

SLT comments on 08/24/2015 draft document received from the FR team

The following are comments that relate to factual corrections in the draft FR document as well as key suggested word edits to facilitate accuracy and partnerships. Due to limited time an exhaustive review was not possible. Page number references are based off the draft document received on Aug. 24, and may not reflect page numbers from any more recent versions. The review is broken into two categories: (1) corrections to factual information followed by (2) editorial corrections

Category 1: Corrections

General comments:

- We need a greater level of specificity so that sentences, taken alone, cannot be taken out of context. For example replace “birds” with “greater sage-grouse” and instead of “breeding habitat” replace with “sage-grouse breeding habitat.” Additionally, we should replace “hens” with “females” so that we are consistent with our terminology throughout the document. Replace “grouse” with “sage-grouse.”
- Everywhere where we say “Great Basin” we need to decide whether we also mean to include “Columbia Basin.” Or define Great Basin up front, so that it is clear what we mean when we call out the Great Basin (the way we use it in the document is not consistent with the generally accepted definition of the Great Basin e.g., we include portions of central Idaho and southwest Montana).

Executive Summary:

- p. 2 – Paragraph 2 of the executive summary we state that we have determined that the greater sage-grouse is not likely to be at risk of extinction in the foreseeable future. Suggest using the exact definitions of endangered and threatened to make it clear that we are making our determination using the correct standard – i.e., not in danger of extinction throughout all or a significant portion of its range and not likely to become endangered in the foreseeable future throughout all or a significant portion of its range.
- p. 2, 3rd paragraph, “Advancements in oil and gas technologies have reduced the anticipated footprint of future development; conversion to agriculture is unlikely to continue at a significant rate due to the lack of additional suitable habitat for cultivation; and wind development, although still a potential, is unlikely to occur in areas where sage-grouse breeding bird densities are highest.” Nowhere else in the document is this measure referred to as breeding bird density. If this references Kevin’s model this should be Population Index. The terms are not synonymous and changing them for readability is not accurate.
- p.2 – paragraph 3 - Sentence beginning “Since that time, reg...” Somewhere in the doc, I’d suggest adding a couple disclaimer sentences about how we understand that breeding habitat is 1 of the 3 seasonal habitat components provided requisite needs for the grouse’s annual life cycle. Others will pick up on it if it’s not mentioned and a lot of the conservation provides benefit specifically to other seasonal habitats.
- p.2 – paragraph 3 - Sentence “...conversion to agriculture is unlikely...”
- As currently written this is an incorrect characterization of the model. Ag. conversion is not having an impact because the conversion is not likely to occur where the highest population index/densities are located, not because it won’t occur at the same rate. A 1976 citation may have merit, but we have current (2015) analysis that supports the rationale behind Ag Conv not being a concern. The next sentence has a statement related to wind that says “unlikely to occur in areas where sage-

grouse breeding bird densities are highest". Also need to correct the term "breeding bird densities" here.

- p.2, 4th paragraph, we state that threats have been "substantially reduced" on approximately 90 percent of the breeding habitat across the species' range. Recommend parsing out general and priority habitats here, as the amount of threat reduction is not equivalent across these categories. If you're saying substantial on 90% but we know GHMA doesn't have the same level of protections... seems hard to tie together. May want to adjust percentage or soften claim.
- p. 2, 4th paragraph, "Rangewide, a number of large greater sage-grouse populations continue to be distributed across the landscape..." Suggest deleting "a number of large" unless we are able to quantify what "large" is.

SPECIES INFORMATION

- p. 7, first paragraph, we state that the subspecies was previously described as being found in Washington and parts of Oregon and California. This is incorrect. The historical range of the subspecies was presumed to include southern British Columbia, central Washington, east-central Oregon, northwestern Nevada and northeastern California (Benedict et al. 2003, pp. 301-303).
- p. 8 under "markedly separate" subheading, 3rd paragraph, the page #s and lit cited need to be updated for Davis et al. 2014 from online early version to 38:710–720. The updated citation should be: Davis *et al.* 2014, pp. 715–716.
- p. 8 under "markedly separate" subheading, 3rd paragraph, "the natal dispersal abilities of sage-grouse have been shown to be low..." I am only aware of 2 studies which cite dispersal distances and Dunn and Braun represents the only peer-reviewed publication; I recommend retaining Dunn and Braun 1985, p. 622 here.
- p. 10, Summary of discreteness – recommend that we remove "given the uncertainty about how to evaluate the impact of translocations." Replace text with "Therefore," as the explanation is in the previous paragraph.
- p. 11 under "unusual or unique ecological setting" and after the numbered items we state "no-longer-valid" western subspecies. We have previously corrected this as it is still a subspecies, but FWS does not recognize it based on our analysis. Suggest re-writing as "... rather than the range of the unsupported western subspecies designation" or something similar.
- p. 12 under "summary of discreteness" subheading, recommend changing "As we found in 2001, these differences have resulted in some differences to the types of sagebrush and other vegetative components present in the ecosystem (66 FR 22984, May 7, 2001, pp. 22989–22991)." to "As we found in 2001, these differences have resulted in some variation in the types of sagebrush and other vegetative components present in the ecosystem (66 FR 22984, May 7, 2001, pp. 22989–22991)."
- p. 13 under "summary of discreteness" subheading, final paragraph, recommend changing "Given that Columbia Basin habitat and birds fall within the natural range of variability for greater sage-grouse across its range, we conclude that the best information available indicates that the Columbia Basin population is not significant to the species as a whole because of persistence in an unusual or unique ecological setting." to "Given that Columbia Basin habitat and demographic parameters fall within the natural range of variability for greater sage-grouse across its range, we conclude that the best information available indicates that the Columbia Basin population is not significant to the species as a whole because of persistence in an unusual or unique ecological setting."
- p. 13 under "Significant Gap in the Range of the Taxon" subheading, recommend changing "Relative to the rest of the range of greater sage-grouse (excluding the Bi-State DPS), the Columbia Basin is estimated to contain only 0.6 percent of the individuals (Doherty, USFWS, pers. comm. 2015)..." to "Relative to the rest of the range of greater sage-grouse (excluding the Bi-State DPS), the Columbia

Basin is estimated to contain only 0.6 percent of the rangewide population estimate (Doherty, USFWS, 2015, pers. comm.).

- p. 14, under “Significant Gap in the Range”, the statement indicating “less than 3 percent of the breeding habitat” should read “less than 3 percent of sagebrush habitats.” This figure was not based on the breeding distribution model.
- p. 15, under “Summary for Significance” strongly recommend removing “In addition, as discussed in the assessment of discreteness, translocations have likely affected the genetic make-up of this population.” This is speculative and not supported by evidence.
- p. 16, under Greater Sage-grouse listable entity summary, last sentence. Move “except for the Bi-State DPS” to the end of the sentence. It currently reads as though we won’t consider the Bi-State population, but will consider the Bi-State habitat.

DISTRIBUTION

- p. 16 – first paragraph – second sentence following the semi-colon change vegetation to vegetative types. Vegetation is incorrect.
- p. 16 – first paragraph, last sentence, last clause - The reason provided here for not using PACs is only partially correct – the more influential reason was that data were not collected at the PAC level. As currently written it suggests that PACs are not a good unit of analysis and therefore undermines the COT report.
- p.16 – paragraph 2 - Sentence “Sagebrush habitats that potentially supported sage-grouse occurred over approximately...” - Change to “...habitats **with the potential to support...**” as we’re not debating their existence.
- p.17 – paragraph 3 - Sentence “As described in ...” - Remove “**possibly**” in front of Arizona. As it currently reads as though we think there might be GRSG in AZ.
- p.17 – paragraph 3 - Sentence “Management Zones with the highest relative ...” - Remove “population estimate” and replace with either ‘relative population index’ or ‘population. We do not have and did not quantify population estimates, and I would suggest we don’t give any inclination that we do or folks will be asking us for a number. Again, might have been a change for ‘readability’, but it means something else, something we don’t have and didn’t generate.

HABITAT

- p.19 – paragraph 1 - Add ‘**Occupied**’ in front of ‘range’
- p. 19 – last paragraph on page, second paragraph under “Life History characteristics and Seasonal Habitat Selection - change “hens have been recorded moving....” To Hens typically move..... Hens have been recorded to move much further than the distances identified in this sentence so the sentence without this change is incorrect.
- p. 19, paragraph 1. The sentence that starts “private lands comprise” should state that the largest proportion of private lands occur in MZs I and VI. MZ VII should be deleted from this sentence.

LIFE HISTORY CHARACTERISTICS

- p. 21, Retain Tack et al. citation but remove Fedy et al. and Davis et al. from “Non-migratory sage-grouse have seasonal movements of less than 10 km (6.2 mi; Connelly et al. 2000a, pp. 968–969) while birds in migratory populations (which are discussed in detail below) may travel well over 100 km...” While Fedy et al. and Davis et al. report long straight-line movements between seasonal

habitats I believe only Tack et al. reports movements >100 km; Citations for Fedy et al. and Davis et al. should be removed and included in the next paragraph (see comment below). If Davis et al. is retained here then the citation needs to be updated from the online early version – i.e. change page # to p. 716.

- p. 21, update citations, “Despite the documentation of extensive seasonal movements in this species (Fedy et al. 2012, p. 1066; Tack et al. 2012, p.65; Davis et al. 2014, p. 716), the dispersal abilities of sage-grouse are assumed to be low.

SAGE-GROUSE CONNECTIVITY

This section will need to be cross-walked with the new Crist et al. connectivity paper.

POPULATION ABUNDANCE AND DISTRIBUTION

- p. 23, Change “The updated WAFWA analyses reported declines in all MZ since 1965, with the exception of MZ III, where a slight increase in population trends was noted. In MZ III the increasing trend is not uniform as peripheral areas are continuing to decline.” to “The updated WAFWA analyses reported declines in all MZs since 1965, with the exception of MZ III, where a slight increase in population trends was noted. In MZ III, the increasing trend was not uniform, as peripheral populations are continuing to decline.
- p. 23, 2nd paragraph – Need to make sure date ranges for the WAFWA study are correct
- p.24 – paragraph 1 - Sentence “The Occupied Breeding Habitat Distribution Model uses ...”
- Not totally accurate. Lek data was a portion of the information that went into the model. Suggested edit: “*The Occupied Breeding Habitat Distribution Model uses sage-grouse lek data as a proxy for landscapes important to breeding sage-grouse, because leks are central to the breeding ecology of sage-grouse. Additionally, the model uses habitat characteristics quantified in GIS from various sources, but generally representing standard abiotic and biotic variables used in species habitat modeling to generate a probability surface that represents breeding habitat.*”
- p.25 – paragraph 2 - Sentence “The increased number of males counted in Alberta in 2015 is attributed in part to translocations from Montana.” This sentence should be deleted as it was speculation on the part of the Alberta biologist and we cannot confirm.
- p. 25, under “Abundance and Distribution Models” subheading, change, “Similar to our Occupied Breeding Habitat Distribution Model, our Population Index Model can be linked with other spatially explicit risk models or conservation actions to understand spatial overlap with sage-grouse populations.” to “ Similar to the Service’s Occupied Breeding Habitat Distribution Model, the Population Index Model can be linked with other spatially explicit risk models or conservation actions to depict spatial overlap with sage-grouse populations.”
- p. 26, under “Abundance and Distribution Models” subheading remove, “in the male population” from the following sentence, “New information since 2010 confirms that long-term declines ~~in the male population~~ have occurred from 1965 to 2014 across all MZs where there were enough data to make inferences (Garton et al. 2011, 2015, entire; WAFWA 2008, 2015, entire).”
- p. 26 under “Population Abundance and Trends Summary” the first paragraph is nearly a verbatim repeat of information presented earlier in this section (p. 22) – suggest deleting. The second paragraph should be moved up to the discussion under Population Abundance. This paragraph does not summarize this entire section ignoring discussion of the models. If it is retained here it should be expanded to include a summary of the models.

NEW INFORMATION

- p. 26, first paragraph under this heading – change “dominate” to “occur in” in the second sentence. WE cannot confirm that sagebrush is the dominant vegetation structure on millions of acres. Also suggest deleting the last sentence of this paragraph as it is not value added.
- p. 26, first paragraph – need a citation for the statement that Sage-grouse distribution has remained relatively unchanged since 2004. The figure cited does not provide this information on its own.

NEW SCIENTIFIC INFORMATION

- p. 29, 2nd paragraph under “New Scientific Information” subheading, add “to benefit sage-grouse and its habitats” to the end of the sentence starting “For example, the NRCS...”.
- p. 29, Need to clarify citations in the following paragraph, “The USGS compiled the findings of published scientific literature evaluating the influence of human activities and infrastructure on sage-grouse. This published report (Manier et al. 2014, entire) provides information on biologically relevant buffer distances around sage-grouse habitats to help reduce habitat avoidance caused by human disturbance and infrastructure.” This is the wrong reference. The paragraph should be revised, “The U.S. Geological Survey (USGS) compiled the findings of published scientific literature evaluating the influence of human activities and infrastructure on sage-grouse (Manier et al. 2013, entire). An additional Open File Report (OFR; (Manier et al. 2014, entire) provided information on biologically relevant buffer distances around sage-grouse habitats to help reduce habitat avoidance caused by human disturbance and infrastructure. The revised and amended Federal Plans adopted and incorporated the recommendations in the USGS OFR, as discussed below. These new analyses and tools, plus all the other information the Service considered are addressed throughout this document and our administrative record.”
- p. 29 discussion of the CED. Suggest removing the word “judged” from this section as the folks that provided these data will be offended. For the first occurrence in the sentence starting “Of these projects...” change “judged” to “deemed”. For the second occurrence in the sentence starting “The other 3,500...” change “were judged to” to “did”.
- p. 29 discussion of CED, last sentence suggest changing the word “helpful” to “essential for local conservation” to improve accuracy and ensure we don’t alienate our local partners.

SAGEBRUSH LANDSCAPE CONSERVATION PLANNING

- p. 30, Under Federal and State planning efforts, first paragraph, we say that PACs and IPAs “correspond” with strongholds. Recommend using a different word than strongholds, as strongholds are also used to describe the SFAs.
- Figure 4, Recommend including a discussion of what IPAs are, how they were developed, and why this represents a change from what was presented in the COT Report.
- p. 31 under “federal and state planning efforts” second paragraph, first sentence starting “using the recommendations.....”, delete “and State”. The states did not develop strategies based off these reports, rather their strategies informed the NTT and COT.
- p. 32, should reference Idaho’s Executive Order 2015-04 (ADOPTING IDAHO’S SAGE-GROUSE MANAGEMENT PLAN).
- p. 32, “The sections below provide an analysis of the implementation and effectiveness of the Federal Plans, Montana, and Oregon efforts pursuant to the Service’s Policy for Evaluation of Conservation Efforts (PECE) (68 FR 15100, March 28, 2003). “ It is unclear how the MT and OR PECE evaluations were incorporated into this document.
- p. 33, under subheading “Land management” first paragraph, last sentence; delete “of potentially lower quality habitat which equates to areas” in this sentence. We cannot infer lower quality

habitat – it could also be attributed to less abundant habitat but we don't have the data to support it as written.

- p. 34, Does this paragraph pertain only to the Great Basin? “Because of the commitments from the Federal government to implement these plans and the consistency with COT Report recommendation for measures to reduce threats, these Federal Plans provide substantial conservation benefits to sage-grouse in the **Great Basin**, now and in the future.”
- p. 34, under “Land Management” subheading, “Based on our recommendation to further protect sage-grouse population strongholds that have been identified in the scientific literature **(CITATIONS)** as critically important for the species **(CITE STRONGHOLDS MEMO?)**, BLM and USFS designated areas as Sagebrush Focal Areas (SFA)...” Throughout the document we refer to population centers, core, and strongholds. We need to be consistent with our terminology. Is the mention of strongholds here based on the strongholds memo or as indicated from the scientific literature – it is unclear. The reference to SFA suggests the strongholds memo which should be cited accordingly. If it is based on the scientific literature those references should be cited here.
- p. 35, top of the page – remove the words “lower quality” relative to habitat and lower densities of leks.
- p.35 – paragraph 2 - Sentence “Approximately 14 million ha (35 million ac) were designated as PHMA (Figure 5), corresponding with approximately 65 percent of breeding habitat” - It's 64 percent rangewide, not 65 (see table sent last week).
- p.39 – paragraph 2 (SFAs) - Sentence “Important characteristics of these areas include...” - Change to “**...areas included but were not limited to:...**”. Let the reader know this list presented is not exhaustive. Part of the reason we're still continuing to discuss and debate SFAs is because many still aren't aware of the criteria, etc.
- p.40 – paragraph 4 (GHMA) - Sentence “While GHMAs represent lower quality habitats than those contained in PHMA ...”. The Federal designations didn't have much to do with ‘quality’. There was no rangewide/regional/EIS/MZ-scale assessment of quality. Suggest using different terms or removing. Additionally, PHMA was chosen because of the location of population densities and state-deemed important areas (PACs), and GHMA is more “what was left”... not quality. If you'd like to say that GHMA supports a lower abundance of sage-grouse, that's fair and defensible. Mention of habitat ‘quality’ means something else.
- p.40 – paragraph 4 (GHMA) - Sentence “...contribute to sage-grouse conservation by providing some” - Suggest losing “providing”. GHMA doesn't provide habitat. It may **provide protections in habitat...??**
- p.41 – paragraph 4 (GHMA) - Sentence “...lower quality” - Related to the comment above... So... maybe there needs to be an add or re-wording. Is there a BLM/FS document that we can cite as to whether or not ‘quality’ was a factor in designating these areas. If not, suggest either adding a qualifier that because of lower grouse densities, there's an assumption of lower habitat quality... or maybe change these references to ‘lower population densities’... which probably more accurate and keeps us from having to defend some sort of quality definition analysis.
- p.42-43 all (GHMA) - P.41 states that these measures are applicable to PHMA and GHMA and then most of p.42 and p.43 state ‘...in PHMA..’ so whether it's an ordering of subheading or cleaning up of the language, this seems to not support the 90 percent (PHMA+GHMA) statements...
- In breeding habitat only about 5% RW is ‘closed’ to trail and travel. Half is limited. So while PHMA and GHMA may cover 90% of the Breed. Hab., not every land use provides protection equally, something to consider when stating the 90% figure.
- p.45 paragraph 3 (Monitoring) - Monitoring includes ‘sagebrush condition’... Is it called something else in the BLM document as there was no measure of condition in the monitoring plan. Also, we

may want to add something to the measure of 'reclamation monitoring' as well. We pushed hard for it, and it's an important step between the energy development ceasing and the habitat restoration being completed.

- p. 48, under "Federal Plan Summaries" subheading, "While some disturbance can occur in the GHMA areas, as they contain a smaller portion of the Population Index, protective measures for activities in those areas minimize impacts and require mitigation." Not clear if this differs from the Modeled Population Index, or if we need to cite Doherty et al. 2012a similar to what we did under WY State plans?
- p. 48, under "Wyoming State and Federal Plans", first sentence first paragraph – change "relative Population Index" to "known male population to be consistent with the metric presented in the citation.
- p. 48, under "Wyoming State and Federal Plans", paragraph beginning "The Wyoming Plan relies on...", and sentence beginning "In non-core areas,....", change "would be" to "are" and delete "that are intended".
- P. 48, under "Wyoming State and Federal Plans", paragraph beginning "The Wyoming Plan relies on...", update the figures in the last sentence to 58,191 ha (143,794 ac).
- p. 49, under "Wyoming State and Federal Plans", paragraph starting "Disturbance (including all anthropogenic....", last sentence, the correct reference is Blickley et al. 2014.
- p. 49, under "Wyoming State and Federal Plans", paragraph starting "Outside of core-habitat the citation should be Herman-Brunson not Brunson. Also, Mark Sattelberg indicated he was providing the FR team a paragraph regarding the Douglas core area – it was not included in this draft.

NON-RENEWABLE ENERGY

- 7th paragraph, revise, "Due to the ~~strong habitat~~ fidelity exhibited by adult sage-grouse..."
- 9th paragraph, revise last sentence, "...we had less precise information regarding areas of high oil and gas potential."
- p. 62, paragraph starting "In 2010,...", last sentence delete "all lands within the occupied range were assumed to provide habitat and....", as this is inaccurate.
- p.63 – paragraph 1 and TABLE 5 – All of the numbers were updated slightly. Lief will be sending a document with track changes so you can add the updated numbers.

INFRASTRUCTURE

- Under "State Plans" subheading, "Oregon and Montana's Plans regulations require avoidance, minimization, and compensatory mitigation actions for development actions in sage-grouse habitat on State and private land and, in conjunction with BLM's Federal Plan, cap the amount of disturbance on sage-grouse core habitat to **3 percent** (OAR-635-140-0025 and 28 OAR 660-023-0115)." And 5 percent in Montana?
- p.66 – New publication SHIRK et al. – describes T-lines as being a barrier to gene flow. I expect it'll get traction, we might want to mention it.
- p.67 – TABLE 6 – new title - ***Acres of sage-grouse breeding habitat directly impacted by existing infrastructure.*** The discussion around infrastructure will always revolve around direct vs. indirect. We simply need to specify which we're talking about here or we'll be challenged on it.
- p.68 - dist. Caps - Does the document have somewhere why 3% and 5% are different and ok in their respective states? If not, this (or elsewhere) is a place to add. That is going to confuse those not familiar (ie – everyone).
- p.70 – infrastructure summary - "Together, the Federal Plans and State Plans in Wyoming, Montana, and Oregon remove or reduce ROW impacts to approximately 92 percent of the modeled breeding

habitat across the species' range..." This needs a citation. And I would add that's necessary for all of these number percentages thrown out in the document. They all need to have USFWS unpublished if it came from us...

- Furthermore, looking at the results from ROW (and utility corridors, and Wind Energy), there is no reference as to where the 92% comes from. Given wind energy is infrastructure; you can't only look at ROW – we should clarify if the 92% is only ROW or all associated infrastructure. Also, there's currently >1,000 T-lines ready to go through PAC. Suggest revisiting the 92% and it's source. It looks like about half has exclusion... and the way the sentence reads "remove or reduce"... it's heavy on the reduction side. Chance this is overstated?

AGRICULTURAL CONVERSION

- p.46 – paragraph 2 – last sentence - "...approximately 92 percent of the breeding habitat...". Replace 92 with 91. Remove the last part "...and 95% of the PopIn Index... remember we cannot use that number.

WILDFIRE AND INVASIVE PLANTS

- Under "Altered Fire Cycle" subheading revise 1st paragraph, "Historically, wildfire was the principal natural disturbance in the sagebrush ecosystem (Factor A) and ~~Historical sagebrush systems~~ communities likely consisted of extensive sagebrush habitat dotted by small areas of grassland. This ecosystem was maintained by long interludes of numerous small fires, accounting for little burned area, punctuated by large fire events that consumed large expanses (Baker 2011, pp. 196–197; Bukowski and Baker 2013, pp. 559–561). Historical mean fire return intervals (the average number of years between two successive fires) have been estimated to be 100 to 350 years in low-lying, xeric, Wyoming big sagebrush communities, and 50 to over 200 years in more mesic areas, mountain big sagebrush communities (Baker 2006, p. 181; Mensing et al. 2006, p. 75; Baker 2011, pp. 194–195; Miller et al. 2011, p. 166; Bukowski and Baker 2013, entire). ~~The historic role of fire in sagebrush ecosystems allowed for historic numbers of sage grouse, so fire by itself, managed within an historic range of variation, may not necessarily be a threat to sage grouse.~~ However, altered fire intensity, size and frequency, due in part to the presence of invasive annual grasses, has resulted in fire posing an increasing threat to ~~sage grouse~~ sage-grouse, especially in the Great Basin." The deleted sentence is not supported by the literature. Recommend removing unless we have a citation to support this.
- Table 8. Include data from the Columbia Basin?
- p. 81, last paragraph. This is the first mention of 1.5 % burn rate, with no explanation of where it came from. Table 2 shows a 0.85% burn rate and on page 95 we use the 0.85% burn rate to calculate the loss of 17-25% of the species range within the Great Basin in the next 20-30 years. We should be consistent with the burn rate we present.
- Under SO subheading, recommend final paragraph be revised as follows, "Further, the Secretarial Order provides clear direction to all affected DOI bureaus (CITATION), in particular BLM, for prioritizing actions to address key elements of wildfire management, including effective rangeland management, fire prevention, fire suppression and restoration at a landscape scale. Building on BLM, and the USFS', long and successful history of managing wildfire in the western U.S., the Secretarial Order focuses the existing rangewide commitment to effective wildfire management – as well as invasive plant control and restoration – to protect large, intact sagebrush landscapes against the negative impacts of wildfire and invasives. Pursuant to the Initial Report (see below), the BLM's actions in advance of and during the 2015 wildfire season represents a significant operational shift

by dedicating increased resources to all aspects of fire management. Similarly, the BLM is actively pursuing the long-term directives outlined in the Final Report, such as implementing the National Seed Strategy to support effective restoration efforts (DOI 2015). We have confidence, therefore, that the Secretarial Order and associated actions, both short- and long-term, will be implemented and, as discussed further below, will contribute to ameliorating impacts to sage-grouse persistence from wildfire and invasives.”

- Under “Initial Report” subheading the memo we received from BLM on 6/30/15 needs to be cited for the following, “The management strategies identified by the FIAT process are consistent with broader land use plan Federal Plan direction. Habitat restoration treatments (e.g., biological, chemical, seeding, and broadcast burning) are effective at reducing fine fuel loads and ultimately decrease fire spread and area burned. Chemical applications are effective at removing nonnative annual grasses and promoting growth and establishment of native species. Seeding treatments implemented by the BLM are effective at reducing undesirable species and promote the establishment of desirable species because they are timed to achieve a high probability of success. Conifer removal treatments are implemented to reduce fuel loading and effectively reduce fire intensity, fire spread, and area burned. Wildfire pre-suppression activities alter vegetation composition, reducing the negative impacts from wildfire and invasives. Projects are planned using fire behavior analysis tools that consider topography, weather patterns, fire history, and fuel conditions to ensure effectiveness. These treatments ultimately slow fire spread and reduce fire size and area burned.”

GRAZING AND RANGELAND MANAGEMENT

- 9th paragraph, remove “improper” from, “Construction and development associated with improper grazing, such as watering developments and fences can have a variety of negative impacts..”
- Under “Conservation Efforts” subheading, 4th paragraph, revise last sentence, “The President’s Budget request for BLM included \$8 million dollars to directly support monitoring the implementation and effectiveness of ~~the land use plans~~ Federal Plans.”

CONIFER ENCROACHMENT

- Under “Conifer Encroachment Summary” subheading, missing page numbers and recommend the following revisions, “However, projects to remove conifers near sage-grouse habitat have been implemented in PACs and regulatory measures included in Federal and State plans have resulted in a paradigm shift in land management objectives and practices that will further reduce conifer impacts on sage-grouse and its habitats. The Federal agencies have committed to continue conifer removal projects in the most important habitats identified in the COT Report (USFWS 2013, **p. X**) and the FIAT assessments (BLM 2014, **p. X**).”

RENEWABLE ENERGY

- Under “Wind” subtitle, “Sage-grouse have been found to avoid human-made structures such as power lines and roads (e.g., Holloran 2005, p. 1; Pruett et al. 2008, p. 6).” Should this be Pruett et al. 2009? Note, this paper addressed avoidance behavior of greater and lesser prairie-chickens NOT sage-grouse.
- p.166 – second to last paragraph – “...33 to 4 percent...”. Need to provide citation for those numbers.

URBAN AND EXURBAN DEVELOPMENT

- 3rd paragraph, “~~We~~The Service completed a geospatial assessment of 2010 Census data and estimated that urban and exurban development directly affects less than 1 percent of the sage-grouse occupied range (Theobald 2014, entire).” Did the Service conduct an assessment or was this information drawn from Theobald 2014?

MILITARY ACTIVITY

- Do we need to include the newly announced funding from DoD? The Department of Defense announced more than \$2 million in funding from the Military Services’ Readiness and Environmental Protection Integration (REPI) Program to protect prime greater sage-grouse habitat near Reno, Nevada. This award will leverage an additional \$2 million in partner funding to protect 7 square miles of the sagebrush ecosystem around the Fallon Range Training Complex’s naval training airspace. The money will fund projects on private and public land including conifer removal, wetland restoration, fencing improvement, sustainable grazing techniques, and conservation easements
- 1st paragraph, “The YTC, formerly called the Yakima Training Center...” This is confusing...the Y = Yakima T= Training C = Center but formerly called? So was it YTC and now JBLM-YTC? Suggest we change abbreviation to JBLM-YTC.

SMALL POPULATIONS

- 2nd paragraph, revise, “Small, isolated populations are more susceptible to impacts overall, and relatively more vulnerable to extinction due to ~~genetic problems~~ a loss of genetic diversity, demographic and environmental fluctuations, and natural catastrophes (Primack 1993, p. 255).”
- 4th paragraph, the revisions to this text changed the context. Suggest replacing with revisions below to capture original intent of the text. “Further, these populations may be at risk to loss of genetic diversity. Populations in Jackson Hole and Gros Ventre were found to be genetically isolated with reduced genetic diversity compared to nearby populations in Wyoming and southeast Montana (Schulwitz *et al.* 2014). In contrast, sage-grouse populations occupying fragmented landscapes at the northern extent of the species’ range (Bush *et al.* 2011, p. 539) and in a peripheral population in northeastern California (Davis *et al.* in press) exhibited high genetic diversity with no evidence that these populations were genetically depressed. However, although sage-grouse populations in northern Montana appear to have a sufficient number of birds dispersing to maintain genetic diversity, Bush *et al.* (2011, p. 539) cautioned that increased fragmentation would likely result in demographic declines in peripheral populations.”
- 5th paragraph, add “persistence”, “The four populations in MZ VI are identified above as being at risk due to small population size and are reliant on management actions such as translocations, to maintain population persistence.”
- 5th paragraph, missing citation, “The State of Washington has protected sage-grouse as a State threatened species since 1998 and developed a recovery program (CITATION? Suggest WDFW 2004. Greater Sage-Grouse Recovery Plan).”
- Figure 9, revise, “Figure 9. Sage-grouse populations identified as ‘small’ and/or ‘isolated’ in the Conservation Objection Team Final Report (USFWS 2013).”
- p.137 – paragraph 1 – Delete ‘Abundance’, replace with **population index**
- p.137 – paragraph 3 – We calculated the contributions of the small populations.
- This entire section needs to be re-evaluated in the face of Crist et al. connectivity paper (Knick).

REGULATORY MECHANISMS

- p.147 – paragraph 2 – “...The highest priority work needed to protect the highest density Population Index areas (SFAs) will be completed within 5 years...”. One term needs to be removed -- probably the term ‘population index’... we used Breed. Bird Density (Doherty et al. 2010) for Strongholds... and they’re very similar, but not the same and that isn’t accurate.... -OR- Remove the parenthetical SFA.

FINDING

- p. 150, “Some other minor potential threats exist that are not directly addressed by the Federal and State Plans, such as hunting, disease, predation, recreational activities , and scientific use.” Is this true for recreational activities? Under recreational impacts there is an entire section re: Federal Plans“ The Federal Plans include conservation measures to reduce recreation impacts (BLM 2015, pp. 24 –25).”
- p. 151, “...landowners in Oregon have either completed enrollment or have signed formal letters of intent to enroll, representing more than 770,000 ha (1.9 million ac) of private rangeland in Oregon.” “Check this # and cross-check with all other references to enrollment throughout the document for consistency. For example on page 162 it states:
“The greatest amount of private lands conservation in the Great Basin has occurred in Oregon. In 2015, the Service completed a series of programmatic CCAAs for sage-grouse that potentially covers all private lands in the range of sage-grouse in Oregon. In Oregon, more than 600,000 ha (1.5 million ac) of rangeland have been effectively conserved for sage-grouse through enrollment in a CCAA. The State of Oregon has also agreed to enroll all of their leased grazing lands in a CCAA, spanning approximately 250,000 ha (630,000 ac). These programmatic agreements provides a framework for other landowners to easily enroll without a large amount of time and paperwork, making it likely that others will be enrolled in the near future. Collectively, these agreements have resulted in conservation on more than 850,000 ha (2 million ac) of private lands in the Great Basin. “

SPR

- Under “Status of the Great Basin Portion of the Current Range” subheading, 2nd paragraph, “However, because the majority of the sage-grouse breeding habitat within the Great Basin occurs within areas of high to moderate resistance to the wildfire and invasive plant cycle, we are confident that even if this potential burn rate and habitat loss is realized, sage-grouse populations will continue to persist across this portion of the range.” Unclear what potential burn rate is being referred to here? Add a reference to p. 83 and the discussion of the fire cycle or provide clarity to what is being referenced here.
- p. 162, under “Conservation Efforts in the Great Basin Portion of the Current Range” subheading, 2nd paragraph, be sure if we are cutting a pasting from the Rocky Mountain portion that changes are made to reflect that this is the Great Basin. Cross-check #s to make sure they accurately reflect the Great Basin portion. “The Federal Plans provide clear management regulations with measureable objectives to address ~~the~~invasive annual grasses, conifer ~~invasion~~ encroachment, improper grazing, and free-roaming equids. They prioritize management in the most important habitat (PHMA) which encompasses 67 percent of the sage-grouse breeding habitat in the ~~Rocky Mountains~~ Great Basin . All forms of development—from energy, infrastructure, and grazing structures—would be avoided in PHMA unless further assessment found the project not to have any adverse effects on the species. Consistent with COT Report guidance (USFWS 2013, p. X), a limited amount of development could occur in GHMAs which support 30 percent of the breeding habitat in the ~~Rocky Mountains~~ Great Basin.”

Category 2: Editorial comments

General Comments:

- Avoid superfluous wording and the use of the words significant and threat (unless they are used in the context of the 2010 finding).
- Scientific names should be included at the first mention of the common name. Abbreviate genus names with the first letter when they are repeated.
- For the following citations the en-dash should be removed and replaced with a hyphen: Stiver *et al.* 2006; Connelly et al. 2004; BLM 2013c; BLM/USFS 2008b.
- When metrics are first described they are spelled out and then abbreviated (e.g., pounds (lb)); however, this is not consistently done (e.g., p. 8 km, mi; p. 12 m, ft; p. 25 ha).
- There are still metrics being reported as English units without the associated metric unit conversion.
- Go through all tables and make sure it is clear what the metrics are. For example, is Table 6 acres or hectares?
- When describing ranges (e.g., dates) replace the en-dash with “to”
- Replace “range-wide” with “rangeland”; replace “United States” with “U.S.”; replace \$ with “dollars”.
- Hyphenate sage-grouse but do not add a hyphen to sagebrush.
- Need consistency for subheadings, e.g., Candidate Conservation Agreements vs. Candidate Conservation Agreements with Assurances? Discussions primarily discuss CCAs so I suggest the latter be used throughout the document.
- Need consistency in how we are citing pers. comm. Some include first initial, others do not.
- Update formatting of all tables to match that of Table 2 (Tables 1, 3, 7, 13 and 14 are different)

Executive Summary:

- pp. 2-16 In this section we switch from greater sage-grouse to sage-grouse throughout. Need consistency throughout this section using “greater sage-grouse” until we get to p. 16 where we add hereafter sage-grouse.

ACRONYMS USED IN THIS DOCUMENT

- Do not start sentences with acronyms.
- Define all abbreviations the first time they are used.
- Several acronyms listed are not used in the document (e.g., DDCT, EQIP, WHIP); other acronyms used in the document are not listed (e.g., NTT, PPA, WWHCWG, state agency affiliations).

BACKGROUND

- Table 1 uses both “sub-species” and “subspecies”

SPECIES INFORMATION

- p. 6, Do we need to include scientific names for the following, “grouse, turkeys, pheasants, partridges, francolins, and Old World quail”
- p. 8 under “markedly separate” subheading, it is Yakima, WA but Yakama Nation. Need to ensure this is corrected throughout.
- p. 8 under “markedly separate” subheading, 2nd paragraph, need to add genus for sagebrush before common name.

- p. 10 under “summary of discreteness” subheading, 1st paragraph, recommend removing the following text, “provide an anthropogenic bridge”
- p. 12, under unique or unusual ecological setting, paragraph that starts with “The degree to which regional differences....” The first sentence – words are missing.
- p. 15 under “Marked Genetic Differences” subheading, 3rd paragraph, “Evaluation of mitochondrial DNA (mtDNA) revealed...” Need to add acronym here because it is used later in the paragraph.

HABITAT

- p. 18, change to *A. tridentata wyomingensis* (Wyoming big sagebrush) as the genus for sagebrush was already mentioned above.

LIFE HISTORY CHARACTERISTICS

- p. 20, 5th paragraph, change to “...*Medicago* spp. (alfalfa) fields...”

POPULATION ABUNDANCE AND DISTRIBUTION

- p. 22, missing page numbers, “When counts are done according to a standardized protocol, these counts can be a useful metric of long-term population trends (Connelly et al. 2004, p. 6-6; Johnson 2008, p. X; Johnson and Rowland 2007, p. X; Williams et al. 2004, p. X; WAFWA 2008, p. 3, Blomberg et al. 2013, p. 1590).”
- p. 23, missing page numbers, “The drivers of the cycle are unknown, but may be caused by the amount and timing of precipitation (Rich 1985, p. 14; Fedy and Doherty 2011, p. 921; WAFWA 2015, p. X).
- p. 23, missing page numbers, “The rates of decline have increased in MZs I and V in recent years (WAFWA 2015, pp. XX)...”
- p. 24, missing page numbers, “Lek counts increased in nearly all locations in 2014, and results from 2015 indicates that increase has continued in most areas (WAFWA 2015, p. XX). However, both updated trend analyses are consistent with previous studies showing a long-term (since 1965) decline of sage-grouse in all states and MZs (75 FR 13910, March 23, 2010, p. 13922). The rate of decline lessened during 1985 to 2007, with an average annual change of -1.4 percent (Connelly et al. 2004, p. 6–71; WAFWA 2008, p. 58). The updated WAFWA analysis reported that rangewide, declines were somewhat steeper in the 1965 to 1989 time interval (2.9 percent per year) than in the 1990 to 2014 interval (2.5 percent per year)(WAFWA in prep-2015, p. XX).”
- p. 26, under “Abundance and Distribution Models” subheading, change “Bird” to “Sage-grouse” and support with citations, subheading “~~Bird~~ Sage-grouse abundance is low in both provinces, despite recent increases in the number of males counted on leks in 2015 (35 total males counted in Alberta, 20 total males counted in Saskatchewan) (CITATION). The increased number of males counted in Alberta in 2015 is attributed in part to translocations from Montana (CITATION).”

NEW INFORMATION

- p. 27, 2nd paragraph, remove “Western Association of Fish and Wildlife Agencies” from the following sentence, “Following the 2005 finding, ~~the Western Association of Fish and Wildlife Agencies~~ {WAFWA }released a rangewide conservation strategy for sage-grouse...” as it is already defined above.

NEW SCIENTIFIC INFORMATION

- p. 29, 2nd paragraph under “New Scientific Information” subheading, add scientific name for cheatgrass, spell out NRCS and then provide acronym, and add “to benefit sage-grouse and its

habitats” at the end of the sentence, “to better understand the likelihood of habitats to ability to resist *Bromus tectorum* (cheatgrass) invasion and recover following wildfire (Chambers et al. 2014a, entire). Conservation actions designed to minimize risk have also been furthered by application of new scientific information and tools. For example, the Natural Resources Conservation Service (NRCS) Sage-Grouse Initiative (SGI) has incorporated new scientific research on impacts to guide the development of grazing plans, conifer removal, fence marking, and other conservation actions on private lands (NRCS 2015, entire).

SAGEBRUSH LANDSCAPE CONSERVATION PLANNING

- p. 31, under the “Federal and State Planning Efforts” subtitle, 1st paragraph, recommend the following changes, “As discussed above, in 2010 ~~we~~ the Service concluded ~~that a large number of~~ sage-grouse populations were well-distributed across the occupied range.”
- p. 32, spell out RFPAs, “...(i.e., fuel breaks; and, invasive annual grasses, and conifer encroachment) on lands adjacent to federal lands; development, coordination, and training for Rangeland Fire Protection Associations (RFPAs) to include start-up funding, providing personal protective equipment, radios, firefighting equipment and training materials...”
- p. 32, spell out CCAAs, “...conservation provided by SGI and Candidate Conservation Agreements with Assurances (CCAAs).”
- p. 32, under “Federal Plans” subtitle, change “land management plans” to “land use plans”; “The BLM and USFS completed this effort by issuing amendments or revisions to 98 land ~~management~~ use plans governing approximately 51 percent of the occupied range. These land ~~management~~ use plans are the principal regulatory documents...”
- p. 36, under “Fluid Minerals” subheading, NSO should be spelled out, “Under the revised or amended Federal Plans, PHMAs are closed to new leasing or subject to leasing with No Surface Occupancy (NSO).”
- p. 38, under “Solar/Wind” subheading add acronym for ROW, “Rights-of-ways (ROWS) are required...”
- p. 39, under “Livestock Grazing” subheading, 2nd bullet add acronym for LHS, “meeting Land Health Standards (LHS)...”
- p. 46, under “RDF” subheading, spell out WNV, “so that it would not provide habitat for mosquitos that could carry West Nile virus (WNV).”
- p. 47, under “Adaptive Management” subheading, spell out FEIS, “Tripping a hard trigger will result in BLM or USFS switching to a more restrictive alternative from the Final Environmental Impact Statement (FEIS)...”
- p. 50, under “Wyoming State and Federal Plans” subheading, missing page numbers, “The Wyoming Plan first encourages projects to be re-located outside of core areas by reducing restrictions in non-core habitats for development activities. Where projects cannot be relocated, the Plan requires a combination of restricted development densities, development disturbance caps, seasonal restrictions, and lek buffers to minimize habitat disturbance within core areas. Surface disturbance is limited to 5 percent within core areas reducing fragmentation and degradation of habitat (Wyoming EO 2015-4, Attachment A, p. 6; Wyoming EO 2015-4, Attachment B, p. 5; Knick 2013, p. X; Kirol 2012, p. X; Brunson 2009, p. X). While 5 percent is greater than the 3 percent used in other states, habitat disturbance monitoring in Wyoming is conducted at a much smaller scale and is therefore more inclusive in the number and extent of disturbances measured. Additionally, Wyoming includes natural disturbances, such as wildfire, in the disturbance measure, which is not included in any other state. Therefore, the higher disturbance cap permitted in Wyoming is not more permissive as a simple comparison of the numbers suggests. Limiting development to one site

per 259 ha (640 ac) on average reduces disturbance footprint to a level where impacts to sage-grouse are minimal, if non-existent (Holloran 2005, p. X; Beck 2014, p. X; Mills 2012, p. X; Holloran *et al.* 2010, p. X). Development is not permitted if either of these criteria (development density or disturbance caps) is exceeded. Incentives to consolidate disturbance further reduce development impacts by minimizing habitat loss and degradation within large landscapes. Where development cannot be moved away from breeding habitats, a no surface occupancy buffer of 1 km (0.6 mi) of a lek is required, as well as a seasonal restriction on project development. Activity within 6.4 km (4 mi) of a lek is also restricted from March 15 and June 30. These restrictions reduce impacts to the sage-grouse by avoiding disturbance during breeding season (Wyoming EO 2015-4, Attachment B pp 2–6; Fedy *et al.* 2012, p. X; Doherty *et al.* 2010a, p. X).

Disturbance (including all anthropogenic and natural disturbances) is tracked via a geospatial database (measuring disturbance at a 1 m (3.3 ft). Including all disturbances with such precision ensures that all potential impacts to sage-grouse, regardless of source, are being considered prior to authorizing new development. Additional conservation is gained through the enforcement of noise restrictions at the perimeter of leks, which minimizes disturbance to birds visiting the leks (Wyoming EO 2015-4, Attachment B, p. 8; Patricelli *et al.* 2013, p. X; Blickley *et al.* 2012a, p. X; Blickley *et al.* 2012b, p. X)”

- p. 51, under “Federal Plan Summaries” subheading, missing citations, “Less than 8 ha (20 ac) of disturbance has occurred within core areas since 2012 (CITATION). Other applications were denied that would negatively affect sage-grouse including a wind lease application on state trust lands. (CITATION – Doc from Nicole in GRSG data call and SGIT recommendation to Governor Mead).

HABITAT FRAGMENTATION

- p. 60, revisions to scientific names, “The composition of sagebrush communities has changed with the expansion of *Juniperus* spp. (junipers) and *Pinus* spp. (pinyon) woodlands (Miller and Rose 1999, p. 556) and the invasion of non-native species such *Bromus tectorum* (cheatgrass)...”

AGRICULTURAL CONVERSION

- Under “CCAA” subheading, remove “CCA” from “Lands currently enrolled in CCAAs and CCAs for sage-grouse may include restrictions on agricultural conversion...” Federal lands are not used or converted for agricultural production.

WILDFIRE AND INVASIVE PLANTS

- 1st paragraph, missing citation, “A spatial analysis of areas burned reveals that approximately 18 percent of sagebrush habitat across the occupied range of sage-grouse burned between 1980 and 2007, including 27 percent of the habitat in the Great Basin portion of the range (CITATION?).”
- 2nd paragraph, revise, “Specifically, a suite of efforts such as the revised/amended Federal Plans and the associated ~~Fire and Invasives Assessment Tool~~ (FIAT assessments); Secretarial Order 3336 (~~Rangeland Fire Prevention, Management and Restoration~~); and, other, related efforts...”
- Under “Altered Fire Cycle” subheading, 2nd paragraph, add “conducted by the Service” to, “A geospatial analysis of burned areas conducted by the Service shows that between 2000 and 2008...”
- Under “Altered Fire Cycle” subheading, 3rd paragraph, spell out “doesn’t”, “These burn rates are based on wildfire impacted acres each year and ~~doesn’t~~ do not account...”
- p. 86, “Secretarial Order 3336—On January 5, 2015, the Secretary signed Secretarial Order 3336 (Secretarial Order), which sets forth enhanced policies and strategies for preventing and suppressing rangeland fire and for restoring sagebrush landscapes impacted by fire across the Great Basin region (DOI 2015a, entire). The Secretarial Order establishes a Rangeland Fire Task Force (Task Force),

which completed an Implementation Plan (DOI 2015c, entire)...” Should this be d? SO = a; Initial Report = b; Final Report = c and Implementation Plan = d; may need to re-order if we want to cite in the order plans were released.

- Under “Initial Plan” subheading, remove “land use plans” and replace with “Federal Plans”, “Once implemented, projects and treatments identified by FIAT will follow the same monitoring protocols as non-FIAT management actions, in accordance with overarching guidance in ~~land use plans~~ the BLM and USFS Federal Plans.”

CONIFER ENCROACHMENT

- Under “Conservation Efforts” subheading, abbreviate *Centrocercus*, “The response of sage-grouse to these treatments is not well known. One study of Gunnison sage-grouse (*Centrocercus C. minimus*)...”
- Under “Conservation Efforts” subheading replace “these” with “conifer”, “We are not aware of any study documenting a direct correlation between ~~these~~ conifer treatments and sage-grouse population response...”

PREDATION

- 3rd paragraph, add scientific name for ravens, “...ravens (*C. corax*)...”; add scientific name for magpies and resolve missing page numbers, “Several studies have documented negative effects to sage-grouse associated with increased corvid populations (corvids are a group of birds that include ravens, crows, magpies (*Pica* spp.), and jays) (Holloran 2005, p. 58; Coates 2007, p. 130; Conover et al. 2010; Lockyer et al. 2013, p. 242; Coates et al. 2014; Howe et al. 2014).

DISEASE

- 1st paragraph, 1st sentence, revise by adding “to the species”, “In 2010, we evaluated the effect of disease (Factor C) on sage-grouse and concluded that disease was not threat to the species...”
- 2nd paragraph, redundant, “Sage-grouse are host to numerous parasites and pathogens (Connelly et al. 2004, pp. 10-4 to 10-8; Christiansen and Tate 2011, pp. 114–118). The presence of parasites or pathogens is not synonymous with the presence of disease, ~~population-limiting impacts~~, or population-level impacts (Connelly et al. 2004, p. 10-3; Christiansen and Tate 2011, p. 114).”
- 6th paragraph, add scientific name, “...or mosquito fish (*Gambusia* spp.)...”
- P. 120 – page numbers are missing from citations in the paragraph beginning “West Nile virus is known...”, sentence beginning “most sage-grouse infected...”.

CONTAMINANTS

- 1st paragraph, revise, “Although sage-grouse and sagebrush will continue to be exposed to contaminants, we again find that contaminants are not a threat to the species ~~range-wide or by MZ~~.”
- 3rd paragraph, remove “nutritious”, “...by decreasing the shrub canopy and increasing the cover of ~~nutritious~~ grasses and forbs...”

SMALL POPULATIONS

- 3rd paragraph, revise, “A number of populations across the species range have been identified as being at risk due to small population sizes (Figure 9 and Table 14). The populations identified in Table 14 below, may lack connectivity to other areas-populations within the core of the species distribution, and some have experienced negative population impacts...”
- 5th paragraph, replace “area” with “population”, “In Washington, as noted above, the loss of this area-population does not represent a significant loss for the status of the species...”

FINDING

- p. 152, last paragraph before “SPR” subheading, replace “ESA” with “Act” and “Sagebrush Sea” with “sagebrush ecosystem.”

SPR

- Under “Conclusion for the Rocky Mountain Portion of the Current Range” subheading, 1st paragraph, delete last sentence and move down to beginning of 2nd paragraph.
- Under “Status of the Great Basin Portion of the Current Range” subheading, 3rd paragraph add “land health” or change to “LHS”, “The Federal Plans restrict grazing in areas that are not meeting land health standards...”