing was not treated the same as other CEs and CAs.*

(1) Data was available for evaluation, but withheld by BLM, so the completeness or quality of these data could not have been evaluated. The actual quality of the data should not have precluded their identification and evaluation, and compromised the integrity and credibility of the process; and

(2) Readily derived or modeled information could have been used, based on the literature (see example citations above). Although BLM and REA partners actively aided in identifying, evaluating, and editing such models for the contractors, such assistance does not appear to have been provided in support of modeling livestock or grazing spatial distribution.

“In considering modeling options, it was determined that existing data sources were too fragmentary for valid and robust regional modeling.”

Comment by Complainant: *This statement is not true. Examples of livestock distribution models are readily identifiable in the published, peer-reviewed rangeland science literature (see example citations above). Often these simple models can be based on seamless, readily available data which meet quality standards for the REAs, such as water availability and proximity (the USGS’s National Hydrography Dataset (NHD), and*

topographic and elevation derivatives, such as slope and aspect, barriers to access to water (the USGS's National Elevation Dataset (NED)). Whether such models would finally be accepted by the AMT was irrelevant prior to the end of the models, methods and evaluation stage (Task I-3), which included models) at end of Task I-3.

In addition, the failure to exclude all other proposed models for other conservation elements and change agents based the same criteria set for livestock or grazing distribution modeling is a clear example of the differential treatment of what was earlier identified as a contentious issue.

“Note that these data sources frequently are adequate to meet the needs of managers at a local scale, but not necessarily at a regional scale.”

Comment by Complainant: Certainly some types of data meet the needs of managers at the local scale, but clearly grazing models could have been proposed and refined that could have been based on available region-wide data.

“Note also that the fragmentary nature of the data sources applies to both the incomplete data coverage across the landscape as well as the inconsistent availability of the datasets themselves.”

Comment by Complainant: This statement fails to identify which datasets are being referred to. Some high quality seamless datasets could have been used for modeling as discussed above, just as were used in other cases in the REAs. If this statement refers to certain BLM data, this statement may well be true, however, but again it misses the point if the contractors did not have access to these dataset to evaluate and attempt to fill in gaps during Task I-2.

“The challenge facing the BLM and our contractors is that consistent, comparable, reliable data at the scale necessary for ecoregional-level assessments is nonexistent.”

Comment by Complainant: This statement may well be true for the BLM LHE data, but again, is irrelevant, since the opportunity to obtain and evaluate the LHE dataset through the protocol clearly defined in the SOW was denied. As stated and cited above, there are livestock models in the peer-reviewed literature that are based on consistent, comparable, reliable data at the scale necessary for ecoregion-level assessments. In addition, whether the LHE dataset was complete or not, important information could potentially have been gleaned that could have been useful for model development and for determining the relative importance of different change agents on the landscape, etc. within BLM allotments.

“The AMTs made it clear that if a contractor could find and use consistent reliable data at an appropriate scale and could incorporate the data into the REAs, the information would be helpful in the BLM’s eventual use of the assessments. However, if contractors could not find sufficient data for the analysis, the REA would identify this as a gap for later consideration – whether through future REAs or another assessment instrument.”

Comment by Complainant: Since BLM denied the existence of the LHE dataset and withheld this dataset, the contractors could not identify, record in the REA records, and attempt to fill identified gaps

“However, LHSs were deemed not suitable for use in the REAs for several reasons. The most important is the lack of complete coverage of all the BLM-administered lands.”

Comment by Complainant: BLM’s first rationale for not including these data during the Colorado Plateau REA Workshop 1, was that (a) these were not compiled in an electronic database, and (b) inclusion of grazing at all in the REAs was of concern to the WO and to stakeholders regarding litigation potential. Lack of complete coverage did not come up. There is an LHE dataset compiled for all BLM allotments, in addition to a national geospatial layer of containing all BLM administered allotments, which is periodically updated with revised state data.

What is true is that not all allotments had been evaluated prior to 2008. In addition, the Complainant obtained these data from the National Operations Center and evaluated them. Evaluation completion status is the least of the qualitative problems with these data. The issue is that these other quality problems would have been identified and recorded during Task I-2 by all contractors, had the dataset been made available to them by the NOC.

“Other reasons include the fact that the LHEs are not yet in a digital database to facilitate analysis, nor was there a standardized BLM geospatial layer of LHSs.”

Comment by Complainant: As discussed above, BLM’s Washington Office compiled a comprehensive digital dataset of LHE records in response to a FOIA request. USGS had in fact obtained a copy of this dataset from BLM and were subjecting to a comprehensive evaluation while the REAs were underway. Their findings had not been published at that time (see Veblen et al., 2011), nor did BLM relay to contractors that these data were at that time being evaluated by USGS, who were functioning as peer-reviewers for the REAs.

BLM also maintains a national geospatial layer of livestock grazing allotments, the BLM National GSSP Grazing Allotment Boundary Polygons, available for download from the

GeoCommunicator web portal (<http://www.geocommunicator.gov/GeoComm/>). It should be noted that this layer is certainly not error free, since it represents a compilation of state data. However, the quality of the allotment layer would have also been evaluated during the Task I-2 stage.

With regard to standardization, all the LHE evaluation findings, BLM still somehow manages to collapse these evaluation findings into the categories summarized by the Agency in their Rangeland Inventory, Monitoring, and Evaluation Reports (available online at: http://www.blm.gov/wo/st/en/prog/more/rangeland_management/rangeland_inventory.html). If these data are not sufficiently standardized for potential use in the REAs, it stands to reason that the quality of BLM's published records of its land health management should be called into question.

As addressed earlier, the LHE dataset contains spatial information, because each record contains the state code and allotment number, which together identify the specific grazing allotment polygon to which the LHE record details refer. The joining and relating of tabular information to GIS feature types (in this case polygons) is central to GIS processing. USGS performed such a join between the reorganized and coded LHE tabular data and a compiled BLM allotment layer (Veblen et al. 2011)¹⁰. Therefore, the statement: "...LHEs are not yet in a digital database to facilitate analysis..." is simply false.

"The LHE data are not in a geospatial format."

Comment by Complainant: The same argument applies to the above. Each LHE record in the dataset contains the information needed to join it with the specific BLM allotment polygon, just as other attribute data is joined to specific polygons.

"The LHSs can vary by state, over the years different methodologies have been used to conduct LHEs, thus making it difficult to merge data in a consistent format at the ecoregional-level."

Comment by Complainant: With regard to BLM's LHE dataset, it is true that each state has sometimes expanded on the required Land Health Standards defined in, but all standards are required to comply with an original fallback set of standards. The fallback standards and guidelines defined in 43 C.F.R. § 4180.2 (f)(1) and (f)(2):

"(f) In the event that State or regional standards and guidelines are not completed and in effect by February 12, 1997, and until such time as State or regional standards and guidelines are developed and in effect, the following standards provided in paragraph (f)(1) of this section and guidelines provided in (f)(2) of this section shall apply and

¹⁰ Veblen, K., C. Aldridge, M. Casazza, T. Assal, and M. Farinha, 2011, "Range-wide Assessment of Livestock Grazing Across the Sagebrush Biome". *USGS Open File Report 2011-1263*

will be implemented in accordance with paragraph (c) of this section.” [60 FR 9969, Feb. 22, 1995, as amended at 61 FR 59835, Nov. 25, 1996]

It is hard therefor, to defend the assertion that it is “difficult to merge data in a consistent format at the ecoregional-level”. Thus, all the methods are sufficiently consistent with respect to the fallback standards and guidelines across time and states with respect to passing or failing, and whether livestock were the cause of failures. As stated earlier, BLM treats these data as consistent across all states and ecoregions is reflected in their own annual calculation and summation of status for all 21,363 grazing allotments totaling 157,433,251 acres that it administers¹¹.

“One allotment can have differing compliance with LHS; sections of an allotment can be achieving the LHS while other sections may not be.”

Comment by Complainant: It is true that LHE failures are often attributable to conditions identified during sampling in a section of an allotment. Until such time that BLM can delineate areas meeting or failing to meet land health standards within allotments, allotments are identified as passing, progressing, or failing to meet land health standards. BLM summarizes the cumulative number of and area of allotments passing and failing evaluations in their Rangeland Inventory, Evaluation, and Monitoring Reports, so it is not unreasonable to argue that the allotment-level findings would have potential utility in a regional-scale assessment. In addition, some types of failures, such as riparian failures have ecological importance that is simply not reflected in allotment-level area estimates.

“Aside from the physical and analytical limits of the LHE data, there are other difficulties in assessing the effects of grazing on vegetation in the REAs including: the challenges of distinguishing grazing effects by different herbivores, or contemporary from historic use incorporating the effects from multiple spatial scales where different evaluation methodologies have been employed; and the complete lack of data from non-Federal lands.”

Comment by Complainant: There are several arguments made above which must be addressed separately.

First, in the REAs, “condition” of a conservation element is often simply based on proximity measures to a change agent, such as distance from a road, distance from an urban area, distance from a powerline, etc. There is no actual data on “condition” of many conservation elements except where actually displaced by a change agent, such as a road, or conversion of native vegetation into non-native vegetation. Some proximity-effect relationships have been established through research, others are based on best professional judgment or estimated. During the analyses, the “condition” of all the

¹¹ BLM Fiscal Year 2010 Rangeland Inventory, Evaluation, and Monitoring Report. available online at: http://www.blm.gov/wo/st/en/prog/more/rangeland_management/rangeland_inventory.html

conservation elements is rolled up into an overall metric of “ecological integrity” in the REAs. The point is that estimates of condition of vegetation, with respect to different herbivores, need not be an actual effect, as argued in the sentence above. Therefore, there is no material difference between this vegetation’s “condition” with respect to proximity to an invasive or noxious plant species source and vegetation’s “condition” based on modeled spatial distribution of cattle on the landscape. Those areas where cattle are more likely to graze or have grazed (near water sources, less steep slopes, for example) would be assigned lower relative condition scores than locations where cattle are less likely to graze, or have ever grazed.

All the REA assessments of future vulnerability of conservation elements to change agents must be handled in this manner as well. Obviously, actual condition data would be preferable to assign a current status if the data were available, such as complete and reliable LHE data.

Second, the challenge of distinguishing the effects of different herbivores is presented as a problem. However: (a) with respect to the LHE assessments, allotment failures associated with overgrazing by native herbivores are differentiated from those failures where livestock are identified as the significant causal factor. Our preliminary review of the LHE database identified just 3 instances where native ungulates were singled out as the primary cause of an LHE failure between 1997 and 2007. This is just one small example of the useful information that would have been obtained had the LHE database been evaluated during the REAs. LHE data reveal that the overwhelming majority of failures with a cause attributed by BLM to herbivores were due to livestock, rather than native species; (b) there is no difference between modeled “condition” of vegetation with respect to cattle than with respect to mule deer, elk, or antelope (Stewart et al. 2002)¹².

Third, the distinction between historic and current impacts of grazing is entirely irrelevant with respect to condition. Obviously, historic land health impacts would tend to fit an idealized modeled grazing spatial distribution more closely than today yet so would other species habitat models.

Obviously, stocking densities will fluctuate with time, conditions, and management strategies but the same can be said for many of the objects being assessed in the REAs. Characterization of uncertainties is a required element in the REAs.

Lastly, while it is true that data is lacking from non-federal lands, the distribution of historical impacts from livestock can be assumed to be comparable between federal and other land ownerships today. It is safe to assume that a large fraction of potential grazing lands outside federal ownership are currently being grazed, so it might not have been unreasonable to consider modeling strategy such as described above. The characteristics of and the level of uncertainty could have been both documented and represented spatially.

¹² Stewart et al., 2002. Temporospatial distributions of elk, mule deer, and cattle: resource partitioning and competitive displacement. *J. Mammalogy*, 83(1):229-244

“Other agencies conducting regional-scale assessments have faced similar difficulties in attempting to correlate small-scale and large-scale effects (e.g., the Interior Columbia River Basin Ecosystem Management Project, see “An assessment of ecosystem components in the interior Columbia Basin and portions of the Klamath Basin and Great Basins”, Thomas M. Quigley, Sylvia J. Arbelbide, technical editors, 1997, U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station, General technical report-405).”

Comment by Complainant: This is true, but the Interior Columbia River Basin Ecosystem Management Project, completed at the time when the LHE assessments had just begun. Had the LHE data been available at that time, one can't speculate whether or how the authors might have used these data.

“Notwithstanding the challenges discussed above, several of the REA AMTs decided to continue the dialogue on grazing as a change agent through the first several workshops to see if any data or modeling approaches to assessing grazing effects could be identified. To date, results indicate a lack of sufficient existing data as well as a lack of modeling approaches to address the issue.”

Comment by Complainant: The arguments that rebut this assertion are detailed above.

“While there is no Land Health Database maintained by the BLM, there is a 2008 Land Health spreadsheet that was compiled by the WO and contains tabular data on LHS that have not been achieved, listed by authorization within allotment, and the major causal factors associated with the non-achieved determinations. “

Comment by Complainant: It strains credulity to consider that the agency does not maintain an official LHS database, since the agency manages to code the thousands of LHE findings, and prepare and publish annual and cumulative LHE summaries for more than 20,000 allotments in the Rangeland Inventory, Monitoring, and Evaluation Reports (available online at: http://www.blm.gov/wo/st/en/prog/more/rangeland_management/rangeland_inventory.html). As discussed in the rebuttals above, the 2008 Land Health Spreadsheet (FOIA 2007-64.RatnerCD.xlsx) contains both the administrative state code and allotment number for each record, which, when concatenated form the identifier that links specific LHE records to specific BLM allotment polygon spatial features.

The particular type of digital database is not relevant. Whether BLM maintains keeps these data up to date in another Land Health Database does not invalidate the potential utility of this spreadsheet database, which, if it represents the best available data, should have been provided to all the contractors on the hard drives containing other BLM data

of potential utility in these REAs. The Washington Office, knowing that the contractors were looking for a LHE dataset could have supplied it as well, since they had compiled it.

“The 2008 Land Health spreadsheet has limits though; it represents an incomplete land health dataset and consists of tabular, non-spatial data.”

Comment by Complainant: This argument has been thoroughly addressed above. The records in this dataset contain the state and allotment codes, that when concatenated, can be used to link all the LHE information and other fields for each record with its allotment layer polygon feature.

“Also, the NOC staff working on REAs did not become aware of this 2008 Land Health spreadsheet until October 2011, after receiving the completed USGS report “Range-wide Assessment of Livestock Grazing Across the Sagebrush Biome”, Veblen, K., C. Aldridge, M. Casazza, T. Assal, and M. Farinha, 2011, USGS Open File Report 2011-1263 (Veblen et al.) <http://pubs.usgs.gov/of/2011/1263/pdf/ofr20111263.pdf>.”

Comment by Complainant: This claim is utterly implausible since both the NOC and the WO knew of the dataset. USGS knew of this dataset, and had, in fact requested a copy for evaluation from BLM. Their request for these data from BLM did not differ from REA contractor’s requests for these data.

The NOC staff responsible for producing the Rangeland Inventory, Monitoring, and Evaluation Reports (available online at: http://www.blm.gov/wo/st/en/prog/more/rangeland_management/rangeland_inventory.html) participated in the Colorado Plateau REA and was present when the REA Project Manager claimed that the LHS data did not exist in electronic format. He is acknowledged in the Veblen et al. report for his assistance on this study that evaluated this BLM LHS dataset. The NOC also later provided a copy of this spreadsheet to PEER upon request.

It strains credulity to believe that such an important evaluation of BLM’s data escaped the attention of the key REA staff (including their data manager) from the NOC. Curiously, and certainly unnecessarily, the Veblen et al. report goes beyond stating that they simply obtained these data from BLM but describes that these data were the product of a previous FOIA request by a private organization back in 2008.

“Objectives for Veblen et al. were to ‘Investigate whether range-wide datasets could be used in conjunction with remotely sensed imagery to identify across broad scales (a) allotments potentially not meeting LHS and (b) allotments in which unmet standards might be attributable to livestock grazing...’ To do this, they followed common model development

procedures; they collected existing BLM data, divided it into two sets, used one part to set parameters for a predictive model of lands in the BLM-defined category ‘not met due to livestock’, and then used the remaining data to see how well their model performed. Model accuracies were low (example 62 percent on the ‘Met’ and ‘Not Met’ model, pg. 25) and error was probably even greater since there was no accuracy assessment on the actual monitoring data BLM collected.”

Comment by Complainant: This statement is both inaccurate and intentionally misleading as well as being an ex post facto argument. Since this BLM now asserts that BLM NOC staff working on the REAs had no knowledge of the LHE spreadsheet until October 2011, it cannot then turn around and use findings of the Veblen et al. published report to justify the exclusion of these data from the REA’s Task I-2 data search and evaluation step, which was completed late in 2010.

Thus, the USGS project objective quoted above are utterly irrelevant to this allegation. If the REA NOC staff did truly have no knowledge of the USGS project, then they should have had no knowledge of either objectives or findings. As it happens, USGS was at that time performing data identification and evaluation of the very LHE dataset, a process comparable to Task I-2 of the REAs! That the statement above is intentionally misleading can be seen in the first two objectives of the Veblen et al. project¹³ (passages are underlined for emphasis):

“1. Identify and refine existing range-wide datasets to be used for analyses of livestock grazing effects on sagebrush ecosystems.

2. Assess the extent, quality, and types of livestock grazing-related natural resource data collected by BLM range-wide (i.e., across allotments, districts and regions).”

These two USGS objectives are unambiguously materially comparable to REA Task I-2¹⁴:

“Task 2: Identify, Evaluate, and Recommend Potential Data

Objective

The objectives of this task are to identify, evaluate, and recommend various datasets for assessing the current status of conservation elements, assessing the potential for future change to status, and answering the ecoregion management questions.”

The BLM denied the existence of a digital LHE dataset to the contractors, rather than to comply with this request, although BLM provided a hard disk to each contractor containing potentially useful data to evaluate. The SOW directs contractors to:

¹³ Veblen, K., C. Aldridge, M. Casazza, T. Assal, and M. Farinha, 2011, “Range-wide Assessment of Livestock Grazing Across the Sagebrush Biome”. *USGS Open File Report 2011-1263*

¹⁴ *BLM Rapid Ecoregional Assessment for the Central Basin and Range Ecoregion, Statement of Work, Section 3.2, page 30*

“... review and summarize existing regional information, including BLM, Federal, State, and local datasets (Attachment 6.2**Error! Reference source not found.**), published and gray literature, expert opinions, prior assessments, and other pertinent information relative to assessment requirements. The Contractor should evaluate the adequacy and potential weaknesses of the various data sets to meet assessment objectives. The Contractor should identify data gaps that may prevent project objectives from being met. Based upon the datasets that are available or can be generated, the Contractor should determine how the data will be collected, internally-managed, and archived, and how resources will be used to ensure high quality data”¹⁵.

In one instance the contractor identified more than 200 potential data layers¹⁶, while another identified about 400 data layers for evaluation during this task¹⁷.

In summary, USGS was conducting a project concurrent with the REAs, the first objectives of which were comparable to the second objective of the REAs – that of identifying, obtaining, and evaluating available data pertaining to a change agent, in the latter case, specifically grazing-related. USGS had requested and received the LHE dataset from BLM. The contractors requested these data, but were informed that they did not exist. The use of the Veblen et al. report is again an inappropriate ex post facto justification to support the contention that the complaint has no merit.

“The only BLM data sets USGS identified and refined in this study that could be considered ‘range-wide’ were the BLM’s allotment dataset, the BLM’s billed use, and the BLM’s Permitted use. Data sets on the BLM’s actual use data and Land Health data are spatially incomplete.”

Comment by Complainant: The preceding rebuttal applies to this statement as well. In addition – if the billed use data is considered spatially complete – then so too must the LHE data records be treated as spatially complete, because they reportedly identify the land health assessment status for all allotments.

Billed use should, in theory, reflect the rancher’s actual use. BLM requires grazing operators must fill out an Actual Use Grazing Report (Form 4130-5), the principal purpose of which is (passages underlined for emphasis): “Information will be used to document that actual amount of livestock grazing use on the public lands to calculate your billing, and help evaluate the effectiveness of management actions in meeting resource management objectives.” (Form 4130-5, page 2). This form also informs the grazing operator of Title 18 U.S.C. Section 1001 that reads: “... it is a crime for any person knowingly and willfully to make to any department or agency of the United States

¹⁵ BLM Rapid Ecoregional Assessment for the Colorado Plateau Ecoregion, Statement of Work, page 30

¹⁶ Central Basin and Range Rapid Ecoregional Assessment – Final Memorandum I-2-C, November 19, 2010

¹⁷ Colorado Plateau REA Memorandum I-2.c, December 4, 2010

any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.”

Drawing on the findings of Veblen et al., billed Use was found to closely reflect Actual Use¹⁸. The REAs often relied on indicators or surrogates in their analyses when actual data was not available or complete.

Moreover, a status of some permutation of “evaluation not complete” is not the same as missing allotment records. In addition, even had they known that the data was incomplete, the Statement of Work still directs contractors to “identify data gaps that may prevent project objectives from being met” (BLM Rapid Ecoregional Assessment for the Colorado Plateau Ecoregion, Statement of Work, page 31). Thus, unless they had knowledge of the contents of the LHE dataset concerned, they cannot be used this argument for having denied the dataset’s evaluation in the REAs.

In addition, the statement that both the allotment layer and the Billed Use are spatially complete would justify the potential use of the LHE data, since both Billed Use and LHE records correspond just to specific BLM allotments, thus do not fall under the definition of “seamless” data. We do not dispute that not all evaluations had been conducted at the time of the dataset’s creation. But, unless BLM was intimately familiar with the LHE dataset, they again would have had no way of knowing whether the dataset did or did not have a record corresponding to each allotment in the GIS layer. They could therefore not claim that the LHE dataset was “spatially incomplete”.

“Veblen, et al., attempted to take LHE data that were available in the sagebrush biome and create a geospatial layer. The report acknowledges that within the sagebrush biome only 57 percent of allotments have a LHE. Since the LHE data Veblen, et al, used were ‘incomplete’, the spatial data layers are incomplete.”

Comment by Complainant: The preceding rebuttal comments above apply to this statement as well. In addition, BLM REA staff apparently only became aware of the Veblen et al. findings in October 2011, while the REA Task I-2 was conducted during 2010, so this is again an after the fact rationale.

To reiterate, the purpose of Task I-2, completed late 2010, was to identify and evaluate any spatial data that could be of potential use, and as part of the evaluation process, to identify and document these data gaps. BLM’s withholding of this dataset from contractors during Task I-2 prevented them from also conducting an evaluation comparable to that of Veblen et al.

Regarding the completeness or incompleteness of these data, the reference to 57% above refers to the number of records that reported whether an evaluation had been completed,

¹⁸ Veblen, K., C. Aldridge, M. Casazza, T. Assal, and M. Farinha, 2011, “Range-wide Assessment of Livestock Grazing Across the Sagebrush Biome”. *USGS Open File Report 2011-1263, page 5.*

rather than the percentage with records identifying the evaluation status, which included various permutations of “evaluation not complete” as well as completed evaluations.

“When LHE data are merged using multiple LHS and methodologies, errors inherent in the various methods are amalgamated into an unknown total amount of error that affects accuracy of livestock grazing effects in an unknown amount.”

Comment by Complainant: Differences between LHS methodologies are not relevant to this allegation, since all the methods were assessing the basic core Land Health Standards (see below).

As discussed previously, apparently any differences between methods have not been enough to preclude the agency from publishing agency-wide annual and cumulative summaries of these data that track BLM’s management accomplishments regarding rangeland health, a report card. In addition, BLM has had 15 years to address any of these shortcomings had they mattered.

Of special interest in the REAs was the determination of whether allotments had met or not met Land Health Standards, and whether livestock were identified as the cause of failures. Any potential shortcomings that might result in excessive error were to have been identified in Task I-2.

Also, as addressed earlier, all standards are required to comply with an original fallback standards and guidelines defined in 43 C.F.R. § 4180.2 (f)(1) and (f)(2).

Much of the data used in the REAs will result in findings which are based on an amalgam of and unknown amount of error, yet this is accepted and addressed with caveats warning of the potential implications of these errors. Thus, using this argument to single out the treatment of grazing is therefor inconsistent with the treatment of other REA subjects.

Further, the SOW clearly states that one responsibility of the contractors will be: (Underlined for emphasis) “Evaluation of geospatial data quality shall include participation by qualified Contractor GIS specialists who can evaluate the cartographic and analytical sources of error as per BLM guidance.” (BLM Rapid Ecoregional Assessment for the Colorado Plateau Ecoregion, Statement of Work, page 30)

“The Veblen, et al., LHS data suffer from many errors that negatively affect the accuracy of livestock grazing effects.”

Comment by Complainant: Again, this is an ex post facto argument, and so immaterial to the complaint.

“Veblen, et al., includes several substantial caveats in terms of applications and limitations that set the sidebars for its interpretation. It is not a comprehensive report that presents a seamless coverage of the effects of livestock across a landscape. One of the criteria for all REAs is reliance on seamless data sets. This report describes a technique that does not meet this criterion.”

Comment by Complainant: The rebuttal has previously addressed this ex post facto argument. And as previously discussed, one of the secondary objectives of the REAs was to identify data gaps as they were encountered during the data evaluation step (Task I-2).

REA participants sought to aid in the contractors in the Task I-2 process to identify data from various sources that might help fill holes in data that were not seamless in a particular ecoregion. The evaluation stage was conducted specifically to assess the completeness and quality of data. This requirement was imposed on all data, except a predefined set of data identified by the NOC.

Third Allegation - “The actions clearly compromise the scientific and scholarly integrity of the REAs”, specifically, exclusion of livestock grazing as a change agent will slant the resultant findings and interpretations and seriously compromise the credibility of the REAs (§ 3.4.C Document the scientific and scholarly findings considered in decision making and ensure public access to that information and supporting data through established Departmental and Bureau procedures ...)

Discussion (PAGE 5-6):

“The REAs are not intended to be comprehensive. Further, even for those change agents that remain the focus of individual REAs, the REA products include results consistent with the limitations of the data on which they are based.”

Comment by Complainant: These statements are at odds with record. For example, the BLM Rapid Ecoregional Assessment for the Colorado Plateau Ecoregion, Statement of Work (page 28) states:

3.2 Task 1: Refine Management Questions and Select Conservation Elements

“Objective

The objective of this task is to produce finalized lists of ecoregion-specific management questions, develop a base ecoregion model, select core conservation elements and the change agents that influence these elements, and determine the output products that will guide the REA effort.”

And as subsequently stated in the Work Effort section with passages underlined for emphasis (page 28):

“The general approach for this task is for the Contractor to work with and gain input from the AMT and BLM regional and national technical teams to refine the preliminary resource values, change agents, and management questions that were developed during assessment initiation into final management questions and conservation elements. To do this the Contractor shall apply its expertise, use the scientific and gray literature (non-peer reviewed documents, such as proceedings of meetings, consultant reports; gray literature will be clearly noted as such), and collect input from agencies and organizations to make recommendations to the AMT on conservation elements, change agents, and management questions.”

Thus, the Statement of Work (3.1) requires contractors to “...apply its expertise, use scientific and gray literature...and collect input from agencies and organizations to make recommendations to the AMT on ...change agents...” In response to this statement in the complaint findings, we need only repeat the comments recorded in the Colorado Plateau Workshop 1 minutes, made by REA participants representing various agencies including BLM:

“We run the risk of not having a legitimate assessment if grazing is not considered.”

“It would be intellectually dishonest to ignore grazing.”

“We will be laughed out of the room if we don’t include grazing. If you have the other range of disturbances, you have to include grazing. We are evaluating all of it.”

“BLM is challenged by everyone on either side of the issue. But the REA is not a decision document, so there will be no litigation worries.”

“It would be conspicuous if grazing were absent, ...”

The rationale for singling out and excluding from consideration grazing from the recommended list of change agents is clear. The project manager and AMT stated that there had been discussions earlier about livestock grazing as a change agent with the Washington Office, other REA AMTs, and repeatedly with stakeholders. The project manager stated that there were litigation worries, and that if grazing were included in the REAs, BLM feared that litigation would put a stop to future REAs. So, in spite of the strong objections of the expert participating REA scientists and USGS, the AMT elected to drop grazing.

“Development of each of the REAs has fostered learning opportunities regarding the need for policy and guidance to address appropriate approaches to information gaps where they arise. By design, only existing data is to be used for the REA effort, but follow-up assessments, which may

be different in scope, may take a different approach, on the basis of the assessment of future management needs.”

Comment by Complainant: The argument that REAs “...fostered learning opportunities ... to address ...information gaps where they arise” flatly contradicts earlier arguments that BLM was not interested in data that was neither seamless nor gap free.

Further, by withholding the LHE data, BLM sadly missed a very critical learning opportunity.

“The BLM recognizes that not assessing grazing, as a specific change agent is a substantial limitation in preparing regional/landscape adaptive management strategies for the public lands, particularly in view of drought and climate change effects.”

Comment by Complainant: To this we can only respond with the obvious:

(a) If grazing was clearly recognized as a substantial limitation in preparing regional/landscape adaptive management strategies in the face of drought and climate change, why did they not include grazing as one of the AMT-recommended change agents in all relevant SOWs? The words “livestock” and “grazing” were conspicuously absent from all SOWs.

(b) Why did BLM bring in stakeholder and WO concerns regarding litigation into the scientific debate as to whether grazing was or was not a significant ecological and environmental disturbance factor or change agent?

(c) Why did BLM withhold, rather than encourage, support, and recommend evaluation of LHS data, and subsequently, encourage, support and recommend modeling attempts, or aid in their refinement to address grazing as change agent, just as other change agents were treated?

(d) Why did AMTs not heed the warnings of participating agency staff and USGS peer reviewers, and at least honestly support the effort, knowing that to do so would jeopardize the credibility, and legitimacy of the REAs?

“However, the BLM also recognizes that, even if only the four change agents identified for focus in these REAs have been addressed, and a particular cause has not been validated, this process has resulted in the geospatial documentation of adverse conditions on the landscape for corrective management.”

Comment by Complainant: Again, we must respond with the admonitions of the participating REA agency scientists that exclusion of grazing would jeopardize the

legitimacy and credibility of the REAs. If they have accepted that validation of a particular cause is not an ultimate requirement to inform future management planning efforts, then this is yet another reason that livestock grazing should not have been excluded from the REAs.

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