From:	King, Jeanette
To:	John DeClerck
Subject:	Fwd: FW: Greater Sage-Grouse Implementation Guide for internal Review
Date:	Wednesday, April 20, 2016 7:20:07 AM
Attachments:	Imp. Guide Review Letter Nov 6 2015.docx GRSG Implementation Guide Comment Form.xls GSG Implementation GuideTrainingchpt 11_6_15.docx GRSG Implementation Guide Draft Version 1.0 (1).docx

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---------- Forwarded message ----------
From: **Carrier, Michael** <michael_carrier@fws.gov>
Date: Mon, Apr 18, 2016 at 2:05 PM
Subject: Fwd: FW: Greater Sage-Grouse Implementation Guide for internal Review
To: Jeanette King <jeanette_king@fws.gov>

---------- Forwarded message ----------
From: **Davis, Dawn** <dawn_davis@fws.gov>
Date: Mon, Nov 16, 2015 at 10:15 AM
Subject: Fwd: FW: Greater Sage-Grouse Implementation Guide for internal Review
To: Eric Rickerson <eric_rickerson@fws.gov>, Michael Carrier <michael_carrier@fws.gov>, Paul Henson <paul_henson@fws.gov>

FYI - just wanted to make you aware of the request being made and ensure you had an opportunity to provide any input.

---------- Forwarded message ----------
From: **Deibert, Pat** <pat_deibert@fws.gov>
Date: Fri, Nov 13, 2015 at 2:50 PM
Subject: Fwd: FW: Greater Sage-Grouse Implementation Guide for internal Review
To: Alex Schubert <alex_schubert@fws.gov>, Amy Nicholas <amy_nicholas@fws.gov>, Angela Burgess <angela_burgess@fws.gov>, Betsy Herrmann <Betsy_Herrmann@fws.gov>, Craig Hansen <craig_hansen@fws.gov>, Creed Clayton <creed_clayton@fws.gov>, Dawn Davis <dawn_davis@fws.gov>, Drue DeBerry <drue_deberry@fws.gov>, Elise Snider <elise_snider@fws.gov>, Genevieve Skora <genevieve_skora@fws.gov>, Heather McPherron <heather_mcpherron@fws.gov>, Jacqueline Cupples <jacqueline_cupples@fws.gov>, Jason Pyron <jason_pyron@fws.gov>, Jay Martini <jay_martini@fws.gov>, Jeff Berglund <Jeff_Berglund@fws.gov>, Jeff Everett <jeff_everett@fws.gov>, Jeffrey Dillon <jeffrey_dillon@fws.gov>, Jennifer Siani <jennifer_siani@fws.gov>, Jesse DElia <jesse_delia@fws.gov>, Jessica Gonzales <Jessica_Gonzales@fws.gov>, Karen Newlon <karen_newlon@fws.gov>, Kate Norman <kate_norman@fws.gov>, Kathleen Hendricks <kathleen_hendricks@fws.gov>, Katie Powell <katie_powell@fws.gov>, Kevin Doherty <kevin_doherty@fws.gov>, Kevin Shelley <kevin_shelley@fws.gov>, Lara Juliusson <lara_juliusson@fws.gov>, Lief Wiechman <lief_wiechman@fws.gov>, Pauline Schuette <pauline_hope@fws.gov>, Tara Vogel <tara_vogel@fws.gov>, Terry Ireland <terry_ireland@fws.gov>, Terry Quesinberry <terry_quesinberry@fws.gov>
Cc: Mary Grim <Mary_Grim@fws.gov>

Hey folks -

My apologies - this one slipped through the cracks while I was on travel this week. If you would like to submit comments please do so, but sadly I will need them NLT Tues COB. Maybe you can focus on a "favorite" part? I will be doing a cursory review as well.

I think some of you have been reviewing already, so please ignore this and follow the protocol you received from whoever asked for your review (but please copy me on your comments!).

Looks like the break is over - let the next round begin!

Thanks!

pat

---------- Forwarded message ----------
From: **Matt Kales** <matt_kales@fws.gov>
Date: Mon, Nov 9, 2015 at 10:32 AM
Subject: FW: Greater Sage-Grouse Implementation Guide for internal Review
To: Mary Grim <mary_grim@fws.gov>, Dawn Davis <dawn_davis@fws.gov>, Pat Deibert <pat_deibert@fws.gov>
Cc: Michael Thabault <michael_thabault@fws.gov>, Nicole Alt <nicole_alt@fws.gov>, Theresa Rabot <theresa_rabot@fws.gov>

Regional SSE Coordinators:

By way of this message, I ask you please work within your respective regions and then with one another to develop one, rangewide set of FWS comments on the below. Also, please note any issues you feel require elevation to the SSE RDs; otherwise, we will simply copy them on our reply to BLM. Thanks in advance, and please holler with any immediate questions/thoughts.

Matt

From: Tupper, Michael [mailto:mtupper@blm.gov]
Sent: Friday, November 06, 2015 3:21 PM
To: BLM_State_Directors; BLM_DSDs_Min_and_Res; Sarah Greenberger; James Lyons; Michael Bean; Bret Birdsong; Edward Boling; Anne Kinsinger; Noreen Walsh; Matt Kales; johnashivik@fs.fed.us; tim.grffiths@mt.usda.gov; Iverson, Chris -FS; Larisa Ford; Vicki Herren
Cc: Steven Ellis
Subject: Greater Sage-Grouse Implementation Guide for internal Review

Attached for your review and comment is the first complete draft of the Greater Sage-Grouse Implementation Guide. This document will be utilized by BLM line managers and staff to facilitate the successful and consistent implementation of the recent Record of Decisions and Approved Resource Management Plans and the Resource Management Plan Amendments associated with the National GRSG Planning Strategy for the conservation of Greater Sage-Grouse habitat. The Draft Training Chapter is also attached for your review and comment.

Please use the attached comment tracking form to record comments. Comments need to be consolidated by Directorate, State, and Center prior to submitting on November 20, 2015. Comments should be submitted to Kurt Wiedenmann, Project Manager at kwiedenmann@blm.gov.

Thank you in advance for your constructive comments,

Mike

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Thanks,

Mike Tupper

DAD Resources and Planning

202 513 0372 D

202 794 0632 C

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National Sage-grouse Coordinator
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Greater Sage-Grouse Implementation Guide Review Comments

November 6 through November 20, 2015

****Please email comments to kwiedenmann@blm.gov no later than COB November 20.**

- Use a separate row for each comment even if you have several comments on the same section.
- Try to be specific, concise, and suggest a change where possible.

Name:

Organization:

Section	Page #	Line #	Comment/Proposed Change

To: BLM Assistant Directors, State Directors, and Center Directors

Subject: Greater Sage-Grouse Implementation Guide Internal Review

Reply by: November 20, 2015

Attached for your review and comment is the first complete draft of the Greater Sage-Grouse (GRSG) Implementation Guide. This document will be utilized by BLM line managers and staff to facilitate the successful and consistent implementation of the recent Record of Decisions and Approved Resource Management Plans and Resource Management Plans associated with the National GRSG Planning Strategy for the conservation of Greater Sage-Grouse habitat.

This draft Implementation Guide has been developed by an interdisciplinary team of BLM and USFS staff from the 11 western states involved with implementing the new LUPs. This effort has been on an aggressive timeline, with the goal of having a completed Version 1.0 for field use prior to the end of the calendar year. As such, this draft version of the guide has only been lightly edited by a writer/editor from the NOC. I ask that your review focus on the content presented to ensure it is factual and an appropriate interpretation of the ROD and LUP direction.

This Implementation Guide is intended to be updated on a periodic basis as new information or implementation questions arise. Due to the aggressive timeline, there are additional topics not addressed in Version 1.0 that may be incorporated into Version 2.0, these include: Mineral Withdrawals, NEPA, Travel Management Planning, and Wild Horse and Burro Management.

If time allows at the upcoming November ELT meeting, I would like to ask each of you to share your thoughts on how we can improve the utility of the Implementation Guide.

Please use the attached comment tracking form to record comments. Comments need to be consolidated by Directorate, State, and Center prior to submitting on November 20, 2015. Comments should be submitted to Kurt Wiedenmann, Project Manager at kwiedenmann@blm.gov.

Mike Tupper
Acting Assistant Director, Resources and Planning

Cc: Sarah Greenberger, Counselor to the Secretary
Jim Lyons, Deputy Assistant Secretary, ASLM
Michael Bean, Principle Deputy Assistant Secretary
Bret Birdsong, Deputy Solicitor, SOL
Ted Boling, Deputy Solicitor, SOL
Ann Kinsinger, USGS (akinsinger@usgs.gov)

Noreen Walsh, Regional Director, USFWS (Noreen_walsh@fws.gov)
Matt Kales, Special Assistant, USFWS (matt_kales@fws.gov)
Chris Iverson, Deputy Regional Forester, USFS (civerson@fs.fed.us)
John Shivik, USFS (johnashivik@fs.fed.us)
Tim Griffiths, NRCS (tim.griffiths@mt.usda.gov)
BLM DSDs Minerals and Resources

GRSG Training Draft
Implementation Guide Outline

1. Training

The proposed training needs identified below were compiled from the various Sage Grouse implementation team recommendations. Training may or may not be the answer for everything identified.
Training is competency based and can be formal or informal. This means that a knowledge, skill, or ability gap has been identified as it relates to being able to perform a task or series of tasks successfully and therefore training is needed to close the gap. A need to exchange or share information is not considered training and can be achieved in a number of other ways such as broadcasts, audio forums, live streaming, VTC, webex's, etc. Other alternatives or options may be utilized to further maximize existing training or develop new curriculum. As the implementation efforts evolve and more information becomes available, it may be reasonable to do needs assessments in order to provide specific and targeted training for the identified workforce needing it to perform their jobs successfully.

Existing Training:

- **AIM**
- **Interpreting and Measuring Indicators of Rangeland Health**
- **Restoration of Sagebrush Ecosystems**
- **HAF (only at individual states, not nationally)**
- **Data Management for Data Stewards**
- **Data Management for Data Stewards- Overview (Supervisors)**

Habitat/Livestock Grazing/Monitoring & Adaptive Management

- Habitat Assessment Framework (HAF) training
    - Needed at two levels:
        - Site scale and Fine Scale – Field component
        - Broad Scale – Assessment component

Refer to HAF efforts already underway in CO, ID, and NV as to site scale training that already exists or is currently being developed.

- Methodologies on how to measure and use the indicators from the HAF (work is underway between USGS and the BLM). There is currently no centralized database or

training for data collected outside of AIM (Ex. Daubenmeyer- State Agencies v. Line-Point Intercept- BLM).
    - Instruction on data management and HAF calculations. Use of automated notebooks/spreadsheets for calculating HAF metrics.

- AIM/HAF – Connection between the two needs to be clearly articulated. AIM training supports implementation of the vegetation objectives and the majority of the site-scale indicators for the HAF as part of the standard AIM field collection protocol. Some seasonal habitats may require supplemental information (Ex. Riparian Summer/Late Brood-Rearing Habitat Suitability- PFC).
    - IM needed on the Greater Sage-Grouse Habitat Assessment Framework (HAF), including the connection between AIM and the HAF.
    - Clarify how/when the field may run "HAF" assessments separately from AIM, to inform Land Health assessments, projects etc. [Note this may be clarified in the IM but it is a question that comes up often}.

- AIM – Train-the-trainer – NOC Capacity is exceeded and additional support is needed to implement the train-the trainer model to implement the data collection commitments in the GRSG plans. The amount of training to implement core indicator monitoring, GRSG habitat monitoring (at various scales), terrestrial, aquatic, riparian and disturbance tracking should not be underestimated. (Refer to Proposed Terrestrial AIM Training Framework document attached.---or link to it???) Regional centers of excellence exist for aquatics (e.g. Utah State, AREMP, PIBO) and may be an option to augment training for some areas and potentially a model that could help implement terrestrial training.
- AIM Training Outline (Some HAF training needs may be met through AIM training, however, HAF training may not meet the AIM training needs.)
    - Base methods covered at a terrestrial AIM training
    - Line-Point Intercept
    - Vegetation Height
    - Canopy Gap
    - Soil Aggregate Stability
    - Species Level Inventory
    - Plot and Soil Pit Characterization
    - Shrub Shape (may be added with assistance from the HAF team)

- Developing a monitoring plan for FO staff and SO/NOC {relative to mid, fine scale?)
- Implementing a monitoring plan for FO/ DO monitoring coordinators
- GIS Data Analysis and Reporting

Vegetation Management and Fire

- FIAT Assessment – Reports completed, but perhaps training needed on analysis? [Where do FIAT steps 3 and 4 fit in] (We requested additional information about the FIAT, can be added when received.)
- Fire Effectiveness Monitoring

Disturbance and Mitigation

- Methods and procedures for calculating the disturbance cap at the Project Area scale (e.g., uploading data and running queries in Surface Disturbance and Reclamation Tracking Tool (SDARTT), WY Density and Disturbance Calculation Tool (DDCT), etc. How is BLM going to obtain disturbance data from outside of BLM and provide to SDARTT? This is both a coordination and a training need. Each plan has an appendix on how to calculate disturbance. State Offices should be prepared to assist the field.

- Disturbance tracking for FO and operators - DDCT (Density and Disturbance Calculation Tool) and SDARTT (Surface Disturbance and Reclamation Tracking Tool)

- Oregon is verifying and populating road maintenance in Ground Transportation Routes Network (GTRN) in association with the Counties who have agreed to use GTRN to calculate and track the State's disturbance cap. A new attribute (DisturbCap) will be added to GTRN to identify disturbance roads (i.e., Maintenance Level 3, 4 and 5).

Data Management and Databases

Training regarding data management and databases needs to be clearly identified as to what currently exists and where to go to get it as well as what else may be needed. (This team did not have a data representative for this aspect).

2a. IMs/IBs

IMs/IBs identified in the various team chapters may or may not require training and therefore cannot be decided at this time. Where the additional policy/guidance is known to involve a task or competency these are also addressed in the training section (1.). In addition to new policy/guidance, this section will also be reviewed and updated periodically to provide a quick reference to all policy/guidance that is applicable to the Greater Sage Grouse Implementation Plans.

Existing Policy/Guidance (Requested a current list from Vicki Herren, need to include the list with links)

New Policy/Guidance

Habitat:

- BLM responsibilities for habitat data acquisition, stewardship and coordination
- Guidance related to changing LUP-designated management area boundaries in coordination with FWS and state wildlife agencies at the BLM State Office level
- Guidance related to how to recognize the state habitat delineations (e.g. Core, PACs, etc) while managing habitat under our LUP-designated Habitat Management Areas designations.

Livestock Grazing:

- Incorporating management thresholds based on the GRSG Habitat Objectives Table, Land Health Standards and ecological site potential, to allow adjustments to grazing that have already been subjected to NEPA analysis
- Range Improvements-is it more appropriate to have step-down guidance at the state level?

Monitoring and Adaptive Management

- Sign and distribute IM for implementation of AIM at LUP and GRSG level

Vegetation Management and Fire:

- Provide an interdisciplinary IM directing implementation Fire Treatment effectiveness Monitoring to ensure adequate information is collected to inform LUP level monitoring,including the broader consideration of all vegetation treatments that may affect fire outcomes..
- Issue a single, cohesive Instruction Memorandum with updated reporting direction on existing vegetation, fuels, ESR, Fire Perimeter, Invasive Species (or possibly handbook, information bulletin?) to reduce confusion over multiple IMs providing individual program direction
- Design and implement integrated fire response plans for FIAT evaluation areas
- Provide guidance on the prioritization and allocation of fire management resources and assets, per Secretarial Order 3336

Disturbance and Mitigation:

- Issue WO IM explaining application of Smart from the Start policy (i.e., conduct pre-application meetings with project proponents and county/state agencies) to ensure disturbance cap is not exceeded by BLM authorized activities. Coordination with other agencies and local governments is essential to the proper administration of the disturbance cap across all land ownerships.

- Issue WO IM providing disturbance feature definitions (e.g. “power lines” does or doesn’t include low voltage distribution lines), digitizing (e.g., mines), when to use as-built vs approved footprints, details regarding what types of disturbance count (for power lines - direct disturbance or area under lines), how to determine when a disturbance has been removed and no longer counts toward the cap, etc.

- Issue WO IM providing direction to develop and implement WAFWA MZ Regional Mitigation Strategies. Assign state leads and identify needed skill sets. Templates should be developed.

- Issue WO IM providing guidance on how BLM reviews, recognizes, uses State-level mitigation programs.

Data Management:

- Data Analysis across resources?

3. Resources: (Data - existing, under development, needed, including modifications of existing data sets; Training- existing training (Interpreting Indicators of Rangeland Health, Restoration of Sagebrush Ecosystems) refer to DOILearn):

The Geospatial Gateway is the web-based portal supporting:

GRSG graphics and maps (updated annually by SOs)
Landscape Approach Data
Rapid Ecoregional Assessment Data
National Invasive Species Information Management System (NSIMS)
Fire and Invasive Assessment Tool (FIAT)

- **https://blmspace.blm.doi.net/oc/intra/drs/Pages/GeoSpatialGateway.aspx**
- Links to other geospatial datasets are also available in the Geospatial Gateway

Numerous websites and databases exist or are in development and provide additional information including the following. It would be desireable to be able to point the employees to where these resources are all located via a web based site or portal.

- AIM Data: BLM Assessment, Inventory and Monitoring (AIM) data are available at varying densities across BLM lands. Each rangeland health assessment should include accessing the relevant AIM data for the assessment area and determining whether it may be used at the broad, mid, and/or site scale to inform the assessment process. AIM datasets are housed in the **TerraDAT** database at the BLM's Operations Center in Denver. AIM data will be viewable through the public Landscape Approach Data Portal as early as the end of 2015 (will be available in Geospatial Gateway).

Vegetation Management and Fire:

- Convene a conference: Tentatively: Sagebrush Ecosystems conference - Feb 23-26th, Salt Lake City, Utah, to bring together experts to develop a strategy to address the threat of invasive species in the Great Basin. Resources have already been committed by the Forest Service, FWS, and BLM to develop the conference agenda and begin planning. Sagebrush Ecosystem Conference Website - http://sagebrushconference2016.org/
- Vegetation Treatment EIS for the use of 3 new active ingredients (herbicides) for the control of annual grasses and other invasive species (Draft published, pending FEIS & Record of Decision).
- Biopesticides availability on public lands (pending EPA registration, and BLM NEPA Review)
  - General Use of *Pseudomonas fluorescens* strain D7 for Research and Demonstration Field Work IB 2015-082, http://web.blm.gov/internal/wo-500/directives/dir-15/ib2015-082.html
  - Guidelines for Demonstration and Plot Work, change 1, IM 2015-137, http://web.blm.gov/internal/wo-500/directives/dir-15/im2015-137ch1.html
  - NTC's Restoration of Sagebrush Ecosystems class will be held early in 2016

Livestock Grazing

- **Rapid ecoregional assessments** source for broad-scale spatial data that can inform rangeland health assessments and grazing permit renewals. REAs include a multitude of base datasets compiled from a range of sources, as well as aggregated data and models. REA output data are usually on the 4km or 6th-order HUC scale, but base data layers may be at finer grain.
- **Climate change information (sometimes available in REA datasets).** MACA downscaled climate data are available for free download at **http://maca.northwestknowledge.net**

- **Habitat Assessment Framework (HAF) Reports**
- **Database for Inventory, Monitoring & Assessment (DIMA**) is available for terrestrial field data collection and the National Aquatic Monitoring Center has developed a tool to collect the aquatic core indicators.
- **LandFIRE - LANDFIRE,** Landscape Fire and Resource Management Planning Tools, is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior, providing landscape scale geo-spatial products to support cross-boundary planning, management, and operations. Available datasets include existing vegetation, potential vegetation, fuel models, and fire regime condition class.
- **Fence collision risk models** Terrain ruggedness and distance from lek are the primary factors associated with fence collision risk for sage-grouse. The collision risk model should be used when evaluating existing range fences, or siting new fences in sage-grouse habitat.
- **GAP/ReGAP** The GAP national land cover data, based on the NatureServe Ecological Systems Classification, are the foundation of the most detailed, consistent map of vegetative associations ever available for the United States and will help facilitate the planning and management of biological diversity on a regional and national scale.
- **Landscape Treatment Digital Library.** The Land Treatment Digital Library (LTDL) was created by the U.S. Geological Survey to catalog legacy land treatment information on Bureau of Land Management lands in the western United States. The LTDL can be used by federal managers and scientists for compiling information for data-calls, producing maps, generating reports, and conducting analyses at varying spatial and temporal scales. The LTDL currently houses 29,748 treatments from BLM lands across 14 states.
- **SSURGO/STATSGO2 soils data and interpretations** SSURGO datasets consist of map data, tabular data, and information about how the maps and tables were created. The extent of a SSURGO dataset is a soil survey area, which may consist of a single county, multiple counties, or parts of multiple counties. SSURGO map data can be viewed in the Web Soil Survey or downloaded in ESRI® Shapefile format. The Soil Data Viewer plug-in can be installed for use with ArcGIS to generate spatial outputs of soils interpretations, such as ecological site polygons or site erodibility at the soil survey scale.
- **GeoMac and other fire datasets.** Most BLM offices maintain a historic fire perimeter dataset. These data can also be downloaded from GeoMac. Fire history can be included at the rangeland health assessment scale, but can also be included at the broader scale to provide some context of the relative fire size and frequency in the local or regional area of the assessment.

- **Crucial Habitat Assessment Tool (CHAT)** The Western Association of Fish and Wildlife Agencies Crucial Habitat Assessment Tool (CHAT) was developed to bring greater certainty and predictability to planning efforts by establishing a common starting point for discussing the intersection of development and wildlife. The tool is managed by the Western Association of Fish and Wildlife Agencies (WAFWA). CHAT is designed to reduce conflicts and surprises while ensuring wildlife values are better incorporated into land use planning, particularly for large-scale linear projects. It is a non-regulatory tool and not intended for project-level approval.
- **Hydrology data –** these may include state 303(d) water quality data, **http://www.streamnet.org/**
- **Databasin.org** The core of Data Basin is free and provides open access to thousands of scientifically-grounded, biological, physical, and socio-economic datasets.
- **Cheatgrass risk maps** – multiple modeling efforts map the risk of invasion by cheatgrass and other invasive annual grasses. These models may be useful to assess the vulnerability of a project area to cheatgrass invasion**.**
- **VegDRI** VegDRI maps are produced every two weeks and provide regional to sub-county scale information about drought's effects on vegetation. The VegDRI calculations integrate satellite-based observations of vegetation conditions, climate data, and other biophysical information such as land cover/land use type, soil characteristics, and ecological setting. The VegDRI maps that are produced deliver continuous geographic coverage over large areas, and have inherently finer spatial detail (1-km2 resolution) than other commonly available drought indicators such as the U.S. Drought Monitor.
- **http://droughtmonitor.unl.edu/** U.S. Drought Monitor map is released weekly, and is based on measurements of climatic, hydrologic and soil conditions as well as reported impacts and observations from more than 350 contributors around the country. The U.S. Drought Monitor, a composite index that includes many indicators, is the drought map that policymakers and media use in discussions of drought and in allocating drought relief.
- **Grass/Shrub Map (Homer et. al)** A 30m resolution map of sagebrush and annual grass will be available by the end of the year for the entire sage-grouse range. These data will be widely available to BLM managers.

Disturbance and Mitigation

- DDCT (Density and Disturbance Calculation Tool)
- SDARTT (Surface Disturbance and Reclamation Tracking Tool)
- GTRN - (Ground Transportation Routes Network) Oregon is verifying and populating Maintenance Level in GTRN in cooperation with Counties, who have agreed to use GTRN to calculate and track the State's disturbance cap. A new attribute (DisturbCap) will be added to GTRN to identify disturbance roads (i.e., Maintenance Level 3, 4 and 5).

Monitoring and Adaptive Management - Publications

- BLM Tech Note 445- AIM-monitoring: A component of the BLM Assessment, Inventory, and Monitoring Strategy (Taylor et al. 2014)

- BLM Technical Note 440- BLM Core Terrestrial Indicators and Methods (MacKinnon et al. 2011)
- BLM Technical Reference 1735-1 titled AIM National Aquatic Monitoring Framework: *Introducing the Framework and Indicators for Lotic Systems* (AIM-NAMF)
- BLM Technical Reference 1734-6: Interpreting Indicators of Rangeland Health (Pellant et al. 2005)

Data Gaps Identified in Monitoring and Adaptive Management

- A significant data gap is an inventory of the lentic area locations and some of the lotic resources. This is beyond the scope of current capacity. USFWS is the authoritative data source but that data is not adequate to meet our needs. May need to look to USGS or similar for support. The possibility exists to use remote sensing and GIS applications to provide a base layer for these areas; however, it should be supplemented with field verification.
- Data sets needed for monitoring and reporting have been identified by the monitoring and disturbance sub-team of the GRSG planning effort and have been included composite list developed by the GRSG sub-team, the DAC and the DAWG and the GSC Landscape Data Team
- Data sets needed to complete APDs and Grazing Permit Renewals have been identified by the GSC teams looking at these two processes that have been significantly changed with the GRSG plan decisions. These data sets have been included in the composite list developed by the GRSG sub-team, the DAC and the DAWG and the GSC Landscape Data Team
- Master Sample design tool is in development and deployment through Sitka Tech but managed through the NOC branch of assessment and monitoring (the status of this tool is not known)
- Tools and methods are needed for riparian (both lentic and lotic) vegetation monitoring. PFC is appropriate for assessments; however it clearly states that it is not appropriate for monitoring.
- A significant gap has been identified in the ability to analyze data and generate reports. Since the plots are weighted, simple statistical analysis methods (i.e. simple averages) are not appropriate for analyzing data collected using a statistically valid sample design. More complex statistical analysis is required. This capacity issue must be addressed before any significant level of reporting can begin.
- The BLM cannot currently evaluate condition for some areas given the lack of soil surveys and ecological site descriptions or reference sites. Interim tools are needed such as decision support models that incorporate available data and best professional opinion will be useful until additional ESDs are developed and empirically derived models completed.

Greater Sage-Grouse Land Use Plan Implementation Guide

Version 1.0
November 2015

Suggested citation:
Bureau of Land Management. 2015. Greater Sage-Grouse Land Use Plan Implementation Guide. U.S. Department of the Interior, Bureau of Land Management, Washington, DC.

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Table of Contents

List of Acronyms

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Habitat and Assessment

Vegetation Management and Fire

Livestock Grazing

Disturbance and Mitigation

Monitoring

Data

Training

List of Acronyms

ARMP – approved resource management plan
ARMPA – approved resource management plan amendment
BLM – Bureau of Land Management
COT – Conservation Objectives Team
DOI – Department of the Interior
EIS – environmental impact statement
FACTS – Forest Service Activity Tracking System
FIAT – Fire and Invasives Assessment Tool
FRIS – Forest Resource Information System
FTEM – Fuels Treatment Effectiveness Monitoring
FY – fiscal year
GHMA – general habitat management area
GRSG – greater sage-grouse
HAF – habitat assessment framework
IHMA – important habitat management area
LHA – land health assessment
LUP – land use plan
NFPORS – National Fire Plan Operations and Reporting System
NISIMS – National Invasive Species Information Management System
NOC – National Operations Center
NRCS – Natural Resources Conservation Service
PAC – priority area for conservation
PGH – preliminary general habitat
PHMA – priority habitat management area
PPA – project planning area
PPH – preliminary priority habitat
REA – rapid ecoregional assessment
RIPS – Rangeland Improvement Project System
ROD – record of decision
SCID – Stewardship Contracting Information Database
SFA – sagebrush focal area
SFP – Special Forest Products
SGI – Sage Grouse Initiative
TSIS – Timber Sale Information System
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
USFS – U.S. Forest Service
VTRT – vegetation treatment area data standard
WAFWA – Western Association of Fish and Wildlife Agencies
WFMI – Wildland Fire Management Information

Introduction

On September 21, 2015, Janice Schneider, Assistant Secretary for Land and Minerals Management with the Department of the Interior, signed the record of decision (ROD) for the implementation of the approved resource management plan amendments (ARMPAs) for the Great Basin Region, including the greater sage-grouse subregions of Idaho and southwestern Montana, Nevada and northeastern California, Oregon, and Utah; the ARMPAs for the Rocky Mountain Region, including the greater sage-grouse subregions of Lewiston, North Dakota, northwest Colorado, and Wyoming; and the approved resource management plans (ARMPs) for Billings, Buffalo, Cody, HiLine, Miles City, Pompeys Pillar National Monument, South Dakota, and Worland. Individual land use plan (LUP) revisions were approved in Montana and Wyoming that similarly address greater sage-grouse conservation. Figure 1 geographically displays the BLM LUPs addressed in this implementation guide. These plans collectively provide three common approaches: minimizing new or additional surface disturbance, improving habitat condition, and reducing the threat of rangeland fire.

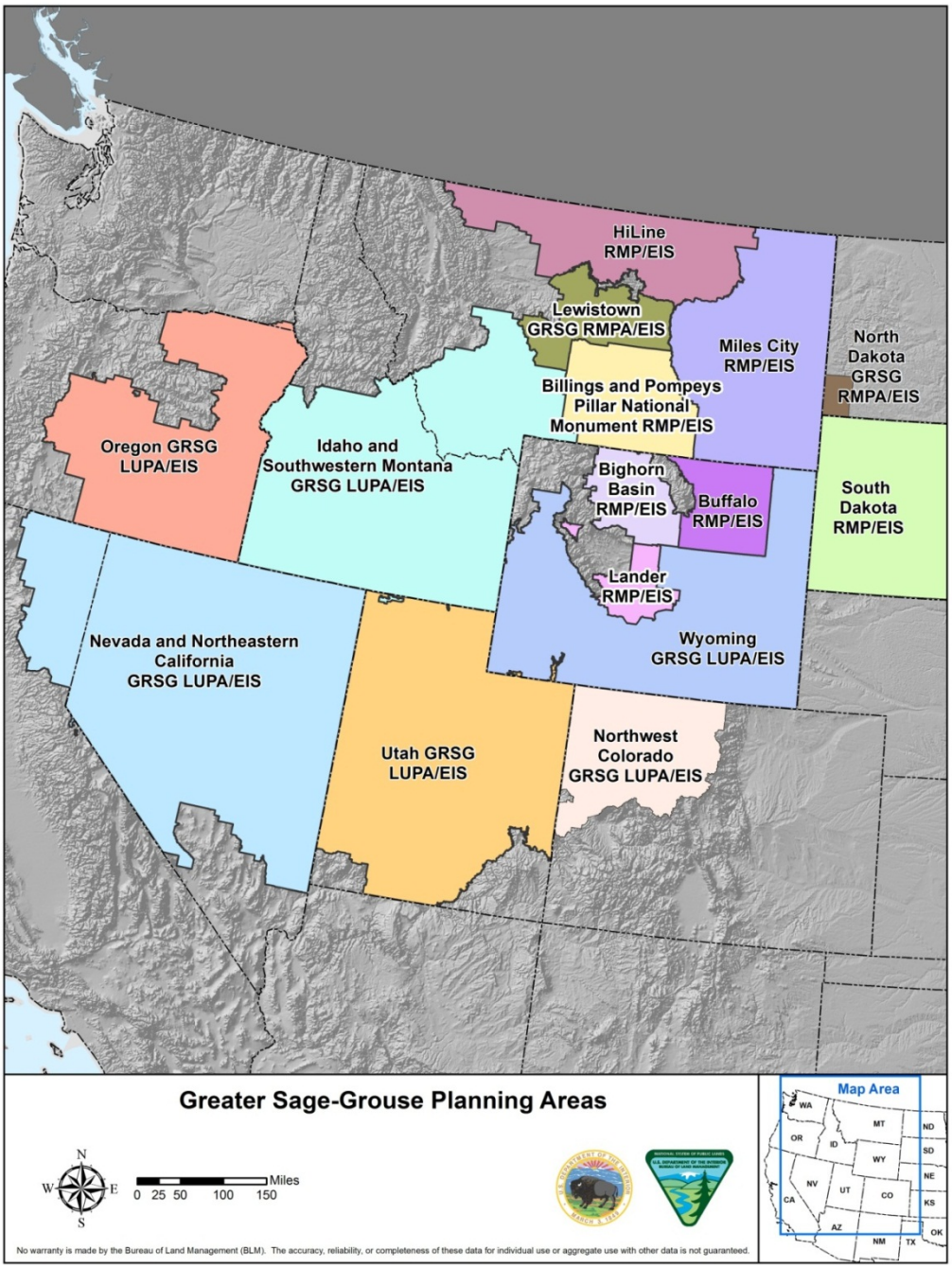

Figure 1. Greater sage-grouse planning areas

The purpose of this Greater Sage-Grouse Land Use Plan Implementation Guide is to provide consistent interpretation and implementation of the LUPs. This implementation guide integrates guidance from the following:

- Secretarial Order 3330 on Improving Mitigation Policies and Practices of the Department of the Interior
- Secretarial Order 3336 on Rangeland Fire Prevention, Management, and Restoration
- National Cohesive Wildland Fire Management Strategy
- Advancing Science in the BLM: An Implementation Strategy
- National Seed Strategy for Rehabilitation and Restoration

The implementation guide is intended for BLM line officers who are accountable for the successful implementation of the LUPs; Washington Office and state office program leads who provide guidance and oversight to the field; and field practitioners who will plan, implement, and monitor projects and authorizations on the ground. Through LUP guidance and leaders' intent, line officers analyze land management actions and issue decisions and authorizations to achieve BLM stewardship responsibilities. As such, this guide is a valuable tool for line officers and staff to understand the intent and latitude of the LUP direction.

Although this guide is intended for use by BLM staff, it is also applicable for U.S. Forest Service (USFS) staff, since the BLM and USFS share many similar resource matters. Where appropriate, this guide identifies LUP direction that is relevant to both the BLM and USFS. Additionally, public entities, project proponents, or the general public may have an interest in reviewing this guide to better understand BLM management requirements for LUP implementation.

The LUPs contain a number of commitments, which are consistent among all the LUPs, for monitoring and tracking disturbance, reporting accomplishments and habitat and population trends, and external coordination. This implementation guide clearly outlines these commitments to ensure the LUPs are consistently implemented across all involved offices and agencies. Consistent LUP implementation will be critical to ensure a successful sage-grouse status review, which will be conducted in 5 years by the U.S. Fish and Wildlife Service (USFWS). The status review will inform adaptive management and guide future research needs to ensure that conservation efforts continue to benefit sage-grouse.

LUP implementation will be a continuous and active process. As such, this implementation guide will be periodically updated to account for new situations requiring interpretation. This guide is not intended to be a standalone "how to guide" for every issue or situation. As such, BLM state offices may supplement this guide to address regionally specific issues. Lastly, this guide is not intended to be used as a reference in NEPA or authorization processes.

This implementation guide is presented in an electronic format that enables the reader to quickly search for specific information. Throughout the document, hyperlinks are provided that navigate directly to specific direction in the RODs and LUPs to ensure an accurate and consistent understanding of the guidance. It is critical for users of this guide to understand how one resource area relates to another. Thus, it is recommended that users become familiar with all chapters of this guide, to ensure an interdisciplinary perspective of the management direction.

The guide is organized by the following chapters:

1. Habitat and Assessment
2. Vegetation Management and Fire
3. Livestock Grazing
4. Disturbance and Mitigation

5. Monitoring
6. Data
7. Training

Each chapter contains the following five sections:

- Section 1: ROD and Plan Commitments
- Section 2: Implementation Topics and Guidance
- Section 3: Applicable Diagrams
- Section 4: Policy, Training, Data, and Tools
- Section 4: Internal and External Coordination Needs

The LUPs provide the direction and guidance for management of the public lands. A number of Secretarial Orders, agency directives, national initiatives, and assessment strategies have guided the development of the LUPs. These documents continue to provide relevant guidance that agency managers are held accountable. The relationship of these documents to each other and the LUPs can be complex. The implementation guide addresses these relationships within the chapter sections.

Figure 2 provides a visual presentation of these documents, which demonstrates the importance of agency managers in understanding these relationships to ensure successful and compliant LUP implementation.

Figure 2. (to be developed)

Coordination

Successful implementation of the LUPs will be dependent on active coordination with federal and state agencies, tribes, and partners. New management issues and questions are likely to arise that may warrant additional guidance or study by technical experts, scientists, and researchers. The BLM is committed to continue working with individuals and institutions with expertise in relevant fields in order to ensure that land and resource management affecting conservation of the greater sage-grouse and the sagebrush ecosystem continues to be guided by sound peer-reviewed research and the best available science.

Federal agency partners, including the USFS, USFWS, Natural Resources Conservation Service (NRCS), and U.S. Geological Survey (USGS), will continue to have important roles in the implementation, monitoring, and assessment of LUP implementation.

Equally important are the partnerships with state fish and wildlife agencies, including the Western Association of Fish and Wildlife Agencies (WAFWA). The BLM is reliant on continued partnerships with these agencies to ensure accurate population data and trends are readily available to jointly assess achievement of habitat and population conservation objectives.

In recognition of the government-to-government relationship between individual tribes and the Federal Government, the BLM will continue to consult with Native American tribes on the implementation of the LUPs and achievement of habitat and population conservation objectives. The BLM will continue to consult on site- and project-specific issues as warranted.

This guide also refers to specific instances in which coordination is necessary with federal and/or state agencies relative to data collection and assessment, monitoring, and research. Lastly, BLM line officers will continue to engage local partners and stakeholders on site- and project-specific issues and proposals.

Habitat and Assessment

Section 1: ROD and Plan Commitments

In collaboration with state fish and wildlife agencies, the BLM and the USFS identified important habitat across the remaining range of the greater sage-grouse (GRSG) as preliminary priority habitat (PPH) and preliminary general habitat (PGH). Maps were revised and refined as further mapping was conducted and state fish and wildlife agencies—often in collaboration with GRSG experts and researchers—provided more detailed analysis of habitat characteristics and populations. The approved LUPs reflect this input to designate at least two categories of GRSG habitat. Priority habitat management areas (PHMAs) largely coincide with areas identified as priority areas for conservation (PACs) in the Conservation Objectives Team report (USFWS 2013). Remaining current habitat is designated as general habitat management areas (GHMAs). Note that some subregional plans include additional habitat categories, such as important habitat management areas (IHMAs) in Idaho.

The proposed LUPs also identify sagebrush focal areas (SFAs) as a subset of PHMAs. SFAs correspond to the areas identified by the USFWS as GRSG "strongholds," as detailed in an October 27, 2014, memo from USFWS Director Ashe to BLM Director Kornze and USFS Chief Tidwell that identified "a subset of priority habitat most vital to the species persistence within which we recommend the strongest levels of protection" (Ashe 2014). The SFAs in the proposed LUPs reflect the areas within the USFWS strongholds that are administered by the BLM or the USFS and are inside the planning areas.

The BLM- and the USFS-proposed LUPs mapped approximately 62 million acres of PHMA and GHMA. Of this, approximately 34 million acres are identified as PHMA and 28 million acres are GHMA. SFAs consist of 12 million acres of BLM- and USFS-administered lands in PHMAs. Figure 3 displays SFAs, PHMAs, and GHMAs on BLM-administered lands. Tables 1 and 2 display the approximate surface acres (figures are rounded) of mapped GRSG habitat administered by the BLM in each LUP area.

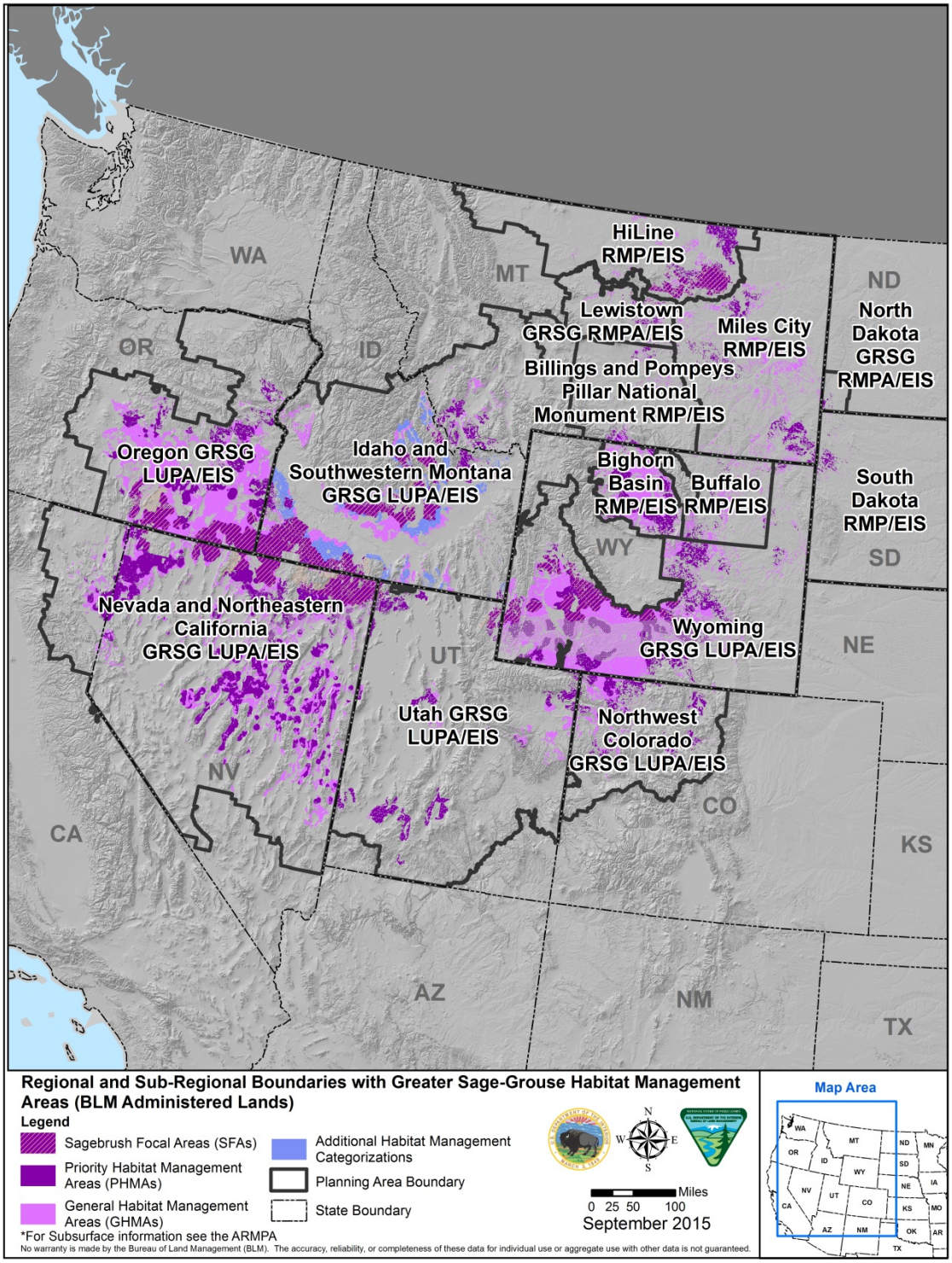

Figure 3. Map with regional and subregional boundaries displaying greater sage-grouse SFAs, PHMAs, and GHMAs on BLM-administered lands.

Table 1. Approximate surface acres of PHMAs, GHMAs, OHMAs, and IHMAs for the Great Basin Region.

Approximate Surface Acres of PHMAs, GHMAs, OHMAs, and IHMAs Great Basin Region OHMA = Other Habitat Management Areas B = BLM-Administered Surface Acres F = National Forest System Surface Acres						
Sub-Region		**PHMAs**	**GHMAs**	**OHMAs**	**IHMAs**	**Anthro Mountain**
Idaho and SW Montana	B	4,627,000	2,180,000	0	2,738,000	0
	F	576,000	581,000	0	416,000	0
Utah	B	2,023,000	503,000	0	0	0
	F	736,000	81,000	0	0	41,000
Oregon	B	4,547,000	5,660,000	0	0	0
Nevada and NE California	B	9,310,000	5,721,000	5,877,000	0	0
	F	986,000	796,000	621,400	0	0
Total Acres		**23,000,000**	**16,000,000**	**6,500,000**	**3,200,000**	**41,000**

Table 2. Approximate surface acres of PHMAs, GHMAs, RHMAs, and LCHMAs for the Rocky Mountain Region.

Approximate Surface Acres of PHMAs, GHMAs, RHMAs, and LCHMAs Rocky Mountain Region RHMA = Restoration Habitat Management Areas LCHMA = Linkage and Connectivity Habitat Management Areas B = BLM-Administered Surface Areas F = National Forest System Surface Areas					
Sub-Region		**PHMAs**	**GHMAs**	**RHMAs**	**LCHMAs**
Lewistown	B	233,000	112,000	0	0
North Dakota	B	33,000	80	0	0
Northwest Colorado	B	922,000	728,000	0	82,000
	F	5,000	15,000	0	0
Wyoming	B	4,895,000	6,033,000	0	0
	F	759,000	534,000	0	0
Billings	B	159,000	177,000	79,000	0
Buffalo	B	137,000	628,000	0	0
Cody	B	317,000	741,000	0	0
HiLine	B	1,463,000	290,000	0	0
Miles City	B	817,000	1,395,000	87,000	0
Pompeys Pillar National Monument	B	128,000	24,000	0	0
South Dakota	B	128,000	24,000	0	0
Worland	B	799,000	1,291,000	0	0
Total Acres		**11,000,000**	**12,000,000**	**166,000**	**82,000**

The RODs (BLM Great Basin Region, USFS Great Basin Region, BLM Rocky Mountain Region, USFS Rocky Mountain Region) contain the following landscape-scale vegetation objective: In all SFAs and PHMAs, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush canopy cover, or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in "Interpreting Indicators of Rangeland Health," BLM Technical Reference 1734-6 (Pellant et al. 2005).

Each of the LUPs contains a table that identifies the seasonal habitat desired conditions for GRSG at the landscape scale. For the BLM LUPs, this is the habitat objectives table in the ARMPs and ARMPAs. For the USFS LUPs, this is the desired conditions table (Table 1) in the plan amendments. These habitat objectives/desired conditions tables summarize the suite of characteristics supported by research and monitoring that represents the seasonal habitat needs for GRSG. The habitat objectives provide the desired vegetative conditions for GRSG during breeding, nesting, and brood rearing in summer and winter and should be incorporated into habitat assessments based on site conditions and ecological potential. For the BLM, the LUP RODs also clarify that all BLM use authorizations will contain terms and conditions to meet or progress toward meeting the habitat objectives, based on site conditions and ecological potential.

To access specific GRSG landscape-scale seasonal habitat desired conditions, see the following plans:

- Billings Field Office Approved Resource Management Plan, page 2-14, Table 2-6
- Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse, page 29, Table 2-2 and 2-3
- Buffalo Field Office Approved Resource Management Plan, page 26, Table 2.6
- Cody Field Office Approved Resource Management Plan, page 21, Table 2.7
- Worland Field Office Approved Resource Management Plan, page 22, Table 2.7
- HiLine District Office Approved Resource Management Plan, page 2-21, Table 2.3-2
- Lewistown Field Office Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- North Dakota Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Northwest Colorado Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Miles City Field Office Approved Resource Management Plan, page 2-15, Table 2-6
- South Dakota Approved Resource Management Plan, page 2-19, Table 2-6
- Idaho and Southwestern Montana Approved Resource Management Plan Amendment, page 2-5, Table 2-2
- Nevada and Northeastern California Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Oregon Approved Resource Management Plan Amendment, page 2-18, Table 2-2
- Utah Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- USFS Great Basin Region, page 76, Table 1
- USFS Rocky Mountain Region, page 70, Table 1

Many plans have included the amount of seasonal habitat or the amount of sagebrush on the landscape in a biologically significant unit (BSU)[1] as part of their adaptive management triggers. To access specific trigger information, see the following plan locations:

- Billings Field Office Approved Resource Management Plan, Appendix G
- Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse, page 37
- Buffalo Field Office Approved Resource Management Plan, page 384
- Cody Field Office Approved Resource Management Plan, page 332
- Worland Field Office Approved Resource Management Plan, page 332
- HiLine District Office Approved Resource Management Plan, Appendix J
- Lewistown Field Office Approved Resource Management Plan Amendment, Appendix I
- Northwest Colorado Approved Resource Management Plan Amendment, Appendix D
- Miles City Field Office Approved Resource Management Plan, Appendix H
- South Dakota Approved Resource Management Plan, page 2-20
- Idaho and Southwestern Montana Approved Resource Management Plan Amendment, Appendix E
- Nevada and Northeastern California Approved Resource Management Plan Amendment, Appendix J
- Oregon Approved Resource Management Plan Amendment, Appendix J
- Utah Approved Resource Management Plan Amendment, Appendix I

To meet the GRSG habitat commitments in BLM and USFS LUPs, it is important for the agencies to work in partnership to acquire, develop, and/or maintain accurate and timely GRSG habitat information across scales important for sage-grouse (see the "Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool") (Stiver et al. 2015). These multiscale data will allow improved identification of potential and occupied habitats (i.e., understanding where the birds are using the landscape), as well as tracking changes to these habitats from natural processes. Natural systems are dynamic; therefore, the distribution of potential and occupied habitat (including the spatial arrangement of seasonal habitats) may change. The intent of identifying and monitoring habitat is to depict the scope of existing habitat and have readily available information to track short- and long-term changes to habitat availability (e.g., as a result of fire or rehabilitation).

Although many state wildlife agencies and other entities have been developing habitat models for various scales of GRSG habitat selection, the success of meeting plan objectives and creating efficient and effective processes for implementation and reporting to the USFWS is based on an increased need for coordination. Therefore, the guidance outlined in this chapter reflects how the BLM and other agencies and partners can build from existing available information (a combination of inductive and deductive models) to coordinated, empirically derived models of sage-grouse habitat across scales that account for regional and local differences. This chapter outlines the current plan to build from initial identification of sagebrush availability (a key driver to sage-grouse habitat selection), to seasonal habitat delineations that incorporate the complexities of the wide-ranging species. Ultimately, this information will be used to identify if the BLM is meeting objectives, evaluating land health standards, defining

[1] Biologically significant unit is defined as the delineation of GRSG habitat based on GRSG interactions between population management units to represent local GRSG population habitat and use areas within the subregion.

where to conduct monitoring, performing effective management actions, and if changes need to be made to LUP habitat designations.

Section 2: Implementation Topics and Guidance

Differences between LUP-Designated Habitat Management Areas (e.g., SFA, PHMA, GHMA, and other) and Habitat Delineations (e.g., seasonal habitats, movement corridors, key habitat maps, etc.)

Designated Management Areas

- The habitat management area decisions made in BLM LUPs identify land use allocations and management actions necessary to meet the LUP purpose of identifying and incorporating appropriate conservation measures to conserve, enhance, and/or restore GRSG habitat by reducing, eliminating, or minimizing threats to that habitat.

- States/state wildlife agencies may designate habitat areas using different terminology (key, core, etc.). Please note that while the BLM will be managing designated habitat management areas, these areas may not always be fully aligned with state wildlife agency designations. Further guidance will be provided via instruction memoranda on managing within these different designations.

GRSG Seasonal Habitat Delineations and Movement Corridors

- Seasonal habitats were largely incorporated into the designated habitat management areas, which are approximations and/or models of use areas and potential habitat in the landscape. The BLM and state wildlife agencies will work together and with others to refine habitat delineations and habitat management area designations into seasonal habitat categories and movement corridors.

BLM and USFS Habitat Management Area (SFA, PHMA, GHMA) Modifications

As new information becomes available about GRSG habitat, including seasonal habitats, in coordination with the state wildlife agency and USFWS, and based on the best available scientific information, the BLM (at the state office level) may revise the GRSG habitat management area maps and associated management decisions through plan maintenance or plan amendment/revision, as appropriate. This is especially important if changes in those designations would substantially affect the appropriate application of additional or different conservation measures tied to that designation.

Differences between the PHMA/IHMA Vegetation Objective and the Site-Scale Habitat Objectives

- The vegetation objective is the landscape-scale objective: the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush canopy cover, or as consistent with specific ecological site conditions.
- The habitat objectives are at the site scale and provide the desired vegetation conditions within seasonal habitats used by GRSG. The habitat objectives should be incorporated into habitat assessments and the design of projects based on site conditions and ecological potential.

Identifying Methodologies and Measuring Mid-Scale Indicators from the "Sage-Grouse Habitat Assessment Framework" (e.g., patch size, patch connectivity, linkage areas, landscape matrix, and edge effects)

In 2014, the GRSG Disturbance and Monitoring Subteam used the ecological systems in LANDFIRE (code 2103, Great Basin Semi-Desert Chaparral) to identify the current geographic extent of sagebrush and the geographic extent of lands capable of producing sagebrush within GRSG habitat management areas. Those ecological systems are listed in "The Greater Sage-Grouse Monitoring Framework" in Attachment B and were aggregated into the sagebrush base layer. The base layer provides a first approximation of mid-scale habitat amount and distribution and can be used in a case-by-case basis in implementing the LUPs.

At finer scales, field units should use existing GRSG seasonal habitat classification mapping and inventories (where available) to complement the mid-scale indicators to further inform GRSG habitat use at smaller scales of habitat selection and more local-scale analyses.

Field offices should work with their state wildlife agency and BLM state office counterparts to identify mid-scale habitat indicator objectives for projects. BLM state offices will work with the BLM National Operations Center (NOC) to identify capacity and methodologies to support the use of these indicators in project authorizations. Some state wildlife agencies or planning areas have identified potential GRSG linkages as part of their habitat delineation maps. In addition, lek connectivity information is available from the USGS (Knick and Hanser 2011) for field office use in analysis during project authorization.

Other community types (that do not contain sagebrush) are occupied and used by GRSG to meet various life history requirements. Therefore, to inform seasonal habitat objectives, and to complete assessments using the "Sage-Grouse Habitat Assessment Framework", further information and tools are needed for habitat identification. To address this need, the BLM has initiated multiple projects with the USGS to identify West-wide approaches to measure the mid-scale indicators. As these methodologies are developed, additional guidance on their use in assessments and monitoring will be issued.

Initial models will be developed by the end of fiscal year 2016. These models will be validated and refined through coordination across the BLM and partners, such as the Rangewide Interagency Sage-Grouse Conservation Team and the Executive Oversight Committee, to incorporate coordinated radio telemetry/GPS and GRSG population data into the models. The models can also be adjusted for regional conditions and developed into empirically based occupied seasonal habitat models. These partnerships promote the information development and sharing processes under the WAFWA/Department of Agriculture/Department of the Interior sage-grouse memorandum of understanding (WAFWA 2008).

In addition, WAFWA has an ongoing genetics project (from feather collection and sampling) to identify genetic distance between populations. These analyses will be used to improve initial models, and both projects will use radio telemetry or GPS data to inform and validate various linkage areas within or between populations.

Prioritization of Land Health Assessments

The interdisciplinary land health assessment (LHA) and evaluation process results in important documentation and understanding of ecological conditions for all resource programs. When evaluations identify land health standards that are not being achieved, a determination of causal factors is made by the BLM authorized officer to guide future management changes.

LHAs will be prioritized in landscapes within or mostly within SFAs with an emphasis on landscapes containing riparian and wetland areas. Second priority will be on priority and important (Idaho only) habitat outside of SFAs, and third priority will be on general habitat. Sage-grouse population trends and changes in habitat availability, as well as evidence of areas not meeting standards, will also be considered when setting LHA priorities. Each field office should ensure that criteria for identifying rangeland health assessment areas are based upon the habitat management area prioritization for each plan and preliminary evidence of a need for management changes, rather than on permit/lease expiration dates, and should be closely aligned and sequenced with HAF reporting efforts.

Habitat Assessment Framework Data Responsibilities

The appointed interdisciplinary team is responsible for analyzing data/information used to complete LHAs, land health standards evaluations, and determinations of causal factors for not meeting land health standards. Further guidance on the BLM LHA process can be found in BLM Handbook H-4180-1, "Rangeland Health Standards."

Data may be collected and/or supplied by various BLM staff and partners. Data collection procedures related to sage-grouse habitat can be found in the Monitoring chapter of this guide. External data sources that may inform LHAs can be found in the Data chapter of this guide. The interdisciplinary team is responsible for reviewing the HAF report(s) and data applicable to the land health evaluation area to evaluate whether the appropriate land health standard is being achieved. Findings from fine- and site-scale habitat assessments should be incorporated into the assessment, and evaluation of applicable wildlife habitat land health standards during the land health evaluation process should be incorporated.

Reporting Land Health Assessment Evaluations and Determinations

Existing LHA and evaluation documents must be reviewed for adequacy and currency prior to updating them with newly available information. LHAs and evaluations that are no longer adequate due to lack of detail, currency, or changed conditions will be replaced by new LHAs and evaluations based upon the prioritization process previously described. If HAF reports and other new data are used to supplement previously completed land health assessments, the coverage areas may be incongruent, and may or may not be adequate to update evaluations and determinations for all sage-grouse habitat within the LHA area. The new information can be used to update the LHA and reach new evaluations of meeting applicable standards and complete applicable determinations for the portion of the evaluation area represented by the new data. Monitoring data can be used to update evaluations of whether progress is being made towards standards.

When evaluations and determinations are completed or updated, use the mapping standards and categories in Washington Office Instruction Memorandum 2012-124 for reporting these supplemental findings to the land health evaluations. Mapping will be important for identifying where assessment areas overlap, and for documenting progress as management changes occur.

Land Health Assessment Process Model

The existing LHA process model has not changed, with the exception of incorporating HAF report findings when assessing sage-grouse habitat under the relevant standard. At a minimum, mid- and fine-scale HAF reports are needed to provide context and identify seasonal habitats when completing a rangeland health assessment in GRSG habitat, and all available AIM/HAF data should be incorporated to inform site-scale habitat conditions. These reports will provide information on the extent to which the assessment area is providing or capable of providing limiting habitat within the larger sage-grouse habitat area.

Determining Land Health Assessment Areas

LHA assessment boundaries can be determined using a variety of criteria. Within sage-grouse habitat, they should be compatible with HAF reports to the extent possible. However, they may extend outside HAF areas or sage-grouse habitat based on considerations, including, but not limited to: land status, herd management areas, other species of concern, travel management planning, watershed or grazing allotment boundaries.

Identifying Seasonal Habitats (e.g., breeding, brood rearing, winter)

Field units, in coordination with state wildlife agencies and other partners, should use existing GRSG seasonal habitat classification mapping, radio telemetry/GPS monitoring, and inventories (if available) to inform planning decisions and delineate GRSG habitat for needed analyses at smaller scales.

Following the development of methodologies for mid-scale habitat indicators led by the NOC in conjunction with USGS, the project will focus on an initial identification of seasonal habitats for GRSG. Products from the GRSG monitoring framework, the grass/shrub project, and other available data layers, including existing state and regional efforts, will be combined with habitat criteria from the LUPs to identify potential seasonal habitats. This first model will be completed by the end of FY 2016.

The BLM will continue partnerships with the Rangewide Interagency Sage-Grouse Conservation Team and the Executive Oversight Committee to incorporate coordinated radio telemetry/GPS and GRSG population data into the models. These data will be used to validate and improve these initial models, refine models to adjust models for regional conditions, and develop empirically based occupied seasonal habitat models. These partnerships promote the information development and sharing processes under the WAFWA/Department of Agriculture/Department of the Interior sage-grouse memorandum of understanding (WAFWA 2008).

LUP Site-Scale Habitat Objectives

BLM field offices and district offices are responsible for multiscale suitability descriptions to be used as part of evaluating whether applicable land health standards are being achieved. Field and district offices are also responsible for using the habitat objectives when setting objectives for vegetation treatments and authorizations and in developing terms and conditions regarding the actions needed to meet, or make progress toward meeting, the habitat objectives. State offices in coordination with the field and district offices are responsible for evaluating LUP effectiveness.

Section 3: Applicable Diagrams

Table 3. Summary of habitat suitability indicators and descriptions for the mid, fine, and site scales. Suitability descriptions appropriate for each scale are based on the habitat indicator measurements for that scale (Stiver et al. 2015).

Mid-Scale (Second-Order) Descriptions – Isolated/small population, subpopulation, or home range of group of leks	
Habitat Indicators	1. Habitat Availability 2. Patch Size and Number 3. Patch Connectivity 4. Linkage Area Characteristics 5. Landscape Matrix and Edge Effect 6. Anthropogenic Disturbances
General Suitability Descriptions	**Suitable:** Landscapes have connected mosaics of sagebrush shrublands that allow for bird dispersal and migration movements within the population or subpopulation area. Anthropogenic disturbances that can disrupt dispersal or cause mortality are generally not widespread or are absent. **Marginal:** Landscapes have patchy, fragmented sagebrush shrublands that are not well connected for dispersal and migration in portions of the population or subpopulation area. Anthropogenic disturbances that disrupt dispersal or cause mortality are present throughout all or portions of the landscape. Some lek groups or subpopulations are isolated or nearly isolated. **Unsuitable:** Landscapes were former shrubland habitat now converted to predominantly grassland or woodland cover or other unsuitable land cover or use. Remaining sagebrush patches are predominantly unoccupied or have few remaining birds. Portions of the population or subpopulation area may become occupied in the foreseeable future through succession or restoration.
Fine-Scale (Third-Order) Descriptions – Seasonal habitats within home ranges	
Habitat Indicators	1. Seasonal Habitat Availability 2. Seasonal Use Area Connectivity 3. Anthropogenic Disturbances
General Suitability Descriptions	**Suitable:** Home ranges have connected seasonal use areas. Anthropogenic features that can disrupt seasonal movements or cause mortality are generally absent or at least not widespread. **Marginal:** Home ranges have poorly connected or disjunct seasonal use areas. Anthropogenic features that can disrupt seasonal movements or cause mortality may occur within the home range. **Unsuitable:** Home ranges have seasonal use areas with predominantly grasslands, woodlands, or incompatible land uses (anthropogenic features) not conducive to sage-grouse seasonal movements or habitat use. Most leks have been abandoned or have few remaining birds.
Site-Scale (Fourth-Order) Descriptions – Use areas within seasonal habitats	
Habitat Indicators	1. Sagebrush Cover (all seasons) 2. Sagebrush Height (all seasons) 3. Predominant Sagebrush Shape (breeding only) 4. Perennial Grass and Forb Heights (breeding) 5. Perennial Grass Cover (breeding and summer/late brood-rearing) 6. Perennial Forb Cover (breeding and summer/late brood-rearing) 7. Preferred Forb Availability (breeding and summer/late brood-rearing) 8. Riparian Stability (summer/late brood-rearing) 9. Availability of Sagebrush Cover (leks and summer/late brood rearing – riparian/wet meadow) 10. Proximity of Detrimental Land Uses (leks) 11. Proximity of Trees or Other Tall Structures (leks)
General Suitability Descriptions	**Suitable:** Seasonal habitat has a preponderance of sagebrush cover types with sufficient shrub and herbaceous cover to protect sage-grouse from predators and weather and successfully raise young. Food resources are present or in close proximity to cover. **Marginal:** Seasonal habitat has a preponderance of sagebrush cover types with sparse shrub and/or herbaceous cover that does not provide the shelter needs for protection from predators and weather. Food resources are present but are either not at levels expected for ecological site potential or not in close proximity. **Unsuitable:** Seasonal habitat has a preponderance of land cover types that do not provide sufficient cover or food resources to meet the life requisite needs though there is potential to meet them in the future.

Table 4. Greater sage-grouse habitat selection and the interaction of scale and capabilities: Tools, techniques, and information.

Tools, Techniques, and Information	Broad Scale	Mid Scale	Fine Scale	Site Scale
Current Capabilities	Rangewide GRSG distribution patterns	LANDFIRE	some telemetry, state agency maps, lek locations (breeding bird density), local expertise	Tools and techniques in the HAF
Capabilities in the Works	USGS	USGS grass/shrub, conifer maps. USGS is also working on seasonal habitat* delineations.	telemetry	Integrating AIM - HAF
Future Needed Capabilities		Maps of seasonal habitats, models of habitat availability and selection, habitat connectivity, landscape matrix	Refined seasonal habitat* maps, telemetry data, habitat use patterns	Interagency HAF database to share seasonal habitat condition monitoring data from all sources

*In some cases, the BLM has seasonal habitat maps in Utah. The quality of the maps depends upon the amount of telemetry data available for the population area (sometimes exceeding 10 years with medium sample sizes and some with 2 years of small sample sizes).

Section 4: Policy, Training, Data, and Tools

Policy

Instruction memorandums forthcoming:

- Policy on the "Sage-Grouse Habitat Assessment Framework," including the connection between AIM and the HAF.
- Land health assessment prioritization based on GRSG habitat management area designations, suitability of the land for GRSG, and current condition.
- BLM responsibilities for habitat data acquisition, stewardship, and coordination.

Necessary instruction memoranda/information bulletins:

- Guidance related to changing LUP-designated management area boundaries in coordination with the USFWS and state wildlife agencies at the BLM state office level.
- Methodologies on how to measure and use the indicators from the HAF (work is underway between the USGS and the BLM).
- How to recognize the state habitat delineations (e.g., core, priority areas for conservation, etc.), while managing habitat under LUP-designated habitat management area designations.

Training

- Training is under development on the use of the "Sage-Grouse Habitat Assessment Framework" (HAF).

Data

- West-wide sagebrush base layer dataset exists at the NOC. Terrestrial core indicator data for site scale assessments is also available. Updates to the national land cover data are needed.
- Treatment database

Tools

- From "The Greater Sage-Grouse Monitoring Framework":

596 Table 5.

	Broad and Mid Scales					Fine and Site Scales
	Implementation	**Sagebrush Availability**	**Habitat Degradation**	**Population**	**Effectiveness**	
How will the data be used?	Track and document implementation of land use plan decisions and inform adaptive management	Track changes in land cover (sagebrush) and inform adaptive management	Track changes in disturbance (threats) to GRSG habitat and inform adaptive management	Track trends in GRSG populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterize the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measure seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculate disturbance, and inform adaptive management
Who is collecting the data?	BLM FO and USFS Forest	NOC and NIFC	National datasets (NOC), BLM FOs, and USFS Forests as applicable	State wildlife agencies through WAFWA	Comes from other broad- and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, USFS Forests and RO (with partners)
How often are the data collected, reported, and made available to USFWS?	Collected and reported annually; summary report every 5 years	Updated and changes reported annually; summary report every 5 years	Collected and changes reported annually; summary report every 5 years	State data reported annually per WAFWA MOU; summary report every 5 years	Collected and reported every 5 years (coincident with LUP evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
What is the spatial scale?	Summarized by LUP with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ and LUP with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
What are the potential personnel and budget impacts?	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	At a minimum, current skills and capacity must be maintained; data management costs are TBD	At a minimum, current skills and capacity must be maintained; data management and data layer purchase cost	No additional personnel or budget impacts for the BLM or the USFS	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment	Additional capacity or re-prioritization of ongoing monitoring work and budget realignment

			are TBD			
Who has primary and secondary responsibilities for reporting?	BLM FO & SO; USFS Forest & RO BLM & USFS Planning	NOC WO	NOC BLM SO, USFS RO, & appropriate programs	WAFWA & state wildlife agencies BLM SO, USFS RO, NOC	Broad and mid scale at the NOC, LUP at BLM SO, USFS RO	BLM FO & USFS Forests BLM SO & USFS RO
What new processes/ tools are needed?	National implementation datasets and analysis tools	Updates to national land cover data	Data standards and rollup methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

Section 5: Internal and External Coordination Needs

Internal Coordination Needs

State representatives will be needed to further develop GRSG habitat and monitoring methodologies, coordinate with other BLM state representatives, coordinate priority areas for more detailed work, and identify additional coordination and science needs. The Disturbance and Monitoring Team should continue as the primary coordination body for habitat implementation needs.

External Coordination Needs

Coordination among state fish and wildlife agencies and the USFWS is needed to provide GRSG radio telemetry and population information in order to develop empirical models of GRSG habitat selection across scales. This information will improve the accuracy and consistency of habitat model approaches across the BLM. Furthermore, collaboration with state agencies and WAFWA are needed in order to improve methods to collect and analyze GRSG population data, which will help the BLM assess the long-term success of GRSG habitat management.

To implement habitat inventory envisioned in the HAF, a WAFWA-coordinated effort is needed. Without combined habitat and GRSG information, across ownerships, the various scales and different types of information needed for habitat delineations can only be completed with minimal accuracy. An interagency HAF database needs to be developed to house habitat condition monitoring data from all sources. This could be the first use of site-specific data to inform or validate broader scale datasets or modeling efforts.

Local- and state-level coordination with the state wildlife agency

Coordination with the NRCS SGI program

Vegetation Management and Fire

Section 1: ROD and Plan Commitments

This chapter focuses on plan commitments related to the National Greater Sage-Grouse Conservation Strategy as described in the RODs for the Great Basin and Rocky Mountain Regions and subregions:

"The ARMPs and ARMPAs were developed to meet the purpose and need to conserve, enhance, and restore GRSG habitat by eliminating or minimizing threats to their habitat identified in the 2010 listing decision and highlighted in the Background and Purpose Section of the COT Report (FWS 2013). Consequently, consistent with guidance in the COT and NTT Reports, four essential components of the GRSG conservation strategy were identified, as follows" (BLM 2015q, 2015r):

- Avoiding or minimizing new and additional surface disturbances
- Improving habitat conditions
- Reducing threats of rangeland fire to GRSG and sagebrush habitat in the Great Basin
- Monitoring and evaluating the effectiveness of conservation measures and implementing adaptive management, as needed

In order to address these components, the BLM is committed to the following fire and vegetation management actions:

Great Basin ROD and ARMPA, page 1-19:

- Identify and prioritize areas that are vulnerable to wildfires and prescribe actions important for GRSG protection.
- Restrict the use of prescribed fire for fuel treatments.
- Prioritize post-fire treatments in SFAs, other PHMAs, IHMAs, and GHMAs.
- Improve GRSG habitat by treating annual grasses.
- Treat sites in PHMAs, IHMAs, and GHMAs that contain invasive species infestations through an integrated pest management approach.
- PHMAs—Maintain all lands capable of producing sagebrush (but no less than 70 percent), with a minimum of 15 percent sagebrush canopy cover, consistent with specific ecological site conditions.
- Ensure that all BLM use authorizations contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives for GRSG.
- Remove conifers encroaching into sagebrush habitats, prioritizing occupied GRSG habitat, in a manner that considers tribal cultural values".

Rocky Mountain ROD and ARMPA, page 1-21:

- Restrict the use of prescribed fire for fuel treatments.
- Prioritize post-fire treatments in SFAs (only found in Lewistown, HiLine, and Wyoming ARMPA), other PHMAs, and GHMAs.
- Improve GRSG habitat by treating annual grasses.

- Treat sites in PHMAs, RHMAs, and GHMAs that contain invasive species infestations through an integrated pest management approach.
- PHMAs—Maintain all lands capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush canopy cover, consistent with specific ecological site conditions.
- Ensure that all BLM use authorizations contain terms and conditions regarding the actions needed to meet or progress toward meeting the habitat objectives for GRSG.
- Remove conifers encroaching into sagebrush habitats, prioritizing occupied GRSG habitat, in a manner that considers tribal cultural values".

Section 2: Implementation Topics and Guidance

Location of Vegetation and Fuels Management Direction in the LUPs

BLM: BLM vegetation and fuels management direction resides in several locations of the GRSG plans—in Chapter 2 under the special status species, vegetation, and fire and fuels management sections and in Appendix C, required design features and best management practices. The special status species section contains specific objectives for the vegetation in breeding, brood-rearing, and wintering habitat (habitat objectives tables in Chapter 2).

The vegetation section describes what types of treatments are allowed; objectives concerning conifer removal, invasive plant control, and sagebrush management; and seasonal restrictions on when treatments can be conducted. It also identifies priority areas or vegetation conditions for treatment, which must be used in conjunction with the Fire and Invasives Assessment Tool (FIAT) priorities in the Great Basin and the related process under development in the Rocky Mountains. It provides direction on the use of native plant materials in restoration and rehabilitation work. Area-specific GRSG plans may contain additional vegetation objectives beyond those in the habitat objectives tables located in Chapter 2. The fire and fuels management section contains direction on fuel breaks and NEPA requirements for the use of prescribed fire in sagebrush. Appendix C provides additional direction governing vegetation and fuels management treatments. Note that vegetation and fuels management actions must comply with any relevant required design features unless the NEPA analysis clearly documents why a particular relevant required design feature would not apply.

In addition, the adaptive management strategy, usually found in an appendix, may contain additional restrictions on when, where, and what vegetation and fuels management actions may occur once a hard trigger is tripped in a given priority area of concern/biologically significant unit. These restrictions would change the vegetation and fuels management direction in the affected priority area of concern/biologically significant unit but not in the unaffected priority area of concern/biologically significant unit.

USFS: USFS LUPs contain direction for vegetation management in the following sections of the plan amendments: Greater Sage-grouse, Greater Sage-grouse Habitat, Livestock Grazing, and Fire. Additionally, the following specific fire management direction applies:

"GRSG-FM-DC-041-Desired Condition – In GRSG habitat management areas and sagebrush focal areas, protect sagebrush habitat from loss due to unwanted wildfires or damages resulting from management-related activities while using agency risk management protocols to manage for firefighter and public safety and other high priority values. In all fire response, first priority is the management of risk to

firefighters and the public. Greater sage-grouse habitat will be prioritized as a high value resource along with other high value resources and assets."

Establishing Vegetation Objectives for Habitat Protection and Restoration Actions?

When: Each land use plan contains the following vegetation objective: In all SFAs and PHMAs, the desired condition is to maintain all lands capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush canopy cover or as consistent with ecological site conditions. In addition, Chapter 2 of each land use plan identifies habitat objectives. These objectives will guide the site-specific objectives set for actions taken in sage-grouse habitats.

How: BLM objectives can be set during site-specific project planning under NEPA, such as treating an invasive plant population or reducing hazardous fuels, or within programmatic planning conducted under NEPA, such as integrated pest management plans or postfire normal year rehabilitation plans that step down to site-specific treatments.

USFS vegetation objectives are components in the plan amendments. Ranger districts will complete project analysis consistent with attainment of these objectives as well as desired conditions. Standards and guides found in the Greater Sage-Grouse Habitat, Greater Sage-Grouse, Fire, and Livestock Grazing portions of the plan amendments must also be utilized for developing, analyzing, and implementing vegetation management projects.

Who: The deciding official responsible for the project will identify an interdisciplinary team to develop and analyze the proposed action(s) and alternative(s) consistent with agency policy. Interdisciplinary teams will include a broad representation of scientific and natural resource expertise. The issues arising from the proposed action would determine the types of expertise needed. For GRSG-related projects, necessary expertise will often include botany, ecology, integrated pest management, wildlife biology, and fire management.

Using Habitat Objectives to Develop Project and Programmatic Plans

BLM: Proposed actions with vegetation objectives for habitat protection and restoration actions intended to benefit sage-grouse will have objectives consistent with those in the LUP for the mid and site scale found in Chapter 2.

USFS: USFS plan amendments for the Great Basin Region contain vegetation treatment objectives to each forest and grassland plan. These treatment objectives will be used to develop an out-year program of work for GRSG habitat improvement and restoration on each forest and grassland. Project-specific analysis will support attainment of these objectives.

How: Interdisciplinary teams will need to assess vegetation within the analysis area relative to the mid-scale and site-scale habitat objectives (BLM) or desired conditions (USFS) in the LUP. Interdisciplinary teams should then use this information to inform development of proposed actions and alternatives.

Identifying Habitat Protection and Restoration Actions (e.g., fuel breaks, invasive species treatments, and other vegetation treatments)

Offices will collaborate with the public and stakeholders during the NEPA process to ensure a coordinated landscape-level approach using the best available science to target vegetative treatments across the landscape. Interdisciplinary teams will evaluate existing vegetation conditions in the analysis area and determine if there is a departure from LUP-desired conditions. The team will then propose projects to move the analysis area toward LUP-desired conditions. The proposed actions will be analyzed in the NEPA process, involving stakeholders and interested members of the public.

The commitments indicated in Section 1 of this chapter and each individual LUP identify habitat objectives, restoration, and protection priorities within each planning area. As part of the implementation of Secretarial Order 3336, a Conservation and Restoration Strategy will be developed. The Conservation and Restoration Strategy will provide additional tools to support habitat protection and restoration actions.

Within the Great Basin Region, the five completed FIAT assessments and project planning areas (PPAs) within those prioritize the landscapes and identify areas where additional work is needed. As these completed assessments are updated and additional areas are included in FIAT assessments, this information will also be used to target needed vegetation treatments.

Within the Rocky Mountain Region, SFAs and future GRSG habitat assessments will aid in prioritizing the landscapes and identifying areas where additional work is needed. The USFS Rocky Mountain Research Station is drafting a general technical report similar to RMRS-GTR-326 to address the characterization of GRSG habitat in the Rocky Mountains as it relates to habitat condition and prioritization of treatments. GRSG habitat assessments would be undertaken to address the threats identified in the completed general technical report and make recommendations to mitigate those threats. The process for conducting these GRSG habitat assessments would be similar to the FIAT within the Great Basin Region.

Evaluating Attainment of Vegetation Objectives/Desired Conditions to Support Effectiveness Monitoring

BLM: BLM offices should continue to report accomplishments annually, as described in the reporting sections of this chapter. When evaluating project effectiveness, offices should utilize the “Assessment Inventory, and Monitoring Strategy” and “Sage-Grouse Habitat Assessment Framework” to ensure they are capturing the information necessary to inform the 5-year LUP monitoring efforts (see the Monitoring chapter for more detail). Offices should conduct vegetation monitoring on the site/project/treatment level using appropriate techniques to quantitatively display changes in vegetation density, cover, and species composition in order to evaluate and illustrate treatment effectiveness.

USFS: USFS offices will include project effectiveness monitoring as a component of the project decision. The techniques used for monitoring will be consistent with USFS monitoring techniques, including the “Sage-Grouse Habitat Assessment Framework” (Stiver et al. 2015).

Preventing Subsequent Management Actions from Jeopardizing Habitat Protection and Restoration Investments

BLM and USFS decisionmakers, in coordination with state and federal wildlife agencies, should carefully consider the implemented protection and restoration investments when evaluating a proposed management action or use. This should be completed before and during the evaluation of any proposed action or environmental analysis (NEPA).

Secretarial Order 3336

BLM: The order emphasizes that rangeland fire management is a critical priority for "protecting, conserving, and restoring the health of the sagebrush-steppe ecosystem and, in particular, greater sage-grouse habitat, while maintaining safe and efficient operations." Additionally, it emphasizes that the "allocation of fire resources and assets before, during, and after wildland fire incidents will reflect this priority." The order directed the creation of a Departmental-level Rangeland Fire Task Force to deliver a science-based comprehensive strategy to reduce the threat of large-scale rangeland fire to greater sage-grouse habitat and the sagebrush-steppe ecosystem. The order set forth guiding principles and overarching expectations in Sections 5 and 6 of the order, respectively. Elements of the forthcoming Conservation and Restoration Strategy will include effective rangeland management, fire prevention, fire suppression, and restoration at a landscape scale.

The order directed the task force to develop and deliver an implementation plan, initial report, and final report to the Secretary of the Interior. The Implementation Plan, completed and issued on February 1, 2015, outlines the work plan for implementing the order. The initial report, S.O. 3336 – The Initial Report: A Strategic Plan for Addressing Rangeland Fire Prevention, Management, and Restoration in 2015, delivered to the Secretary on March 1, 2015, identifies specific actions for the DOI and its partners to undertake prior to the onset of the 2015 western fire season to improve the efficiency and effectiveness of rangeland fire management efforts.

Building on the initial report, the final report, "An Integrated Rangeland Fire Management Strategy" outlines an approach for improving the efficiency and efficacy of actions to better prevent and suppress rangeland fire and to improve efforts to restore fire-impacted landscapes both including and beyond 2015. These activities involve targeted investments to enhance efforts to manage rangeland fire in specific portions of the Great Basin Region, based on relative resilience and resistance to fire; consistent with efforts on tribal, state, and other lands; and in keeping with the trust responsibilities to Indian tribes and various statutory obligations. The actions in the final report primarily focus on the needs of the Great Basin Region, but the strategies developed (or lessons learned) will be applied rangewide where there is benefit to sagebrush-steppe habitat and greater sage-grouse.

USFS: Secretarial Order 3336 applies to the Department of the Interior. However, the USFS is committed to being a cooperator in the implementation of some of the actions.

Major Components of Secretarial Order 3336

- Work cooperatively and collaboratively with other federal agencies, states, tribes, local stakeholders, and nongovernmental organizations on fire management and habitat restoration activities.

- Utilize risk-based, landscape-scale approaches to identify and facilitate investments in fuels treatments, fire suppression capabilities, and postfire stabilization, rehabilitation, and restoration in the Great Basin.

- Seek to reduce the likelihood, size, and severity of rangeland fires by addressing the spread of cheatgrass and other invasive, nonnative species.

- Commit wildland fire management resources and assets to prepare for and respond to rangeland fires.

- Advance the development and utilization of technologies for identifying areas of high ecological and habitat value in sagebrush-steppe ecosystems to enhance fire prevention and sage-grouse habitat protection efforts.

- Apply science and research to improve the identification and protection of resistant and resilient sagebrush-steppe landscapes and the development of biocontrols and other tools for cheatgrass control to improve capability for long-term restoration of sagebrush-steppe ecosystems.

- To the extent practicable, utilize locally-adapted seeds and native plant materials appropriate to the location, conditions, and management objectives for vegetation management and restoration activities.

- Encourage efforts to expedite processes, streamline procedures, and promote innovations that can improve overall rangeland fire prevention, suppression, and restoration efficiency and effectiveness.

- Explore opportunities to pilot new strategies to reduce the threat of invasive, nonnative plant species and rangeland fire to sagebrush-steppe ecosystems and greater sage-grouse conservation.

- Establish protocols for monitoring the effectiveness of fuels management, postfire, and long-term restoration treatments and a strategy for adaptive management to modify management practices or improve land treatments when necessary.

Relationship between Secretarial Order 3336 and the GRSG LUPs

Secretarial Order 3336 will enhance existing tools to implement the GRSG LUPs and improve abilities to protect greater sage-grouse habitat from damaging wildfires. It also fills a gap between the direction appropriate in the plans on wildfire and invasive species and the threat identified by the USFWS in the Conservation Objectives Team final report.

Implementing Secretarial Order 3336

While DOI bureau executives are the leads for many action items, program managers at many levels are responsible for carrying out many of the actions identified in the initial and final reports. Additional specific direction and due dates will be issued to the field via instruction memorandums and information bulletins as implementation plans for action items are completed by the assigned task teams, which report to the Departmental Task Force.

Coordinating and Integrating Fire and Resource Program Activities

Secretarial Order 3336 is an integrated strategy that has already brought about a high level of coordination and integration of the fire and resource programs. Development of a Conservation and Restoration Strategy is one of the tasks assigned in the order. It will be led by the BLM Forest, Rangeland, Riparian, and Plant Conservation Division with participation from the Wildlife Conservation Division and the Fire Planning and Fuels Management Division as part of the implementation of the

order. The Conservation and Restoration Strategy will be designed to increase the success of fire prevention, suppression, and restoration by managing vegetation to reduce fire risk, improving suppression preparedness, increasing natural resource and fire management collaboration, and linking short- and long-term restoration efforts while expanding the use of native seeds and seedlings. By establishing a coordinated science action plan, the Conservation and Restoration Strategy ensures that these efforts are based on sound research. The Conservation and Restoration Strategy will improve management efficiency and effectiveness through better implementation, coordination, and accountability; enhanced geospatial management strategies; thorough environmental review and compliance; and efficient targeting of resources and funding. The Conservation and Restoration Strategy will acknowledge risks to resource treatments and will incorporate geospatial tools and objectives and FIAT assessments. Fire operations will also incorporate priorities developed in the FIAT and Secretarial Order 3336 to better integrate resource program concerns.

Development of a Multiscale Approach for Conservation of Sagebrush Ecosystems and Sage-Grouse Across the Range

The forthcoming Conservation and Restoration Strategy will include a baseline assessment, conceptual models, and other components necessary to provide an overarching strategy for on-the-ground restoration actions in the sagebrush-steppe and will provide a foundation for adaptive management and budget prioritization.

Development and Major Components of the Conservation and Restoration Strategy

- Identify scales and boundaries.
- Identify values (function, condition, community, species, etc.).
- Evaluate persistent ecosystem-based threats, such as invasive species, wildfire, and climate change across regional/WAFWA zone and subregional scales.

Field offices are already involved in implementing this strategy through their planning and implementation of the FIAT assessments, the Bi-state Action Plan, and other efforts to conserve and restore sagebrush ecosystems and sage-grouse.

FIAT Protocol within the Great Basin Region

BLM: Resistance and resilience concepts as described in General Technical Report RMRS-GTR-326 (Chambers et al. 2014) are the cornerstones of the FIAT protocol. These assessments identify priority habitat areas and management strategies to reduce the threats to GRSG from invasive annual grasses, wildfires, and conifer expansion. In addition, these assessments provide the USFWS with regulatory certainty on the extent, location, and rationale for management opportunities that address significant threats to GRSG as identified in the Conservation Objectives Team report. In the Great Basin Region, the FIAT process involves two steps:

Step 1: Establish the regional context for priority GRSG habitats and threat factors, and prioritize landscapes to be protected.

Step 2: Incorporate local data with Step 1 findings to identify potential project areas, treatment opportunities, and management strategies to ameliorate threats to GRSG.

USFS: In addition to the BLM-led FIAT assessment, the USFS used the same principles to assess all GRSG habitat specific to each national forest. The USFS-specific FIAT assessments are ongoing and will encompass all habitat in the Great Basin and Rocky Mountain Regions.

USFS FIAT is a threat-based assessment that will provide a list of findings, recommendations, and considerations to protect, maintain, and enhance GRSG habitat. The assessments will also include a spatially consistent, repeatable landscape prioritization process to capture resistance to invasive annual grasses and resilience to disturbance principles. Lastly, the assessments will compare the importance of GRSG habitat relative to the level or magnitude of the threat for fire operations, fuels management, invasive species, conifer encroachment, and restoration/burned area rehabilitation. The intent of the landscape prioritization is to help inform where management actions and out-year program planning would be most advantageous for the forest or grassland to conserve, protect, and enhance GRSG habitat.

Relationship between FIAT and the GRSG LUPs

BLM: The BLM and rangeland researchers developed the FIAT process to identify specific threats from invasive annual grasses, fire, and conifer encroachment to sage-grouse habitat within the Great Basin and develop recommendations to address those threats. These stepdown assessments serve as bridges between the LUP and project-level planning and may provide a draft of proposed actions for future planning efforts when conducting project-scale evaluations in conformance with NEPA. The BLM will coordinate with liaisons from the USFWS, USFS, state agencies, and NRCS regarding FIAT implementation and priorities. The FIAT is not a management action but rather an approach to assessing lands for restoration, fuels management, and fire suppression activities. The completed FIAT reports and Secretarial Order 3336 are located at: http://www.nifc.gov/fireandsagegrouse/.

USFS: In the ROD, the USFS committed to complete USFS FIAT on all lands within GRSG habitat. As with the BLM FIAT, USFS FIAT will develop a list of findings, recommendations, and considerations to inform outyear program planning and management actions that would be most advantageous for the forests or grasslands to conserve protect and enhance GRSG habitat.

Influence of FIAT Outcomes and Priorities on Treatments and Restoration

BLM: FIAT assessments identify a suite of recommended treatments addressing and prioritizing fuels management, habitat restoration, and invasive plant treatment needs. These assessments may be utilized as a starting point in the development of a proposed action to be considered through the NEPA process, or they may be utilized to inform budget requests for implementation where NEPA has already been completed.

USFS: The results of USFS FIAT are intended to help inform outyear program planning and management actions.

IFIAT Equivalent for the Rocky Mountain Region

While expected to be similar to the FIATs in the Great Basin Region, Greater Sage-Grouse Sagebrush Management Resistance and Resilience Tool (SMaRRT) assessments have not yet been completed for the Rocky Mountain area. These assessments, while following the same process, may address different threats and recommend different actions than those identified in the Great Basin FIAT. These threats and actions will be assessed using a companion to RMRS-GTR-326 that is currently being drafted to address the characterization of Rocky Mountain GRSG habitat.

National Seed Strategy

The "National Seed Strategy for Rehabilitation and Restoration, 2015-2020" (Seed Strategy) provides a more coordinated approach for stabilization, rehabilitation, and restoration treatments and a framework for actively working with the private sector in order to build a "seed industry" for rehabilitation and restoration. This will help address future challenges in responding appropriately to large-scale disturbances and other stressors that threaten important plant communities and the ecosystem services they provide on federal, state, local, and private land. These stressors include the spread of invasive plant species, altered wildfire regimes, habitat modification, land overuse, and climate change (PCA 2015).

"Success on a national scale will be achieved through coordinated establishment of a nationwide network of native seed collectors, a network of farmers and growers working to develop seed, a network of nurseries and seed storage facilities to supply adequate quantities of appropriate seed, and a network of restoration ecologists who know how to put the right seed in the right place at the right time" (PCA 2015).

Major Components of the Seed Strategy

"The Strategy seeks to develop seed and other plant materials that will meet long-term goals to maintain and improve the biological and physical conditions at a site, ranging from reclamation to restoration" (PCA 2015).

The four goals (PCA 2015) of the strategy are to:

(1) Identify seed needs, and ensure the reliable availability of genetically appropriate seed.
(2) Identify research needs and conduct research to provide genetically appropriate seed and to improve technology for native seed production and ecosystem restoration.
(3) Develop tools that enable managers to make timely, informed seeding decisions for ecological restoration.
(4) Develop strategies for internal and external communication.

Relationship between the Seed Strategy and the GRSG LUPs

The Seed Strategy directly links to key vegetation management goals and objectives identified in the LUPs that relate to the use of native seed to improve GRSG seasonal habitat. See Table 6 for an example.

Table 6. Example GRSG LUP vegetation management and national Seed Strategy cross-walk.

Idaho GRSG LUP Vegetation Objective	National Seed Strategy Objective
VEG-2: Implement vegetation rehabilitation or manipulation projects to enhance sagebrush cover or to promote diverse and healthy grass and forb understory to achieve the greatest improvement in GRSG habitat…	Goal 2, Objective 2.3 - Action 2.3.3 - Advance investigations to diversify depleted native communities to improve structure and function and to replace nonnative monocultures with native communities.
VEG-3: Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success (Richards et al. 1998)…	Goal 2, Objective 2.2 – Conduct species-specific research to provide seed technology, storage, and production protocols for restoration species.
VEG-5: Consider establishing seed harvest areas that are managed for seed production…	Goal 1, Objective 1.3, Action 1.3.2 – Improve agency and partner capability to plan for seed needs by seed zone.
VEG-6 - Re-establishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts…	Goal 1, Objective 1.3,– Increase the supply and reliable availability of genetically appropriate seed

Seed Strategy Implementation

The initial phase of implementation will be via federal leads working with state, private, and nongovernmental organization partners. A draft business plan and draft implementation plan are scheduled for release by the end of calendar year 2015.

Sage Grouse Initiative

The NRCS launched the Sage Grouse Initiative (SGI) in 2010 as a highly targeted and science-based landscape approach to proactively conserve sage-grouse and sustain the working rangelands that support western ranching economies. This innovative partnership of ranchers, agencies, universities, nonprofit groups, and businesses all embrace a common vision—achieving wildlife conservation through sustainable ranching.

Conservation practices are designed to be win-win solutions addressing threats facing both sage-grouse and rangelands. This type of conservation work includes: developing grazing management practices to maintain nesting cover, removing encroaching conifers that have invaded sagebrush-steppe, securing conservation easements to keep working lands working as intact range in perpetuity, and making fences more visible to reduce sage-grouse collisions.

NRCS sage-grouse conservation efforts are part of Working Lands for Wildlife (WLFW), the agency's effort to accelerate conservation efforts for at-risk species while providing regulatory predictability for up to 30 years.

Since 2010, more than 400,000 acres of private lands have been treated for removal of pinyon-juniper targeted in priority areas for conservation. The SGI has been a model of cooperation and collaboration consistent with the recommendations of the authors of the 2006 WAFWA report, as well as those of the Conservation Objectives Team and National Technical Team.

Under the SGI 2.0 strategy, the NRCS will focus on reducing the threat of wildfire and spread of invasive grasses after fires to restore wildlife habitat and quality livestock forage. The strategy will also focus on removing encroaching conifers, protecting rangeland from exurban development and cultivation, protecting mesic habitats like wet meadows, and reducing fence collisions. See also www.sagegrouseinitiative.com for additional information on the SGI.

Relationship between the Sage Grouse Initiative and the GRSG LUPs

While not a specific component of the LUPs, the SGI does tie to the greater goal of sage-grouse conservation and collaboration. Additionally, the NRCS was a cooperating agency in all of the LUPs—which provides the foundation for excellent partner opportunities in landscape-scale planning and project completion across jurisdictional and ownership boundaries.

Major Components of the Sage Grouse Initiative

The NRCS works with private landowners to support GRSG habitat conservation and restoration by:

- Funding/financial assistance: Funding range improvement and vegetation/habitat enhancement treatments on private and public lands through Farm Bill conservation programs, such as the Environmental Quality Incentives Program (EQIP).
- Technical support: Providing technical expertise to ranchers and other private landowners to help with project design to achieve habitat objectives.
- Conservation easements: Entering into long-term agreements with ranchers and other private landowners to ensure that high value lands for sage-grouse habitat are retained as agricultural or grazing lands and not developed for other uses not compatible with conservation.
- Landscape planning: Developing long-term plans for entire watersheds via either watershed management plans or coordinated resource management plans that cover all lands and cooperators within the watershed boundary utilizing a partnership/community approach for long-term watershed/habitat enhancement.

Current BLM and USFS Reporting Systems to Identify the Locations of Past, Present, and Planned Vegetation Management Actions

The USFWS may require annual reporting on vegetation treatment accomplishments and effectiveness. Vegetation treatment data should be kept up to date by following the quality assurance and quality control measures required for data collection and submission to local, state, regional, and national datasets. Data stewards are responsible at all levels of the organization (local vegetation manager, state program leads, and national program leads) to ensure data reporting is done timely and consistently. While field data calls won't ever be completely eliminated, the vast majority of data calls should be able to be addressed through queries of integrated vegetation databases.

Note: Tracking disturbance related to discrete permitted activities is not included as part of vegetation treatments in the context of habitat protection and restoration.

BLM: The BLM transmitted the requirement to complete geospatial reporting of vegetation treatments using the vegetation treatment area data standard (VTRT) in FY 2011 via Instruction Memorandum 2011-115. This standard provides the information needed to report and update on vegetation management actions at the regional and national level. Field staffs are responsible for following the data standard.

Other reporting systems that are manually linked to the VTRT include:

- The National Fire Plan Operations and Reporting System (NFPORS), which is the national database for the fuels and emergency stabilization and rehabilitation programs (including all FIAT treatments) to submit proposed projects for approval and track and measure accomplishments. All fuels management and FIAT restoration projects (including planning, implementation, and monitoring) requesting funding or planned for accomplishment must be captured in the NFPORS (Fire and Aviation Instruction Memorandum 2015-022).

- The National Invasive Species Information Management System (NISIMS) geospatial database, which collects all classical biological control and chemical treatments that occur on BLM public lands (Washington Office Instruction Memorandum 2015-129).

- The Rangeland Improvement Project System (RIPS). Instruction Memorandum 2001-27 established policy that all projects must be entered into RIPS, which was subsequently updated by Instruction Memorandum 2005-201. However, as other systems have been developed (e.g., NISIMS), treatment information is being entered into other systems or there may be dual entry requirements for RIPS and other systems.

- The Forest Resource Information System (FRIS), which contains the Timber Sale Information System (TSIS), Stewardship Contracting Information Database (SCID), and Special Forest Products (SFP) database. All harvest/removal of vegetative materials (including pinyon/juniper) is tracked in one of these databases including vegetation treatment projects and permits (e.g., fuelwood, etc.).

    - TSIS tracks and manages timber sale contracts and collects location information in the form of a legal description.

    - SCID tracks and manages all stewardship projects along with associated location information (e.g., latitude and longitude) with the project area.

    - SFP collects data on vegetative permits including small amounts of timber that are below the timber sale threshold. SFP collection is disperse and is not tracked geospatially.

USFS: Consistent with existing agency policy, all vegetation management projects, including invasive species treatments, are reported in the Forest Service Activity Tracking System (FACTS) database, which incorporates spatial components.

Vegetation Management Reporting Procedures

BLM:

Proposed Program of Work:

- For fuels treatments and emergency stabilization and rehabilitation, offices are to input project data into NFPORS as a program of work is developed and submitted for funding approval.

- Pesticide use proposals (PUPs) and proposed biological control agent release proposals (BCARPS) must be signed and approved by the Deputy State Director prior to any chemical or biological treatment. Currently, these proposals are to be completed via the paper form.

- RIPS reporting is due annually by October 15.

Funded Program of Work:

- Projects identified in NFPORS include planning activities (such as monitoring and inventory), community assistance actions, and treatments designed to meet specific fuels management, emergency stabilization, burned area rehabilitation, or restoration goals defined in FIAT assessments.

- Offices are to complete invasive species survey data for proposed treatments.

Completed Projects:

- For all programs, polygons for completed treatments must be submitted to the VTRT database. Due dates are established by an instruction memorandum (currently updated annually). The most recent version is Washington Office Instruction Memorandum 2014-005.

- For fuels, emergency stabilization and rehabilitation, and invasive species treatments, offices are to annually input project completion data into NFPORS or NISIMS.

USFS: FACTS reporting for completed projects is due annually by the end of October.

Vegetation Management Reporting Responsibilities

- Offices should work at all levels of the organization and across programs to integrate vegetation management project work, especially work identified through FIAT assessments. Development of a fuels management and restoration out-year program of work should be coordinated with other programs and external collaborators and partners to leverage funding where possible.

- Working with partners, designated resource and fire/fuels management staff input fuels/vegetation treatments into the relevant system of record.

- Washington Office Instruction Memorandum 2015-129 directs the NISIMS database administrator at the NOC to take specific actions to minimize duplicate entry into the geospatial database (VTRT).

Future BLM and USFS Reporting System to Identify the Location of Past, Present, and Planned Vegetation Management Actions

BLM: The national data stewards of the various BLM vegetation data systems are developing a Vegetation Treatment Solution (VTS) to consolidate, analyze, report, integrate, and spatially display vegetation treatment data. This will result in reduced data entry and enable comprehensive BLM-wide

display and analysis capability for vegetation treatments data. Phase 1 is scheduled for completion in FY 2016.

USFS: The USFS will continue to use the FACTS database to track vegetation treatment data as well as spatial components for all vegetation management projects consistent with existing policy.

Current BLM and USFS Reporting Systems to Identify Wildfire Locations

BLM: In accordance with standards outlined in Fire and Aviation Instruction Memorandum 2012-027, offices must provide daily and final geospatial perimeters of all fires greater than 10 acres in size. Business needs determine the frequency of updates. Each state office provides final fire perimeter datasets to the NOC at least yearly no later than January 15.

The BLM uses the Wildland Fire Management Information (WFMI) to report nonspatial fire occurrence. Offices must finalize wildfire reports in WFMI no later than 5 business days after the fire has been declared out.

USFS: The USFS uses FIRESTAT to report nonspatial fire occurrence. District rangers are responsible for ensuring that the Individual Wildland Fire Report (FIRESTAT, FS-5100-29) is completed within 10 days of the fire being declared out.

Evaluating Success of Altered Wildfire Outcomes Due to Reported Fuels Management Actions

The Fuels Treatment Effectiveness Monitoring (FTEM) system stores information about the interactions between wildfires and fuels treatments designed to alter fire behavior. FTEM was started in 2006 by the USFS with voluntary reporting and became a requirement for the USFS in 2011 and for the BLM, NPS, BIA, and USFWS in 2012. Users may add supplemental information to FTEM reports to capture details specific to GRSG.

FTEM allows agencies to gauge the overall utility of fuel treatment programs and verify whether fuel treatments contributed to altering fire behavior and helped with fire management efforts. It establishes baseline data to assist with making future fuels program decisions and documents lessons learned to adjust future fuels treatment prescriptions. FTEM reports can be rolled up at the local, state, and national levels to provide fuels treatment effectiveness information at the program level. In tandem with resilience and resistance concepts, this data can further inform fire operations and vegetative management decisions. Note: Work is currently underway to update the mechanism for FTEM reporting. Updates will be provided to the field when additional information is available.

Current BLM (Fire and Aviation Instruction Memorandum 2015-001) and USFS (Forest Service Manual 5100, Chapter 5140) policy requires a report within 90 days of a wildfire/fuels treatment intersection. BLM fuels management specialists, technicians, and fire planners at the district and field level are responsible for reporting wildfire/fuels treatment interactions in FTEM. Fuels management specialists will work with vegetation management and fire operations staff to complete the report in FTEM. Chapter 17 of the Red Book ("Interagency Standards for Fire and Fire Aviation Operations") also includes specifics on required reporting.

Fire and Planning Operations Priorities

For wildland fire management, the protection of human life is the single, overriding priority.

Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural (including GRSG) and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection.

Fire and Planning Operations in Relation to Habitat Management

Fire management plans, preplanned dispatch response, and fire management actions must be updated to reflect habitat management area priorities identified in LUPs. Additionally, unit-specific GRSG fire management-related information must be preloaded into the Wildland Fire Decision Support System, local operating plans, and resource advisor plans to be used during fire situations to inform management decisions and aid in development of strategies and tactics for resource prioritization.

Fire and Planning Operations Changes

Great Basin: Further prioritization of fuels management and fire response will use the FIAT outcomes that can be referenced in individual FIAT reports. For areas within GRSG habitat that have not completed a FIAT assessment, the FIAT process is described in an appendix to the LUP amendments.

Rocky Mountain: Within the Rocky Mountain Area Sagebrush Management Resistance and Resilience Tool (SMaRRT), assessments have not yet been completed. When completed, these assessments may provide additional prioritization of fuels management and fire response within GRSG habitat.

Fire Management Plan Updates

BLM: FIAT offices are required to update their fire management plans by June 2016, and non-FIAT offices must make updates by June 2017.

USFS: The USFS must update their layers using the spatial fire planning process in the Wildland Fire Decision Support System by fire season 2016.

Using Wildfires to Meet Resource Objectives in GRSG Habitat Management Areas

BLM: Most approved BLM LUPs provide for the use of wildfire to meet resource objectives. However, actual direction varies between plans, and users should reference their individual plans to determine availability of this tool across their planning area. Additionally, even though the use of the tool may be available, use of it must be consistent with all LUP objectives.

USFS: GRSG-FM-GL-059-Guideline: “In priority, important, and general habitat management areas, to minimize sagebrush habitat loss, consider using the full range of suppression techniques to protect unburned islands, doglegs, and other greater sage-grouse habitat features that may exist within the perimeter of wildfires. These suppression objectives and activities should be prioritized against other wildland fire suppression activities and priorities.”

Using Prescribed Fire in GRSG Habitat Management Areas

BLM: Prescribed fire can be used in GRSG habitat management areas to meet resource objectives. However, all BLM LUPs include the following language regarding the use of prescribed fire: “If prescribed fire is used in Greater Sage-grouse habitat, the NEPA analysis for the Burn Plan will address:

1. Why alternative techniques were not selected as viable options;
2. How Greater Sage-grouse goals and objectives would be met by its use;

3. How the COT Report objectives would be addressed and met;
4. A risk assessment to address how potential threats to Greater Sage-grouse habitat would be minimized."

For the purpose of meeting the intent of the LUP requirement, the NEPA analysis should consider the probability of habitat loss from prescribed fire versus the probability of loss from wildfire, other disturbance, or succession if no treatment occurred. Additionally, this requirement is specific to GRSG habitat, which is slightly different than LUP-designated habitat management areas. See the Habitat chapter of this guide for additional information regarding the difference.

USFS:
Great Basin: The USFS LUP amendments include guidance that restricts prescribed fire use in 12-inch or less precipitation zones unless necessary to facilitate restoration of GRSG habitat consistent with desired conditions or for pile burning. The exception for pile burning does not apply on the National Forest System lands in the Utah subregional plan that are located within the boundaries of the State of Wyoming (i.e., portions of the Uintah, Wasatch, Cache, and Ashley National Forests). If prescribed fire is for restoration, the associated NEPA analysis must identify how the project would move towards GRSG desired conditions, why alternative techniques were not selected, and how potential threats to GRSG habitat would be minimized.

Rocky Mountain: The USFS LUP amendments include guidance that restricts prescribed fire use in 12-inch or less precipitation zones unless necessary to facilitate restoration of GRSG habitat consistent with desired conditions or, in northwest Colorado only, for pile burning. If prescribed fire is used for restoration, the associated NEPA analysis must identify how the project would move towards GRSG desired conditions, why alternative techniques were not selected, and how potential threats to GRSG habitat would be minimized. On the Thunder Basin National Grassland, where GHMAs overlap with Management Area 3.63 or other designated areas for short-grass species, prescribed fire will be allowed.

Vegetation Treatment Decision Notice/ROD Completed Prior to GRSG LUP Publication

BLM: Because all of the newly revised or amended LUPs include specific requirements for vegetation treatments, offices that had NEPA in place prior to signature of the GRSG RODs that authorized vegetation treatments should use the DNA (determination of NEPA adequacy) process and worksheet included in BLM Handbook H-1790-1, "National Environmental Policy Act Handbook," to document that existing NEPA is in conformance with the newly amended/revised LUPs and that NEPA analysis addressed the required information.

USFS: The ROD specifically states: "Projects with decisions made before the effective date of the ROD may proceed unchanged."

Habitat Restoration Projects in Lands with Wilderness Characteristics (Outside Designated Wilderness or Wilderness Study Areas)

If the LUP, as amended, does not include management decisions providing the following direction:

1. Emphasis on other multiple uses as a priority over protecting wilderness characteristics;

2. Emphasis on other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics;
3. Protection of wilderness characteristics as a priority over other multiple uses; and the proposed restoration includes actions that could affect wilderness characteristics (see BLM Manual 6310, p 4-10 for description)).

A. Conduct an inventory to determine if wilderness characteristics are present.
a. If wilderness characteristics are present, project-level NEPA must analyze and make available for comparison the short- and long-term effects on this resource under the action and no-action alternatives.
b. If wilderness characteristics are not present, project-level NEPA should acknowledge this as an issue considered but eliminated from further analysis based on the inventory.
B. Where effects analysis indicates that effects would likely last longer than a year and/or would affect multiple elements of wilderness characteristics determine whether a plan amendment is necessary to provide this guidance.

If the LUP, as amended or revised, does include management decisions providing the following direction:

1. Emphasis on other multiple uses as a priority over protecting wilderness characteristics;
2. Emphasis on other multiple uses while applying management restrictions to reduce impacts to wilderness characteristics;
3. Protection of wilderness characteristics as a priority over other multiple uses.

Ensure that proposed actions are consistent with LUP priorities, and complete project-level NEPA analysis to disclose the short- and long-term effects to this resource under the action and no-action alternatives.

Implementing Habitat Restoration Treatments in Inventoried Roadless Areas on USFS-Administered lands

When planning vegetation or habitat restoration treatments in inventoried roadless areas that include road construction or reconstruction, or tree cutting, follow the direction found in the Region 4 letter of direction to forest supervisors found at: http://fsweb.r4.fs.fed.us/unit/pfr/nepa/index.shtml.

Section 4: Policy, Training, Data, and Tools

Policy Suggestions

- Provide an interdisciplinary instruction memorandum directing implementation effectiveness monitoring to ensure adequate information is collected to inform LUP-level monitoring.
- Update existing vegetation, fuels, emergency stabilization and rehabilitation, fire perimeter, invasive species reporting direction into a single cohesive instruction memorandum (or possibly handbook or information bulletin) to reduce confusion over multiple directives providing individual program direction. Include updated reporting requirements across all systems (TSIS, NISIMS, RIPS, NFPORS) to eliminate requirements for redundant reporting.
- Consider updating FTEM to include broader consideration of all vegetation treatments that may affect fire outcomes.

- Develop and instruction memorandum to clearly describe BLM policy regarding subsequent management actions that may jeopardize habitat protection and restoration investments.

Training

Currently, discussions are underway to convene a conference in early 2016 to bring together a wide range of experts, practitioners, and stakeholders to discuss and develop a strategy to improve the efficiency and efficacy of efforts to address the threat of invasives in the Great Basin Region. The plan will be modeled after the highly successful Next Steppe conference on rangeland fire convened in November 2014. Resources have already been committed by the USFS, USFWS, and BLM to develop the conference agenda and begin planning. (Tentatively: Sagebrush Ecosystems Conference, February 23-26, 2016).

Tools under Development

- A vegetation treatment EIS for the use of three new active ingredients (herbicides) for the control of annual grasses and other invasive species (draft published, pending FEIS and ROD).
- Biopesticides availability on public lands (pending Environmental Protection Agency registration and BLM NEPA review).

Livestock Grazing

Section 1: ROD and Plan Commitments

Livestock grazing is the most widespread type of land use across the sagebrush biome, and almost all sagebrush areas are managed for livestock grazing. Improper livestock management can be a threat to GRSG and its habitat. Each of the LUPs contains a habitat objectives table in Chapter 2. This table summarizes the suite of characteristics supported by research and monitoring that represents the seasonal habitat needs for GRSG. Grass height and forb cover and diversity are the habitat characteristics most directly affected by livestock grazing management. To a lesser extent, sagebrush cover and growth form may also be affected by livestock grazing. In addition, range management structures, if not properly sited and developed, may be detrimental to GRSG.

To access specific GRSG landscape-scale seasonal habitat desired conditions, see the following plans:

- Billings Field Office Approved Resource Management Plan, page 2-14, Table 2-6
- Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse, page 29, Table 2-2 and 2-3
- Buffalo Field Office Approved Resource Management Plan, page 26, Table 2.6
- Cody Field Office Approved Resource Management Plan, page 21, Table 2.7
- Worland Field Office Approved Resource Management Plan, page 22, Table 2.7
- HiLine District Office Approved Resource Management Plan, page 2-21, Table 2.3-2
- Lewistown Field Office Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- North Dakota Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Northwest Colorado Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Miles City Field Office Approved Resource Management Plan, page 2-15, Table 2-6
- South Dakota Approved Resource Management Plan, page 2-19, Table 2-6
- Idaho and Southwestern Montana Approved Resource Management Plan Amendment, page 2-5, Table 2-2
- Nevada and Northeastern California Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- Oregon Approved Resource Management Plan Amendment, page 2-18, Table 2-2
- Utah Approved Resource Management Plan Amendment, page 2-4, Table 2-2
- USFS Great Basin Region, page 76, Table 1
- USFS Rocky Mountain Region, page 70, Table 1

To ensure that grazing continues in a manner consistent with the objective of conserving the GRSG and its habitat, the LUPs include requirements for incorporating terms and conditions informed by GRSG habitat objectives into grazing permits, consistent with the ecological site potential of the local areas and for prioritizing the review and processing of authorizations and field checks of grazing permits, and take numerous actions to avoid and minimize the impacts of range management structures.

The BLM is committed to prioritizing the review and modification of grazing management where this work will provide the most meaningful improvements to habitat condition for greater sage-grouse, in the short term (5-10 years) and long term (>10 years). The BLM is also committed to providing

streamlined responses when livestock grazing is found to be impacting progress towards GRSG habitat objectives.

Livestock Grazing Commitments

- All BLM use authorizations will contain terms and conditions regarding the actions needed to meet or make progress toward meeting the habitat objectives. If monitoring data show the habitat objectives have not been met or progress has not been made toward meeting them, there will be an evaluation and a determination made as to the cause. If it is determined that the authorized use is a cause, the use will be adjusted by the response specified in the instrument that authorized the use.

- Prioritize the review and processing of grazing permits/leases in SFAs followed by PHMAs outside of the SFAs, and IHMAs (Idaho only).

- The NEPA analysis for renewals and modifications of grazing permits/leases will include specific management thresholds, based on the GRSG habitat objectives tables, land health standards, and ecological site potential, to allow adjustments to grazing that have already been subjected to NEPA analysis.

- Prioritize field checks in SFAs followed by PHMAs, and focus on those containing riparian areas, including wet meadows, to ensure compliance with the terms and conditions of grazing permits. Field checks could include monitoring for actual use, utilization, and use supervision.

- Allow range improvements that do not impact GRSG, or that provide a conservation benefit to GRSG such as fences for protecting important seasonal habitats.

- Remove livestock ponds built in perennial channels that are negatively impacting riparian habitats. Do not permit new ones to be built in these areas.

- At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. This does not apply to or impact grazing preference transfers, which are addressed in 43 CFR 4110.2-3.

Section 2: Implementation Topics and Guidance

Priorities for Reviewing and Processing Grazing Permits/Leases (Note: The Washington Office is developing policy in the form of an instruction memorandum on this management direction.)
Grazing management must maintain or allow progress towards meeting land health standards for each of the fundamentals of rangeland health (43 CFR 4180.1) and the GRSG habitat objectives identified in Chapter 2 of each relevant plan amendment or revision. In addition, grazing should be compatible with meeting objectives for habitat improvement, habitat restoration, and fuels management projects.

The BLM will prioritize the review of grazing permits/leases authorizing use in GRSG habitat to determine if modification of current grazing use is necessary to maintain or achieve land health

standards, including sage-grouse habitat objectives. In general, prioritization will include the processing of grazing permits/leases in SFAs followed by PHMAs outside of the SFAs. Areas not meeting land health standards or habitat objectives will be high priority for processing, particularly if current livestock grazing appears to be a significant causal factor. When current livestock management is determined to be a significant causal factor in failure to meet one or more standards, adjustments to grazing permits/leases must be made prior to the next grazing season to allow significant progress toward meeting standards (43 CFR 4180.2). Areas outside of GRSG habitat that are not meeting land health standards may be higher priority for review and processing than habitat areas that are meeting standards within GRSG habitat. In setting workload priorities, precedence will be given to existing permits/leases in these areas not meeting land health standards, with focus on those containing riparian areas, including wet meadows. The BLM may use other criteria for prioritization such as responding to an urgent natural resource concern (e.g., fire) or legal obligations.

In GRSG habitat within and outside of SFAs, the prioritization process may also include:

- Allotments containing large, contiguous areas of sagebrush cover.
- Areas where modifications to grazing management will facilitate implementation of vegetation treatments to make progress towards meeting treatment objectives.
- Consideration of other resources present, such as threatened and endangered or special status species, as well as other resources such as habitat management areas, areas of critical environmental concern, other designated lands (e.g., National Conservation Lands, etc.).
- Areas where there is preliminary information to indicate resource issues or likelihood of areas not meeting standards, but that have not been evaluated.
- Review of existing land health assessments and HAF reports in GRSG habitat to identify whether or not GRSG habitat objectives from the applicable LUP are being met.
- Areas with declining sage-grouse populations or known threats to sage-grouse habitat availability (e.g., cheatgrass invasion).

Use the priorities set in accordance with Washington Office Instruction Memorandum 2009-018 as a starting point and adjust based on the additional criteria. Field offices should focus the review and processing of grazing permits based on resource issues and conditions rather than on permit/lease expiration dates.

Incorporating HAF Reports, Land Health Assessments, and Other Data into the Review and Processing of Grazing Permits/Leases? (See Figure 4, Processing Grazing Permits and Leases.)
An interdisciplinary team is responsible for incorporating sage-grouse habitat assessment, land health assessment, and evaluation and determination information to accurately describe the affected environment and analyze alternatives when completing NEPA for grazing permit/lease processing. Additional information may be appropriate to incorporate as well, such as new information not included in the HAF and/or LHA, as well as mid- and coarse-scale spatial data and cultural and economic information. See the Habitat and Assessment chapter of this guide for more information on prioritizing LHAs and incorporating data into LHAs, evaluations, and determinations.

Field offices will use the guidance in Washington Office Instruction Memorandum 2015-121 (Implementing Amended Section 402(h)(1) of Federal Land Policy and Management Act - Using a Categorical Exclusion when issuing a Grazing Permit or Lease) for applying a categorical exclusion to an environmental review of a grazing permit. Field offices will use the guidance in Washington Office Instruction Memorandum 2015-122 (Implementing Amended Section 402(c)(2) of the Federal Land

Policy and Management Act - Continuing the Terms and Conditions of Grazing Permits or Leases that are Terminated as a Result of Transfers of Preference or Have Expired) for the provisions that address continuing the terms and conditions for livestock grazing when a permit or lease has expired or was terminated due to a grazing preference transfer.

As new information becomes available in GRSG habitat, including seasonal habitats, the BLM may revise the GRSG habitat management area maps and associated management decisions (through plan maintenance or plan amendments/revision as appropriate). Field offices may need to review grazing permits/leases to determine whether changes in the designations require modifications to grazing permits that are tied to the original designations.

Informing the Processing of Grazing Permits/Leases with Different Scales of Data

Data from multiple scales should be incorporated into LHAs and NEPA analysis for permit renewals. These data may be incorporated into HAF reports at all scales as well as LHAs, while additional mid- and broad-scale data may be appropriate to incorporate into NEPA analysis to help understand the affected environment. One example is climate change modeling data, which are available at a coarse grain, but can inform future stresses to habitat within the project area.

Incorporating mid- and broad-scale data when processing grazing permits can also help provide context for how the subject grazing allotments fit into the larger landscape with respect to sage-grouse habitat and other landscape-scale resource concerns. For example, cumulative indicator scores for sagebrush condition from REAs could be combined with areas identified as high cheatgrass risk via modeling and site-scale AIM data to help determine where relatively intact sagebrush areas may be at high risk of cheatgrass invasion under improper grazing management. These data provide valuable information for meaningful NEPA cumulative effects analysis because most transcend administrative boundaries, allowing analysis on an ecologically meaningful scale.

Rapid ecoregional assessments (REAs) are the ideal source for beginning to look for broad-scale spatial data that can inform land health assessments and grazing permit renewals. REAs include a multitude of baseline datasets compiled from a range of sources, as well as aggregated data and models. REA output data are usually on the 4 km or 6th-order HUC scale, but base data layers may be at finer grain. A more complete list of geospatial tools and data can be found in the Data chapter of this document.

Achieving Other Resource Management Objectives in Local LUPs (e.g., Utah prairie dog) During Review and Processing of Grazing Permits/Leases

Achievement of other resource management objectives will be identified as part of the land health assessment process and review and processing of grazing permits/leases under an EA or EIS. Alternatives will be developed and analyzed as appropriate to meet all relevant resource management objectives, as identified in the purpose and need statement for the NEPA document.

Achievement of affected resource management objectives may also be considered during other activities/processes that involve the evaluation of livestock grazing management (e.g., a land health evaluation in a grazing allotment).

All actions approved or authorized by the BLM must conform to the applicable LUP, which includes its resource management objectives.

Incorporating Management Thresholds and Defined Responses into the NEPA Analysis and Grazing Permits/Leases (Note: The Washington Office is developing policy in the form of an instruction memorandum on this management direction.)

Field offices will prioritize the review and processing of grazing permits/leases in SFAs followed by PHMAs outside of SFAs. In setting these priorities, precedence will be given to existing permits/leases in areas not meeting land health standards, with a focus on those containing riparian areas.

The GRSG LUPs identify an LUP vegetation objective and habitat objectives (Chapter 2). The vegetation objective is the landscape-scale objective. The habitat objectives are at the site scale and provide desired vegetation conditions within seasonal habitats used by GRSG. (See the Habitat and Assessment chapter of this guide).

- Thresholds are a suite of indicators designed to meet habitat objectives.
- Use the results of the HAF assessments to determine the indicators, and develop thresholds and responses for the habitat component(s) not meeting objectives. When field office wildlife biologists find, through the HAF process, that potential habitat is marginal or unsuitable, the specific habitat components that are leading to this finding should be clearly identified. Identifying these habitat components is necessary to develop appropriate indicators and thresholds.
- Management thresholds will be incorporated into the NEPA analysis when livestock grazing is found to be a causal factor for not meeting the land health standards relative to GRSG habitat.
- Management thresholds will be designed to meet GRSG habitat objectives and land health standards and incorporated into the NEPA analysis. For example:
    - Where there is a threshold of 30 percent utilization in the x pasture, a response could be to defer grazing in the pasture until after the nesting period in the following year if the threshold was not met.
    - In this example, the 30 percent utilization level during the GRSG nesting season is needed to meet a nesting habitat objective, and it might not be critical if grazing occurs outside of that time period.
- Thresholds and responses will be determined on a permit-specific (or allotment/watershed/group of allotments) basis appropriate for the ecological site and type of seasonal habitat present. Thresholds and responses must consider the ability of the site(s) to meet potential.
- The grazing permit/lease will clearly state that management will be adjusted as outlined in the decision for the specific threshold.

The overall process for modifying a permit has not changed. However, there are now quantitative objectives that are to be used in evaluating land health standards applicable to GRSG habitat, and threshold/responses will be incorporated into grazing permits/leases for the habitat component(s) not meeting objectives. Field offices will continue to coordinate with permittees, state agencies, interested public, etc., during the permit renewal process, including developing thresholds/responses.

An interdisciplinary team with broad representation of various resources will incorporate management thresholds and defined responses into the NEPA analysis and grazing permits/leases. Minimum expertise would be determined by issues resulting from the proposed action, which generally includes range management, botany, wildlife, fisheries, hydrology, etc.

Use of Public Lands after Voluntary Relinquishment of Grazing Permits/Leases

Field offices will use the criteria in Instruction Memorandum 2013-184 (Relinquishment of Grazing Permitted Use on the Bureau of Land Management Administered Lands) as a starting point, as well as the management direction in the ARMPAs in making a determination on whether public lands associated with a relinquishment should be designated as available for livestock grazing (and reassign the livestock forage allocation to a new or different permittee) or designated for other uses such as a reserve common allotment or fire breaks. The BLM's receipt of a relinquishment does not automatically close areas to livestock grazing.

Criteria used in the decisionmaking process should incorporate, at a minimum, the current land health status of the allotment, relative applicable standards that address GRSG habitat, interest and/or availability of qualified applicants, and the potential for increased management flexibility on other allotments that contain GRSG habitat. It will depend on the individual habitat conditions and their relative value on the affected allotment. Field offices should coordinate with interested publics, including state wildlife agencies, grazing advisory board, etc., for the allotment(s) in question in making a determination.

Allotments/pastures/areas included in relinquished permits/leases should be examined within the context of larger habitat conditions and livestock management considerations. If these areas can be used to provide increased livestock management flexibility that maintains or increases GRSG habitat quality across larger scales through the creation of reserve common allotments, this should be considered during the decision making process. Forage available for livestock on reserve common allotments is to be allocated through temporary, nonrenewable permits in order to meet resource objectives elsewhere such as rest or deferment due to fire or vegetation treatments.

This decision is to be made by the authorized officer, typically the field manager, and an interdisciplinary team with broad representation of various resources that generally includes range management, botany, wildlife, fisheries, hydrology, etc.

Determining if Existing and/or Proposed Range Improvements Impact or Provide a Conservation Benefit to GRSG

Range improvements are constructed and maintained on public lands to support orderly and effective management of livestock grazing, wild horse and burro management, and other resource objectives. Some examples of structural range improvements include, but are not limited to: fences, exclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling); windmills, ponds/reservoirs, solar panels, and spring developments.

Proposed (new) range improvements: The analysis of the effects of proposed (new) range improvements on GRSG and GRSG habitat would occur through the NEPA process when (1) an application is received and accepted from an external applicant or (2) when the BLM identifies a need for a range improvement (43 CFR 4120.3), often during the grazing permit renewal process.

The interdisciplinary team will evaluate and analyze proposals for range improvements and work with proponents to develop appropriate alternatives to eliminate negative effects to GRSG and/or GRSG habitat. Alternatives may include, but are not limited to, alternative design and/or placement of the range improvements, or alternate management strategies such as livestock herding or changes in numbers or season of use. An appropriate range of alternatives would be analyzed through the NEPA process. The authorized officer will decide whether the proposed range improvement alternative or

another alternative provide for no impact or a conservation benefit to GRSG habitat, taking into account the subsequently listed criteria.

Existing range improvements: Existing range improvements would be evaluated during the land health and/or NEPA process to determine their impact and/or conservation benefit with regards to GRSG and/or their habitat. In areas not scheduled for grazing permit processing, the interdisciplinary team, should, at a minimum, review fences in areas of high collision risk, based upon modeling and local knowledge, and take appropriate actions to remove, modify, or replace any range improvements that are found to be negatively impacting GRSG habitat or posing unacceptable risks for collisions or increased predation. Additional review and modification of range improvements may take place outside of the grazing permit process based upon identified issues (e.g., reviewing water developments if West Nile is a particular threat in the area) and workload priorities.

Existing range improvements are assumed to be necessary to implement existing management. However, some constructed range improvements are not currently being used and/or they are not functioning for their intended purpose. These types of situations should be identified during the land health assessment and/or grazing permit renewal process and evaluated for their necessity and/or impacts to GRSG habitat if left in their current state. If existing range improvements are functioning and useful for current and/or proposed future management of resources and authorizations, then the following are examples of criteria to consider in relation to their impacts to GRSG habitat:

- Wire fences should be located outside of high collision-risk areas. When this is not possible, fence marking should be employed to reduce hazards if the fence cannot be eliminated or removed.
- Taller structures should not increase predation hazards by providing raptor perching locations within proximity to leks.
- Spring developments should not reduce the amount or quality of wet meadow habitat of value for sage-grouse brood rearing.
- Maintenance activities should not pose a risk of increased weeds, removal of sagebrush, or disturbance of birds, such as from operation of machinery during lekking periods.
- Water developments should be designed to minimize the risk posed by West Nile virus.
- Riparian and wet meadow access by sage-grouse should not be impeded by riparian exclosures.
- An action would reduce impacts to GRSG and their habitat while not introducing undue impacts to other resources (cultural, rare plants, weeds, etc.).

Additional guidance for evaluation of existing and proposed range improvements with respect to their effects on GRSG and GRSG habitat will be developed.

Prioritizing and Conducting Livestock Grazing Compliance and Implementation Monitoring within Sage-Grouse Habitat?

Field offices will monitor grazing allotments for compliance with terms and conditions of grazing permits/leases including, but not limited to: season of use, livestock numbers, pasture rotations, and maintenance of range improvements. In addition, field offices will monitor grazing use as needed to determine whether management is meeting habitat objectives and other rangeland health objectives as appropriate. Frequency of monitoring will be determined by field office capacity and should be based upon the level of resource concerns and uncertainties associated with each allotment or grazing permit/lease. For example, it may be appropriate to monitor an allotment more frequently in the first 2-3 years of implementation of a new grazing plan designed to make progress towards habitat objectives,

while less frequent monitoring would be needed where a satisfactory management system has been in place for several years. Particular monitoring priority should be placed on allotments where management response thresholds have been incorporated into grazing permits/leases.

Field offices will prioritize grazing compliance checks in SFAs followed by PHMAs. Within each habitat category, monitoring of grazing use and compliance with permits and management plans should be emphasized in areas where livestock use has the potential to affect seasonal sage-grouse habitats. For instance, summer grazing in areas with unprotected lentic areas and wet meadows should be prioritized to ensure that unacceptable impacts to these important sage-grouse brood rearing areas are not occurring. Similarly, spring grazing in breeding and nesting habitat should be prioritized to ensure that adequate residual herbaceous vegetation is left to provide for concealment throughout the nesting period, as defined by seasonal habitat objectives listed in each ARMP and ARMPA.

Section 3: Applicable Diagrams

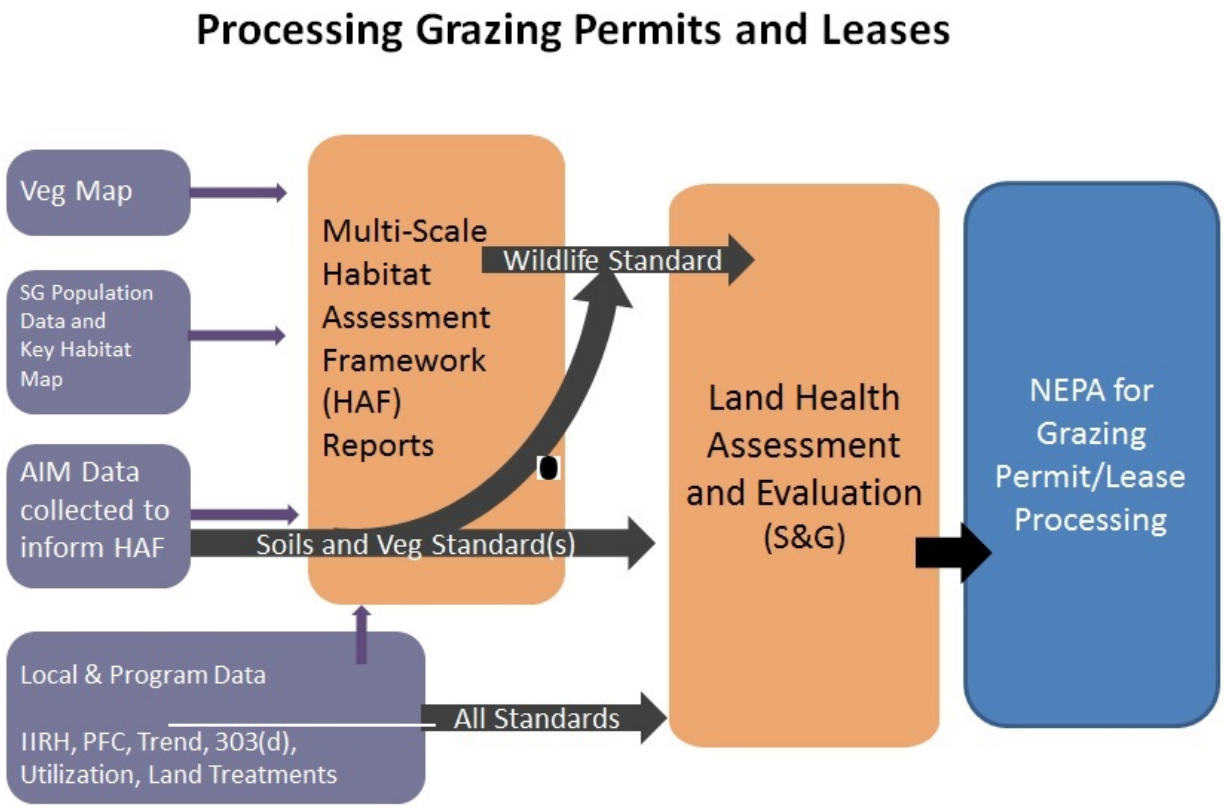

Figure 4. Processing grazing permits and leases. Purple boxes are data. Blue boxes are overarching guidance for prioritization and implementation. Orange documents are assessment documents. NEPA includes alternative development. The green boxes are examples of on-the-ground implementation decisions. Prioritization occurs at all stages.

The resource management plan prioritizes by habitat type, which is overlaid by FIAT priority areas. As HAF assessments are completed and sage-grouse populations and disturbance or habitat loss are monitored, prioritization may change. Watershed assessments informed by HAF assessments help to set priorities at the fine scale through thorough examination of site-specific conditions and their relationship to ongoing land uses.

Section 4: Policy, Training, Data, and Tools

Policy

Instruction memorandums under development:

- Policy on the "Sage-Grouse Habitat Assessment Framework," including the connection between AIM and the HAF.
- Setting priorities for permit renewal, NEPA, and multiple allotment NEPA.

- Incorporating management thresholds based on the habitat objectives table from Chapter 2 of the LUPs, land health standards, and ecological site potential, to allow adjustments to grazing that have already been subjected to NEPA analysis.

Necessary instruction memorandums/information bulletins:

- Guidance related to range improvements.
- Recording compliance (field check information).
- Update to Washington Office Instruction Memorandum 2013-184 (Relinquishment of Grazing Permitted Use on the Bureau of Land Management Administered Lands) to reflect the management direction in the ARMPAs.

Training

The following training is needed:

- Developing allotment management plans (or functional equivalent).
- Developing thresholds/responses.
- Guidance on the intent of terms and conditions, indicators, thresholds, and objectives and how they all relate.

Data

- See the Data Chapter of this guide for more information.

Tools

- Needed: SharePoint site or other mechanism for sharing information, including frequently asked questions, upcoming training opportunities specific to sage-grouse, a way to respond to questions from field offices, etc.

Disturbance and Mitigation

Section 1: ROD and Plan Commitments

The primary mechanisms each LUP employs to minimize disturbance in GRSG habitats are a series of management decisions aimed at avoiding and minimizing impacts and additional disturbance in identified habitat areas (see GRSG Plan Commitments, which follow). While each plan varies in the delineation of these decisions within GRSG habitat management areas, the following description outlines the common approach.

In sagebrush focal areas (a subset of priority habitat management areas), most new surface disturbing activities are prohibited subject to all valid and existing rights. In the remaining PHMAs, surface disturbance is avoided or limited through these allocation decisions. Within GHMAs, additional surface disturbance may be authorized, with minimization emphasized through additional plan measures. These additional approaches to conserving the sagebrush ecosystem are also outlined in the LUPs and include prioritization of projects which fall outside of habitat management areas, incorporating required design features for projects that do occur within habitat management areas, and offsetting unavoidable disturbance through mitigation.

In addition to the allocation decisions and additional conservation measures, each plan incorporates an approach to quantify and limit the amount of disturbance at three spatial scales. By doing so, anticipated disturbance within PHMAs can be monitored, and appropriate management actions can be taken when disturbances reach levels deemed detrimental to the long-term viability of sage-grouse habitat at these scales.

Broad scale: At the broad scale (priority areas for conservation and WAFWA management zone), the NOC will monitor an estimated disturbance footprint using datasets with national coverage and assumptions regarding average area for each disturbance type as outlined in the Monitoring Framework. In addition, the density of energy- and mining-related features will also be calculated at this broad scale.

Mid scale: At the mid scale, a similar measurement to the broad-scale disturbance footprint calculation using the same disturbance data sources, will also be calculated, as defined by the biologically significant unit, by the NOC. This measure will be evaluated against a 3 percent cap on disturbance within the area of analysis to inform adaptive management decisions and project approvals. Because some plans may use this analysis as an adaptive management trigger, state offices will also have the opportunity to calculate this mid-scale metric using locally available and more accurate datasets than those collected and analyzed by the NOC.

Fine/project scale: Finally, project approvals will incorporate a disturbance quantification and density analysis (for most plans) requirement. Although there are variations among the plans in the methodology and maximum disturbance percentage or density of energy and mining related infrastructure allowed, the project-level analysis will quantify the anticipated impact in the context of existing disturbance and determine the outcome of the approval process (see Section 3).

Disturbance - GRSG Plan Commitments

The following management decisions are a summary of the management decisions made in the GRSG plans organized by region (Great Basin Region and Rocky Mountain Region) and program followed by a summary of LUP commitments for limiting disturbance. For a comprehensive list of management decisions and commitments in each subregion, see specific ARMPs or ARMPAs.

Management Decisions

Infrastructure

Proposed LUP actions*:* To ameliorate the threat from new land authorizations for infrastructure, the proposed LUPs provide that major pipeline and transmission line development will be avoided in all GRSG habitats through restrictions on land use authorizations(except in GHMA in Wyoming, Utah, and Idaho). Exceptions would be limited and based on rationale that explicitly demonstrates that adverse impacts will be avoided or that residual impacts could be mitigated.

GHMAs in Wyoming, Utah, and Idaho would be available to rights-of-way for infrastructure due to the extent and quality of the habitat as well as the percentage of GRSG contained in PHMA in those states. An additional consideration in Wyoming is the extent of the protections for GRSG on private and state land. These factors gave BLM confidence, after input from the USFWS, that conservation objectives can be met with this additional flexibility provided in GHMAs. In the proposed LUPs, minor rights-of-way (including roads) are to be avoided in PHMAs.

Table 7. Great Basin Region: key responses to infrastructure threats (rights-of-way)

EIS	Key Components of the Sub-regional Proposed LUPs
ALL	*(Major Rights-of-Way)** PHMA: Avoidance area (may be available for major ROWs with special stipulations)
NV/CA, OR	*(Major Rights-of-Way)* GHMA: Avoidance area (may be available for major ROWs with special stipulations)
ID/SWMT	*(Major Rights-of-Way)* GHMA in Montana: Avoidance area (may be available for major ROWs with special stipulations)
ID/SWMT	*(Major Rights-of-Way)* IHMA: Avoidance area (may be available for major ROWs with special stipulations)
ALL	*(Minor Rights-of-Way)* PHMA: Avoidance area (may be available for minor ROWs with special stipulations)
ALL	*(Minor Rights-of-Way)* GHMA: Open area (may be open for minor ROWs, but still requires special stipulations)
ID/SWMT	*(Minor Rights-of-Way)* IHMA: Avoidance area (may be available for minor ROWs with special stipulations)

**Major Rights-of-Way are HV Transmission Lines over 100kV and Large Pipeline ROWs*

Table 8. Rocky Mountain Region: key responses to infrastructure threat (rights-of-way)

EIS	Key Components of the Sub-regional Proposed LUPs
ALL	*(Major Rights-of-Way)** PHMA: Avoidance area (may be available for major ROWs with special stipulations).
Billings, HiLine, Lewistown, Miles City, ND, SD	*(Major Rights-of-Way)* GHMA: Avoidance area (may be available for major ROWs with special stipulations).
ALL	*(Minor Rights-of-Way)* PHMA: Avoidance area (may be available for minor ROWs with special stipulations).
Billings, HiLine, Lewistown, Miles City, ND, SD	*(Minor Rights-of-Way)* GHMA: Avoidance within two miles of leks. Winter range would be avoidance areas (may be available for minor ROWs with special stipulations).
NWCO	*(Minor Rights-of-Way)* GHMA: Avoidance area (may be available for minor ROWs with special stipulations)

*Major Rights-of-Way are HV Transmission Lines over 100kV and Large Pipeline ROWs

Energy Development (Fluid Minerals)

Proposed LUP actions: To ameliorate the threat to GRSG and its habitat from energy development and mining, the BLM and the USFS will limit energy development in PHMAs. Specifically, with the exception of Wyoming (which includes a 0.6 mile NSO buffer around leks coupled with density and disturbance limits in PHMA) and Nevada for geothermal leasing (projects may be considered, in coordination with the USFWS and Nevada Department of Wildlife specialists, with appropriate mitigation measures and consistent with lek buffer distances and disturbance management protocols), all PHMAs will be managed as No Surface Occupancy (NSO) without waivers or modifications for fluid mineral leasing. Exceptions could be granted after consultation with a team of agency GRSG experts from the USFWS, BLM/USFS and state wildlife agency if there would be no direct, indirect, or cumulative effects to GRSG or their habitats. An exception could also be granted if granting the exception provides an alternative to a similar action occurring on a nearby parcel and the exception provides a clear net conservation gain to GRSG. SFAs are also NSO, and there will be no waivers, exceptions, or modifications for fluid mineral leasing.

GHMAs are also protected through controlled surface use and timing limitations, for leasing fluid minerals, which would ensure that habitat is protected during seasonal use. Oregon also applies a NSO stipulation within 1 mile of leks; Wyoming applies a NSO stipulation within 0.25 miles of an occupied lek in GHMAs; and Billings, Hiline, and Miles City apply a NSO stipulation within 0.6 miles of an occupied lek in GHMAs. The agencies will also protect leks through application of buffers where needed at the project implementation stage.

In northwest Colorado, in addition to the decisions previously described, areas within 1 mile of active leks in PHMAs and GHMAs would not be available for leasing and in GHMAs within 2 miles of active leks would be NSO.

For existing leases, the authorized officer will work with the lease holder at the project implementation stage to reduce impacts of the project to GRSG populations to the maximum extent possible within the conditions of the lease. Thus, BLM and USFS staff should encourage efforts to develop on nonhabitat acres in PHMAs, to co-locate drilling rigs and infrastructure with existing development, and encourage development outside of PHMAs where possible.

As an additional measure to reduce surface disturbance in GRSG habitat, the proposed LUPs include language to prioritize future leasing and development in areas outside of PHMAs and GHMAs.

Allocations to protect habitat also exist for renewable energy. In all proposed LUPs, except Wyoming and three counties in southeastern Oregon (Harney, Lake, and Malheur), all PHMAs are an exclusion area for solar and wind development. And in all areas, except Wyoming, Idaho, and Utah (for wind only), GHMAs are an avoidance area. Development in avoidance areas would not be permitted unless it could be demonstrated that potential projects had no impact or that residual impacts could be mitigated. In Wyoming, wind energy development will only be allowed in PHMAs if it can be shown that there will be no impacts to GRSG, consistent with the Wyoming Core Area Strategy.

Additionally, the agencies will not issue new discretionary authorizations in PHMA unless all existing discrete anthropogenic disturbances cover less than 3 percent (See Disturbance and Density Cap discussions in this chapter for exceptions to the disturbance and density overview provided here) of the total GRSG habitat within the Biologically Significant Unit[1] (not in WY) and the proposed project area, regardless of ownership, and the new use will not cause exceedance of the cap. The BLM and the USFS

will also restrict density of active mining and energy facilities to average of 1 per 640 acres to encourage consolidation of structures and to reduce habitat fragmentation.

Table 9. Great Basin Region: key responses to energy threat (fluid minerals)

EIS	Key Components of the Sub-regional Proposed LUPs
ID/SWMT, NV/CA, OR	PHMA: Open to fluid mineral leasing subject to No Surface Occupancy (NSO) stipulation without waiver or modification, and with limited exception. In SFAs, NSO without waiver, modification, or exception. Except in NV, where geothermal projects may be considered in coordination with FWS and Nevada Department of Wildlife specialists, with appropriate mitigation measures and consistent with lek buffer distances and disturbance management protocols.
UT	PHMA (BLM and Forest Service-Utah Proposed LUPs): Open to fluid mineral leasing subject to No Surface Occupancy (NSO) stipulation without waiver or modification, and with limited exception. In SFA, NSO without waiver, modification, or exception.
UT	PHMA (Forest Service-Wyoming Proposed LUP): Open to leasing subject to NSO stipulation within 0.6 mile of occupied leks, with TL stipulations during certain times of the year and within all PHMA and SFA.
ID/SWMT	IHMA: Open to fluid mineral leasing subject to NSO stipulation without waiver or modification, and with limited exception.
ID/SWMT, NV/CA	GHMA: Open to fluid mineral leasing subject to Controlled Surface Use (CSU) and Timing Limitation (TL) stipulations.
OR	GHMA: Open to fluid mineral leasing subject to Controlled Surface Use (CSU) and Timing Limitation (TL) stipulations. Areas within 1.0 miles of a lek are subject to NSO stipulations.
UT	GHMA (BLM and Forest Service-Utah Proposed LUPs): Open to fluid mineral leasing subject to existing planning decisions, which include closed to fluid minerals leasing, NSO, Controlled Surface Use (CSU) and Timing Limitation (TL) stipulations, and open to leasing subject to standard stipulations.
UT	GHMA (Forest Service-Wyoming Proposed LUP): Open to leasing subject to NSO stipulation within 0.25 mile of occupied leks, with TL stipulations up to 2 miles from an active lek during certain times of the year.

Table 10. Rocky Mountain Region: key responses to energy threat (fluid minerals)

EIS	Key Components of the Sub-regional Proposed LUPs
Billings, HiLine, Miles City, ND, SD, NWCO	PHMA: Open to fluid mineral leasing subject to No Surface Occupancy (NSO) stipulation without waiver or modification, and with limited exception. In NWCO, unavailable for leasing within 1mile of an active lek. In SFAs in HiLine only, NSO without waiver, modification, or exception.
WY AMDs, Bighorn, Buffalo, Lander	PHMA: Open to fluid mineral leasing subject to No Surface Occupancy (NSO) stipulation within 0.6 miles of an occupied lek, and Timing Limitation (TL) stipulation from March 15 to June 30.
Lewistown	PHMA and GHMA: Apply COAs to existing fluid mineral leases. Note: oil and gas leasing will not be addressed in this RMPA/EIS.
Billings	GHMA: Open to fluid mineral leasing subject to NSO within 0.6 miles of an occupied lek and Timing Limitation (TL) stipulation from March 1 to June 15 within 3 miles of a lek.
HiLine	GHMA: Open to fluid mineral leasing subject to NSO within 0.6 miles of an occupied lek and Timing Limitation (TL) stipulations.
Miles City	GHMA: Open to fluid mineral leasing subject to NSO within 0.6 miles and Controlled Surface Use (CSU) stipulation within 2 miles of an occupied lek.
ND	GHMA: Open to fluid mineral leasing subject to Controlled Surface Use (CSU) stipulation.
SD	GHMA: Open to fluid mineral leasing subject to NSO stipulation within 0.6 miles of an occupied lek. Open with CSU stipulation within two miles of leks. Winter range in GHMA would be open subject to NSO stipulation.
WY AMDs, Bighorn, Buffalo, Lander	GHMA: Open to fluid mineral leasing subject to NSO within 0.25 miles of an occupied lek and TL stipulations.
NWCO	GHMA: Open to fluid mineral leasing subject to Timing Limitation stipulations. Unavailable for leasing within 1 mile of active leks. Open to fluid mineral leasing subject to NSO with waiver, modification, or exception within 2 miles of active leks.

Proposed LUP actions: To address the threat to GRSG habitat posed by mining activities, the BLM and the USFS LUPs include the following direction:

- **Mineral Materials:** Except in Wyoming, PHMAs are closed to new mineral material sales except for free use permits and the expansion of existing active pits if the following criteria are met – the proposed activity is within the disturbance cap; the activity is subject to the mitigation framework; all required design features are applied.

- **Leasable Minerals (nonenergy):** Except in Wyoming, PHMAs are closed with some exceptions for expansion of existing operations.

- **Coal** (with the exception of Oregon, Nevada, and Idaho where coal is not present): the BLM will determine at the time of a new coal lease or lease modification whether the lease application area is "unsuitable" for all or certain coal mining methods pursuant to 43 CFR 3461.5. Under the suitability criteria, set forth at 43 CFR 3461.5(o)(1), PHMAs would be considered essential habitat for maintaining GRSG.

- **Locatable Minerals:** A portion of the SFAs within the planning area are currently withdrawn from mineral development, and the BLM proposed LUPs recommend that the Secretary withdraw the remaining SFA lands (with some exceptions in Wyoming) from locatable mineral development, subject to valid existing rights (USFS will recommend this withdrawal in the RODs). All other lands not previously withdrawn will remain open to locatable mineral development in accordance with the 1872 Mining Act, as amended.

Additionally, the agencies will not issue new discretionary authorizations in PHMAs unless all existing discrete anthropogenic disturbances cover less than 3 percent (see Disturbance and Density Cap discussions in this chapter for exceptions to the overview provided here) of the total GRSG habitat within the biologically significant unit (not Wyoming) and the proposed project area, regardless of ownership, and the new use will not cause exceedance of the cap.

Separately, the BLM and the USFWS negotiated an agreement with Barrick Gold Company to provide for advance mitigation should the company seek an expansion of current mining operations. The Barrick enabling agreement provides for the protection or restoration of GRSG habitat and for credits to be granted using a valuation tool developed by The Nature Conservancy – to be updated on a periodic basis – to offset unavoidable impacts to GRSG habitat in the event of future mine development.

Table 11. Great Basin Region: key responses to mining threat

EIS	Type	Key Components of the Sub-regional Proposed LUPs
ID/SWMT, NV/CA, OR	Coal	Not applicable in the planning area
UT	Coal	PHMA is essential habitat for maintaining GRSG for purposes of the suitability criteria set forth at 43 CFR 3461.5(o)(1)
ALL	Locatable Minerals	SFA: Recommend withdrawal from the Mining Law of 1872, as amended
ALL	Non-energy Leasable Minerals	PHMA: Closed area (not available for non-energy leasable minerals) with limited exception to allow for expansion of existing operations.
ALL	Mineral Materials	PHMA: Closed area (not available for salable minerals) with a limited exception (may remain open to free use permits and expansion of existing active pits if criteria are met)

Table 12. Rocky Mountain Region: key responses to mining threat

EIS	Type	Key Components of the Sub-regional Proposed LUPs
ALL	Coal	PHMA is essential habitat for GRSG for purposes of the suitability criteria set forth at 43 CFR, Part 3461.5(o)(1).
WY AMDs	Locatable Minerals	SFAs: 252,160 acres would be recommended for withdrawal from the General Mining Act of 1872, as amended, subject to valid existing rights. 894,060 acres would be considered for future recommendation for withdrawal from mineral entry, based on risk to GRSG and its habitat from conflicting locatable mineral potential and development. Additional restrictions, including 0.6 mile buffers around leks and timing and noise restrictions are included (WY Core Area Strategy).
Lewistown, HiLine	Locatable Minerals	SFA: Recommend withdrawal from the Mining Law of 1872, as amended.
Billings, Miles City, ND, SD, Bighorn, Buffalo, Lander, NWCO	Locatable Minerals	Apply RDFs to locatable minerals consistent with applicable law.
Billings, HiLine, Lewistown, Miles City, ND, NWCO	Non-energy Leasable Minerals	PHMA: Closed area (not available for nonenergy leasable minerals).
ND	Mineral Materials	PHMA: Closed area (not available for salable minerals).
Billings, HiLine, Lewistown, Miles City, SD, NWCO	Mineral Materials	PHMA: Closed area (not available for saleable minerals) with a limited exception (may remain open to free use permits and expansion of existing active pits if criteria are met)

Disturbance Cap

The proposed LUPs include additional requirements intended to minimize disturbance in PHMAs and to limit disturbance to leks in PHMAs and GHMAs. These requirements will be applied to authorized uses across the landscape.

In addition to the management actions and allocations previously discussed, the proposed LUPs also limit the amount of anthropogenic disturbances in PHMAs through the use of disturbance caps. If the 3 percent or 5 percent (depending on state) anthropogenic disturbance is exceeded on lands (regardless of land ownership) within PHMAs in any given biologically significant unit, no further discrete anthropogenic disturbances (subject to applicable laws and regulations, such as the Mining Law of 1872, as amended, valid existing rights, etc.) will be permitted by the BLM and USFS within PHMAs in that biologically significant unit. In Wyoming, a different process, which does not include an analysis at the biologically significant unit, is used. If the disturbance cap is exceeded on all lands (regardless of land ownership) within a proposed project analysis area in a PHMA, then no further anthropogenic disturbance will be permitted by the BLM and the USFS until disturbance in the proposed project analysis area has been reduced to be under the cap (subject to applicable laws and regulations, such as the Mining Law of 1872, as amended, valid existing rights, and designated utility corridors etc.). Most

proposed plans will implement a 3 percent disturbance cap, with a few modifications. Wyoming proposed plans are consistent with the State of Wyoming's Core Area Strategy, which limits all disturbances, including wildfire and vegetation treatments, within a project area (referred to as the Density and Disturbance Calculation Tool (DDCT) analysis area) to 5 percent within PHMAs.

Density Cap

The proposed plans have also incorporated a cap on the density of energy and mining facilities to encourage consolidation of structures and to reduce habitat fragmentation. The cap is set at an average of one facility per 640 acres in PHMAs in a project authorization area, consistent with guidance contained in the NTT report. If the disturbance density in the PHMA in a proposed project area is on average less than 1 facility per 640 acres, the analysis will proceed through the NEPA process incorporating mitigation measures into an alternative. If the disturbance density is greater than an average of 1 facility per 640 acres, the proposed project will either be deferred until the density of energy and mining facilities is less than the cap or co-located into an existing disturbed area (subject to applicable laws and regulations, such as the 1872 Mining Law, valid existing rights, etc.). The one facility per 640 density decision does not apply to Nevada. In Wyoming, the proposed LUPs are consistent with the State of Wyoming's Core Area Strategy, which limits oil and gas development density to an average of one pad per 640 acres and uses the Density and Disturbance Calculation Tool.

Table 13 provides the specific location in each subregional plan that contains the details of the methodology for applying the density and disturbance cap.

Table 13. Location of density and disturbance cap methodology in each approved resource management plan

Rocky Mountain Region		
Lewistown	Appendix E	Greater Sage-Grouse Disturbance Caps
North Dakota	Appendix E	Greater Sage-Grouse Disturbance Caps
Northwest Colorado	Appendix E	Methodology for calculating disturbance caps
All Wyoming plans: Wyoming RMPA Buffalo Field Office Cody Field Office Worland Field Office	Appendix D	Greater Sage-grouse Habitat Management Strategy
Billings Field Office/Pompeys Pillar	Appendix E	Greater Sage-Grouse Disturbance Caps
HiLine	Appendix E	Greater Sage-Grouse Disturbance Caps
Miles City Field Office	Appendix E	GRSG Disturbance Cap
South Dakota Field Office	Appendix E	GRSG Disturbance Cap
Great Basin Region		
Idaho and Southwestern Montana	Appendix G	Anthropogenic Disturbance and Adaptive Management
Nevada and Northeastern California	Appendix E	Greater Sage-Grouse Disturbance Cap Guidance
Oregon	Appendix E	Disturbance Cap Calculation Method
Utah	Appendix E	Greater Sage-Grouse Disturbance Cap Guidance

Mitigation – GRSG Plan Commitments

During the implementation of the proposed LUPs and consistent with valid existing rights and applicable law, in authorizing third party actions that result in GRSG habitat loss and degradation, the BLM and the USFS will require and ensure mitigation that provides a net conservation gain to the species including

accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for unavoidable impacts by applying beneficial conservation actions to offset remaining impacts associated with the action. This standard is consistent with the recommendation included in the "Greater Sage-Grouse Range-wide Mitigation Framework: Version 1.0" published by the USFWS in September, 2014, which states that mitigation "be strategically designed to result in net overall positive outcomes for sage-grouse."[2] Mitigation will follow the regulations from the White House Council on Environmental Quality (40 CFR 1508.20; e.g., avoid, minimize, and compensate) and be implemented on BLM-managed lands in a manner consistent with Departmental guidance for landscape mitigation pursuant to Secretarial Order 3330.[3] If impacts from BLM and USFS management actions and authorized third party actions result in habitat loss and degradation that remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation.

The BLM and USFS, via a WAFWA Management Zone GRSG Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the NEPA decisionmaking process, including the application of the mitigation hierarchy for BLM and USFS actions and third party authorizations that result in habitat loss and degradation. A robust and transparent regional mitigation strategy will contribute to GRSG habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts to GRSG and its habitat. Within 90 days of the issuance of the RODs, the BLM will establish a WAFWA Management Zone GRSG Conservation Team to help guide the conservation of GRSG. This team will include membership from the respective states, USFS, USFWS, NRCS, and other local governments. The zonal mitigation strategy will be developed within 1 year of the issuance of the RODs.

Section 2: Implementation Topics and Guidance

Disturbance

For each question, first determine the scale at which the BLM has committed to measuring/monitoring disturbance. Scales = plan scale, mid scale, broad scale, WAFWA zones

Tracking Agency Authorizations in Relation to GRSG Habitat and the Allocation and Buffer Decisions within Each Plan, Including Documentation of Exceptions Granted

Scale: Project-level and LUP compliance

As projects are submitted, each state/planning unit will require an implementation coordinator to track compliance with allocation decisions, disturbance metrics, and avoidance of impacts and exceptions granted. When projects are submitted, compliance with plan decisions, disturbance caps, buffers, mitigation, and RDFs will be assessed. See Figure 5.

Scale: Broad/Mid

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[2] USFWS. Greater Sage Grouse Range-Wide Mitigation Framework: Version 1.0. September 3, 2014.

[3] Secretarial Order 3330. Improving Mitigation Policies and Practices of the Department of the Interior. October 2013.

Annually, with a trend analysis every 5 years, the NOC will compile instances of projects/authorizations in GRSG habitat. This will be completed through ePlanning, Vegetation Treatments Solution (in development), LR2000, and/or compilation from state coordinators/data calls.

Development Responsibilities Outside of Priority Habitat

Scale: Project/Plan level
Each state/planning unit will require an implementation coordinator to track compliance with allocation decisions, including avoidance of impacts and exceptions granted. Project level disturbance and density calculations and NEPA analysis will determine feasibility of proposed projects. Upon receipt of externally generated projects, the field office/district office will prioritize activities occurring outside of identified habitat management areas (Smart from the Start approach). To accomplish this, internal communication will be necessary. An instruction memorandum from the Washington Office will instruct field office managers.

Scale: Broad/Mid
As of the effective date of the LUPs, the plan allocations are largely restrictive of development in priority habitat while disturbance and density calculations also inform adaptive management actions. The NOC will monitor this annually with a trend analysis every 5 years.

Calculating Disturbance at the WAFWA Management Zone Scale

Scale: WAFWA management zone (broad)
Annually, with a trend analysis in 5-year intervals, the NOC will calculate disturbance using nationally available datasets and assumptions to approximate disturbance footprints for the 12 identified threat categories as outlined in the Monitoring Framework.

Calculating Disturbance at the Biologically Significant Unit (BSU) scale

Scale: Mid- to Plan-level
Annually, with a trend analysis in 5-year intervals, the NOC and state offices (as needed to inform adaptive management) will calculate disturbance at the BSU scale using nationally available datasets and assumptions to approximate disturbance footprints for the 12 identified threat categories as outlined in the Monitoring Framework. In some cases, individual states will supplement the rangewide data with locally derived disturbance data for the 12 plus 7 identified threat categories as outlined in the Monitoring Framework for a more accurate disturbance calculation.

Calculating Disturbance at the Project Scale

Scale: Project scale and LUP compliance
As projects are submitted, each state office has the responsibility to ensure the consistency and compliance of the disturbance cap at the LUP scale. Each state/planning unit will require an implementation coordinator to track compliance with allocation decisions, disturbance metrics and avoidance of impacts and exceptions granted. Each plan is required to manage discreet anthropogenic disturbance at both the BSU and the project scale.

Wyoming uses the DDCT method – process in place with the state. Montana plans to adopt a method similar to the Wyoming DDCT method. Other states will begin to implement the Surface Disturbance and

Reclamation Tracking Tool (SDARTT) as it is developed. This database will serve as a national repository for project-level disturbance and reclamation footprints once fully developed and implemented. Delineation of project area for analysis may vary by plan and is outlined in each specific LUP as are the specific items to consider when capturing disturbance footprints (see Table XX above for specific requirements by subregion).

Plan is to perform ad-hoc query of database to monitor disturbance at project level

Calculating the Density of Energy and Mining Facilities at the Project Scale

Scale: project scale – plan level
Most plans include a limit for density of energy and mining facilities at the project scale. Wyoming uses the DDCT method (process in place with the state). Other states will use the DDCT method and will need an implementation coordinator per planning unit to facilitate the process. SDARTT, a national disturbance database, is in the works. Colorado is in the process of beta testing (uploading hand-digitized disturbance inventory). Plan is to perform ad-hoc query of database to monitor density at project level

Tracking "As Built" Disturbance, Interim Reclamation, Final Reclamation, and Restoration and Validating Operator-Supplied Disturbance and Reclamation Data

Scale: Project scale – Plan level
As projects are submitted, each state/planning unit will require an implementation coordinator to track compliance with allocation decisions, disturbance metrics and avoidance of impacts and exceptions granted. Each plan is required to manage discreet anthropogenic disturbance at both the BSU and the project scale and to validate information supplied from both externally and internally generated projects, including defining a process for ground-truthing information if necessary.

For some programs, the BLM's inspection and enforcement personnel may already conduct compliance monitoring to ensure that the approved operations' extent of surface disturbance comply with the land use authorizations. Similarly, some programs have annual strategies to identify the frequency and interval used to inspect reclamation and collect data regarding reclamation status. In addition to these established processes, SDARTT will have the capability to capture disturbance as well as reclamation features.

Standards at which Disturbance is No Longer Counted against the Cap
Each LUP should have criteria for when a disturbance can no longer be counted against the cap (e.g., Northwestern Colorado ARMPA, Reclamation Criteria for Anthropogenic Disturbances, can be found in Appendix H, Guidelines for Implementation and Adaptive Management.

Mitigation

Developing Regional Mitigation Strategies
The WAFWA Management Zone Greater Sage-Grouse Conservation Team (WAFWA Teams), which will be established within 90 days of the issuance of the ROD, will develop the five WAFWA Zone Strategies within 1 year of the issuance of the ROD.

Nationally, the BLM will develop a standardized charter for the WAFWA Teams (though roles and responsibilities, with respect to these items, should be finalized within the team), and a standardized template for the Mitigation Strategy within 90 days of the issuance of the ROD. The BLM will also extend invitations to partner agencies to become members of the WAFWA Teams, beginning immediately.

Conservation Team Standup: Beyond BLM members, the WAFWA Team member must be limited to governmental officials and may include Governors' representatives, state wildlife agency representatives, state lands agency representatives, tribal representatives, USFS representatives, USFWS representatives, NRCS representatives, etc. Representatives should be well-informed of current mitigation obligations, plans, opportunities, and processes occurring within their jurisdiction. Once established, the WAFWA Teams should consider any benefits or opportunities to engage Resource Advisory Councils in the development of (aspects of) the regional mitigation strategies.

The WAFWA Teams will author a strategy that provides:

- A description of the land use activities expected in the WAFWA management zone and the resources that may be reasonably foreseeably impacted by those land use activities (within the scope of the mitigation strategy).
- A description of the relevant management goals and objectives (e.g., BLM LUP objectives, a state agency's resource objectives, etc.) for GRSG, at all relevant scales, including the net conservation gain mitigation standard.
- A description of baseline conditions and trends, at all relevant scales, including how the conditions and trends are expected to change due to land use activities' reasonably foreseeable impacts and other change agents (e.g., climate change, fire, invasive species).
- A description of mitigation measures to avoid, minimize, rectify, and/or reduce/eliminate over time the reasonably foreseeable impacts to GRSG, which include referencing relevant land use plans that include these types of mitigation measures.
- A description of the reasonably foreseeable residual effects to GRSG.
- A description of the need for compensatory mitigation.
- An evaluation and prioritization of the types of compensatory mitigation measures that are appropriate for the reasonably foreseeable residual effects, including clearly defined and measurable outcomes for those measures.
- A recommended or required amount of compensatory mitigation measures needed to mitigate for the reasonably foreseeable residual effects, with respect to net conservation gain.
- An evaluation and prioritization of compensatory mitigation sites that will maximize the benefit for GRSG, including considerations of each site's ability to provide benefits to multiple resources, importance in the geographic area, durability, and additionality.
- A description of appropriate compensatory mitigation mechanisms in the geographic area (e.g., mitigation banks, mitigation exchanges, mitigation funds, authorized land user-responsible compensatory mitigation measures).
- A description of how equivalency will be determined between compensatory mitigation mechanisms.
- A description of actions necessary to achieve durability of, and to monitor, adapt (if necessary), and report on, mitigation.

Coordination at the state level (i.e., with the state's wildlife agency, local governments, and Local Sage-grouse Working Groups) should occur prior to participation at the team level to facilitate a coordinated proposal from each state within a WAFWA management zone.

Engaging Partners in Identifying Compensatory Mitigation Project Areas

Compensatory mitigation site proposals should come from all available sources (i.e., scientists, private landowners, nongovernmental organizations, internal BLM, stakeholders, etc.). The compensatory mitigation measures should be sited where they will achieve the maximum benefit for impacted resources, within the context of the conditions and trends of resources, at all relevant scales, on public or private lands (with a formal and binding agreement with the willing landowner). As likely participants in development of the mitigation strategies, the partners may engage in identifying, evaluating, and prioritizing mitigation project areas at any time in this process.

Mitigation mechanism sponsors should be aware of the mechanism standards (BLM, USFWS, etc.) for inclusion in their proposals and should coordinate with the BLM or other responsible agencies (e.g., through a Conservation Bank Review Team) to begin review and seek approval for/formulate agreements on their project. A Conservation Bank Review Team or other interagency-coordinated mitigation mechanism review team, should be composed of representatives from the land or resource management agencies whose lands or resources (greater sage-grouse) may be impacted (adversely or beneficially) by the proposed compensatory mitigation project and established at any appropriate scale.

A state-level compensatory mitigation program will be established, in collaboration with BLM partners (e.g., federal, tribal, and state agencies), in order to align existing compensatory mitigation efforts, consistent with the WAFWA Management Zone Mitigation Strategy.

Transparent and Collaborative Tools to Improve the Understanding of the Environment for all Parties Involved

The BLM has a variety of tools and technology to generate a shared understanding of the environments. The BLM recently launched the public-facing Landscape Data portal, which serves as a repository of useful datasets. Interactive data viewers, such as those provided by Data Basin, could also be utilized in order to share, compare, and contrast datasets.

Establishing, Documenting, and Using Baselines to Assess Both the Extent of Debits (i.e., Impacts) and Credits (i.e., Compensatory Mitigation Measures)

Baseline conditions are a continual collection of attributes at data points throughout the GRSG landscape that create the qualitative assessments described below. These qualitative assessments will be accessed, through the NOC, to inform the baseline for both the impact and the mitigation during the NEPA analysis for each project.

The assessment of three attributes (soil/site stability, hydrologic function, and biotic integrity) produces a qualitative assessment used by the BLM when evaluating rangeland health. These attributes are defined below:

- Soil/site stability: The capacity of an area to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water.
- Hydrologic function: The capacity of an area to capture, store, and safely release water from rainfall, run-on, and snowmelt (where relevant), to resist a reduction in this capacity, and to recover this capacity when a reduction does occur.

- Biotic integrity: The capacity of the biotic community to support ecological processes within the normal range of variability expected for the site, to resist a loss in the capacity to support these processes, and to recover this capacity when losses do occur. The biotic community includes plants, animals, and microorganisms occurring both above and below ground.

The BLM and the NRCS have been working together to collect indicators of rangeland health data consistent with the national Assessment, Inventory, and Monitoring (AIM) Strategy (Toevs et al. 2011) in order to provide consistent landscape-level information that field and district offices can use in making land use decisions. The sampling framework is unbiased and statistically valid which will allow data collected at specific sites to be scaled to larger management units, watersheds, or landscapes otherwise identified and will allow locally collected data to be combined with regional (or national) level data for use at larger scales (Taylor et al. 2014). Through the Landscape Monitoring Framework (LMF), additional points are captured each year, both inside and outside of project areas, thereby making it possible to compare trends inside and outside of project areas to help inform whether resources are being unintentionally impacted as a result of the project.

The potential change in baseline condition should be a factor in selecting compensatory mitigation sites. However, in cases where compensatory mitigation is implemented via a preservation action, which is generally only appropriate when there is an imminent threat to the site, the potential change in baseline should be assessed according to what would have been lost if the site had not been protected.

Protocols for baseline evaluation will be further developed at the state level and in coordination with the state wildlife agencies, so that site-specific data gathering (i.e., Habitat Assessment Framework, ecological site description, rangeland health assessments) can easily be assimilated into the larger datasets. The methods will be reviewed and adopted by the Management Zone Conservation Team and included in the mitigation strategy. The metrics, including the uncertainties and the assumptions of these methods, will also be recorded in the Management Zone Mitigation Strategy.

The BLM/USFS, in cooperation with the state wildlife agency and other local entities, needs to assess and document the baseline condition of both the impacted site and the compensatory mitigation sites in order to determine the site's potential for benefits to the resources.

- **Including the Interrelated Nature of Resources in These Calculations?**
  Mitigation credits representing two or more spatially overlapping resources may be sold as single commodities (e.g., they are sold to only one authorized land user as one combined credit). An authorized land user under a compensatory mitigation obligation to the BLM may be able to purchase a single credit from a mitigation bank or mitigation exchange to meet its compensatory mitigation obligation for several impacted resources, if the credit is associated with a measure that benefitted each of the impacted resources. Conversely, compensatory mitigation credits representing two or more spatially overlapping resources sold as separate commodities, credit stacking, is not acceptable to the BLM.

- **Determining the Life of the Impact**

  The BLM should ensure that mitigation measures and compensatory mitigation sites are durable for the duration of the impacts resulting from the land use activity. The duration of the impact includes the time it takes to restore the resources impacted (including direct and indirect effects) by a land use activity, even if this time period extends beyond the expiration

of the land use activity. The duration of some impacts may be into perpetuity, such as the construction of a new transmission line or a county road. The BLM should use past experience and the best available science information to estimate the duration of the impact. As a rule of thumb, the BLM should err on the side of too long estimates, rather than too short estimates.

Establishing "Net Conservation Gain" in Practice and Documenting Assumptions and Uncertainties

The BLM/USFS is responsible for determining that land use authorizations that cause GRSG habitat loss and/or degradation result in a net conservation gain to the species. In the most definitive form, this determination will occur during the NEPA analysis and in the decision document for a proposed land use authorization. At a minimum, the NEPA analysis should address how each alternative does or does not meet the net conservation gain standard. It can also be useful to provide a framework for making these determinations in programmatic analyses (e.g., an oil and gas field development EIS) or in the Mitigation Strategy.

Net conservation gain means that a land use activity results in an actual benefit or gain above baseline conditions. Achieving this mitigation standard will require implementation of avoidance, minimization, and especially, compensatory mitigation. In practice, net conservation gain means a comparison of the magnitude of residual impacts (those impacts that remain after avoidance and minimization) to the magnitude of compensatory mitigation actions to ensure the latter is greater than the former. However, net conservation gain is not simply a mathematical equation; when assessing if net conservation gain will be achieved for a land use authorization, the BLM/USFS should consider:

1. The size of habitat loss or degradation as the surrogate for assessing the impacts to the species itself. The RMPs require net conservation gain to the species. Therefore, implementation of compensatory mitigation is not simply 1 acre bigger than the habitat loss or degradation; it must ensure that the magnitude of compensatory mitigation is large enough to offset the impacts and provide a gain above the baseline to the species.

2. Any uncertainty associated with the effectiveness of mitigation (including avoidance, minimization, and compensation) should also be included. If there is any risk of failure of any mitigation measures, there should be an increase in the magnitude of compensatory mitigation to account for this risk. If scientific studies have estimated the risk (e.g., 14% of seedlings take hold, on average), then the increase in the magnitude of compensatory mitigation should be adjusted accordingly. If a scientific estimate of risk is unavailable, a percent-based contingency can be added onto the compensatory mitigation obligation (e.g., 15%).

3. Consideration should be given to how timely the compensatory mitigation measures will be at achieving their outcomes. It is best practice to conduct advance compensatory mitigation measures, so the outcomes have been achieved, before the land use impacts commence. When this is infeasible, a proportional increase in the magnitude of compensatory mitigation to account for the time lag between the benefits of the measures and the impacts of the land use activity should occur.

There are several tools that could be used to assist BLM offices in making this determination. (Compensatory MOsAICs tool, Habitat Quantification Tool, individual banking credit valuations, State Mitigation Frameworks, etc). The Mitigation Strategies provide a venue to discuss these tools and identify minimum standards, best practices, innovative techniques, etc.

"Net Conservation Gain" and Land Use Activities

BLM/USFS management actions, and, consistent with valid existing rights and applicable law, third party actions that result in habitat loss and degradation are subject to "net conservation gain." It applies to any action that results in habitat loss and/or degradation, no matter which type of habitat the impacts are within. Wyoming has an exception to this as net conservation gain is not required in general habitat, if the action is consistent with the State of Wyoming Core Area Strategy.

Approving Third-Party Compensatory Mitigation Mechanisms

The BLM/USFS will consider third-party compensatory mitigation mechanisms (e.g., banks) accepted as appropriate through rigorous processes, either of its own accord or that of its partners (e.g., USFWS Greater Sage-grouse Mitigation Framework). The WAFWA Teams will initially evaluate and prioritize the compensatory mitigation sites within each of their respective management zones. This will be a working list by which newly proposed projects can be evaluated against and, ultimately, added to, if found appropriate.

A formal and binding agreement should be in place between the compensatory mitigation mechanisms sponsor, the BLM (and/or another federal or state agency), and any other applicable parties that document the standards (consistent with current policy), in addition to providing reasonable access to the compensatory mitigation site(s) for oversight purposes. The agreement should also ensure that the BLM is provided with, at a minimum, reports on compensatory mitigation measures implemented and monitoring data.

Compensatory mechanisms include:

Mitigation bank: an arrangement where actions to restore, establish, enhance, and/or preserve resources (i.e., accrual of credits) are conducted by a specific sponsor in a defined geographic area(s) for the purpose of eventually compensating for residual effects to resources from land use activities (i.e., accrual of debits). In general, a mitigation bank sells compensatory mitigation credits to authorized land users, whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. Credits from mitigation banks are typically the timeliest of the compensatory mitigation mechanisms in that the mitigation measures have typically already been implemented before a transaction with an authorized land user commences.

Mitigation exchanges: an arrangement, facilitated by a third-party sponsor, where actions to restore, establish, enhance, and/or preserve resources (i.e., accrual of credits) are conducted by willing and applicable landowners in a broad geographic area for the purpose of eventually compensating for residual effects to resources from land use activities (i.e., accrual of debits). In general, a mitigation exchange sponsor facilitates the sales of compensatory mitigation credits from landowners who accrued the credits to authorized land users, whose obligation to provide compensatory mitigation is then transferred to landowners who accrued the credits.

The BLM needs to ensure that compensatory mitigation measures are in place and durable for the duration of the impacts resulting from the land use activity, including the time it takes to restore the resources impacted (including direct and indirect effects) by a land use activity, even if this time period extends beyond the expiration of the land use activity. When compensatory mitigation involves the purchase of credits from a mitigation bank or mitigation exchange, the credit-generating activities should be in place for the duration of the impacts from the land use activity. While many credits from

banks and exchanges are offered in perpetuity, some banks and exchanges are adopting the concept of term credits, where those credits exist for a time period less than perpetuity. The use of term credits is generally only permissible if the term of those credits at least matches the duration of the impacts from the land use activity. It is not generally permissible to add up several short-term credits to meet the duration of the impacts (e.g., three 10-year credits does not equal a single 30-year credit).

Mitigation fund (i.e., an in-lieu fee fund): an arrangement, facilitated by a sponsor, where actions to restore, establish, enhance, and/or preserve resources (i.e., accrual of credits) are conducted by pooling and spending funds from a single or multiple authorized land users for the purpose of compensating for residual effects to resources from land use activities (i.e., accrual of debits). In general, a mitigation fund accepts funds for compensatory mitigation from authorized land users, whose obligation to provide compensatory mitigation is then transferred to the mitigation fund sponsor.

Authorized land user-responsible compensatory mitigation measures: actions to restore, establish, enhance, and/or preserve resources (i.e., accrual of credits) by an authorized land user (or an authorized agent or contractor) for the purpose of compensating for residual effects to resources from their land use activities (i.e., accrual of debits).

Managing Compensatory Mitigation Funds

To ensure transparent and effective management of the compensatory mitigation funds, the BLM will enter into a contract or agreement with a third party to help manage the state-level compensatory mitigation funds (i.e., NFWF, Wyoming Landscape Trust, Oregon State agency, etc.) within 1 year of the issuance of the ROD. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM/USFS will remain responsible for making decisions that affect federal lands.

While it is permissible for the BLM to manage mitigation funds, the BLM is discouraged from doing so due to increased workloads on BLM staff, overhead rates charged by the BLM NOC, etc. If the BLM does manage a mitigation fund, the full costs to manage the funds should be included when determining the amount of compensatory mitigation. In the case where the BLM is not the manager of the mitigation fund, the BLM will not assume, by agreement or otherwise, control over the use of such funds. This includes direct control, such as by the controlling vote in a decisionmaking group, or constructive control, such as by having the power to veto an expenditure decision. The BLM may participate, however, in decisions as to their use, so long as the BLM does not have ultimate decisionmaking authority. The purpose of this restriction is to ensure that such funds are not determined to be federal funds and thereby subject to federal rules governing their expenditure.

Third-party compensatory mitigation managers may perform oversight of compensatory mitigation mechanisms; accept, manage, and expend mitigation funds. Third-party compensatory mitigation managers may be other federal agencies, tribal, state, and/or local governments, foundations, profit or nonprofit organizations, or similar organizations.

Necessary Protection to Qualify a Mitigation Site as Durable (for Public and Private Lands) and Monitoring for Compliance and Effectiveness

Durability includes three types of considerations for mitigation measures and for compensatory mitigation sites: resource, administrative, and financial. Resource considerations for durability include, but are not limited to, ensuring that mitigation measures and/or compensatory mitigation sites achieve and maintain their required outcomes, including being resilient to foreseeable change agents (e.g.,

climate change, fire, invasive species), for the duration of the impacts. Administrative considerations for durability include, but are not limited to, actions that limit or exclude land use activities that are incompatible with mitigation measures and/or compensatory mitigation sites, such as those required by permit terms and conditions, land use planning, or legal designations. Financial considerations for durability include, but are not limited to, ensuring there will be financing sufficient to maintain and monitor mitigation measures and/or compensatory mitigation sites for the duration of the impacts from the land use activity. If these three considerations can be secured for public lands, then protections for durability of public lands can be achieved.

The BLM should ensure that the responsible party for a mitigation measure and/or a compensatory mitigation site, such as an authorized land user or the sponsor of a mitigation bank or exchange will maintain the durability of the mitigation. The BLM should ensure that the responsible party is obligated to correct any loss of durability (i.e., a reversal) with such things as a reserve pool of credits and/or reserve finances, except if the BLM determines that the loss of durability was caused by a force majeure event (i.e., an event that cannot be reasonably anticipated or controlled, such as natural disasters outside of a predicted range of disturbance). This will be different for each incident, and the BLM will handle any unforeseeable reversals when/if they occur.

The BLM should ensure that mitigation measures are implemented (i.e., complied with) and monitored for effectiveness. The BLM should conduct regular compliance inspections for the duration of the land use authorization to verify that mitigation measures are being implemented as required in the land use authorization.

The BLM should apply the rule of reason when identifying the type, extent, and duration of effectiveness monitoring for mitigation measures, as guided by the degree of uncertainty associated with a mitigation measure and the potential need for adaptive management. In general, effectiveness monitoring may cease when a mitigation measure's outcome has been achieved. However, in some cases, effectiveness monitoring may be necessary for the duration of the impacts from the land use activity. In some cases, especially where reasonably foreseeable impacts have landscape-scale implications, effectiveness monitoring may be necessary at fine, mid, and broad scales in order to ensure that a mitigation measure's outcome is being achieved.

The BLM is responsible for conducting effectiveness monitoring, unless it is a stated requirement of a land use authorization (for an externally proposed land use activity) or a formal and binding agreement is developed with another entity to conduct the effectiveness monitoring (i.e., the proponent). For compensatory mitigation measures, effectiveness monitoring may also be appropriate at reference sites to demonstrate the benefit and the additionality of the measure (i.e., a compensatory mitigation measure that improves the baseline conditions of the impacted resource, and is demonstrably new and would not have occurred without the compensatory mitigation measure).

Extent of "Standard" Consistency in Making Mitigation Decisions on Public and State/Private Lands

The USFWS in their GRSG range-wide mitigation framework call for a net conservation gain to GRSG, as do the BLM/USFS LUPs. Furthermore, the BLM/USFS should work with the USFWS in collaboratively reviewing compensatory mitigation mechanisms (e.g., banks, exchanges), in order to ensure the federal family is aligned. The core principles of effective mitigation in DOI are memorialized in SO 3330, and apply to both BLM and USFWS.

Implementation of Mitigation Strategies in the Short Term (before Development of Regional Mitigation Strategies)

A regional mitigation strategy is a tool that helps better plan for mitigation, in advance of impacts, and provides more cross-region consistency. However, it will provide recommendations and it is not a decision document; any recommendations will eventually need to be analyzed through the NEPA process for actions that will cause habitat loss or degradation.

Therefore, before the regional mitigation strategies are complete, the BLM will still be required to implement mitigation to achieve net conservation gain for impacts to habitat. The BLM will make this determination through analysis in the NEPA process, with mitigation analyzed in alternatives, discussed in the impact analysis, and, if applicable, required in the decision document.

In the interim, the BLM will not have the benefit of the recommendations of the regional mitigation strategy. So, NEPA analysis may be more cumbersome as the BLM will not have a clear recommendation (which could be analyzed in one or more alternatives), especially when determining what compensatory mitigation measures to implement and where to site those measures, in order to achieve the net conservation gain standard. With or without the regional mitigation strategy, the outcomes of mitigation for GSG should be similar, albeit potentially less strategic than with the benefit of the regional mitigation strategy already in place.

This case-by-case examination of mitigation requirements in discussed on BLM's nearly final mitigation handbook, which should be able to provide sufficient guidance.

Disturbance and Mitigation Data and Metadata Standards, Management, and Storage

For mitigation, a centralized BLM database is necessary to track compensatory mitigation measures and sites, which will link impacting projects with their associated compensatory mitigation. Each compensatory mitigation measure and sites should have field or attribute that includes the land use activity's case file number, duration, outcomes, and durability instruments.

Section 3: Applicable Diagrams

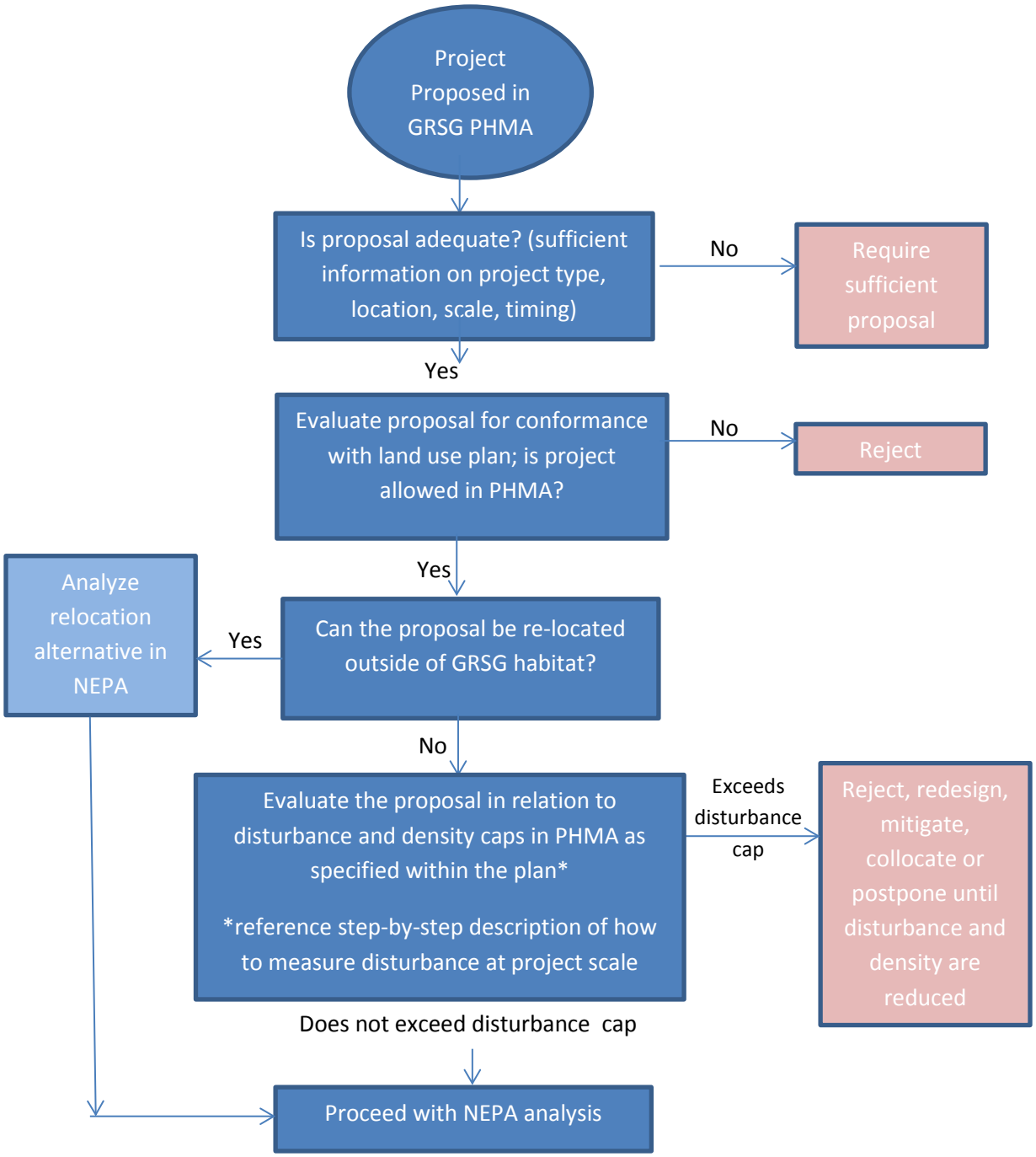

Figure 5.

Section 4: Policy, Training, Data, and Tools

Policy

- Issue Washington Office instruction memorandum explaining application of Smart from the Start policy (i.e., conduct pre-application meetings with project proponents and county/state agencies) to ensure disturbance cap is not exceeded by BLM authorized activities. Coordination with other agencies and local governments is essential to the proper administration of the disturbance cap across all land ownerships.

- Issue Washington Office instruction memorandum providing disturbance feature definitions (e.g., “power lines” do or do not include low voltage distribution lines), digitizing (e.g., mines), when to use as-built versus approved footprints, details regarding what types of disturbance count (for power lines - direct disturbance or area under lines), how to determine when a disturbance has been removed and no longer counts toward the cap, etc.

- Issue Washington Office instruction memorandum providing direction to develop and implement WAFWA Management Zone Regional Mitigation Strategies. Assign state leads and identify needed skill sets. Templates should be developed.

- Issue Washington Office instruction memorandum providing guidance on how BLM reviews, recognizes, uses State-level mitigation programs.

Training

- Methods and procedures for calculating the disturbance cap at the project area scale (e.g., uploading data and running queries in SDARTT, Wyoming DDCT, etc.). How is the BLM going to obtain disturbance data from outside BLM and provide to SDARTT? This is both a coordination and training need.

Data

- Structure polygons might include campgrounds, mining sites (load outs, tool sheds, office, adits, evaporation ponds, slag piles)

- Oregon is verifying and populating Maintenance Level in GTRN in cooperation with counties that have agreed to use GTRN to calculate and track the state’s disturbance cap. A new attribute (DisturbCap) will be added to GTRN to identify disturbance roads (i.e., Maintenance Level 3, 4 and 5).

Tools

DDCT and SDARTTS

Section 5: Internal and External Coordination Needs

Internal Coordination Needs

- The NOC will calculate the disturbance cap at the BSU scale and provide BLM state offices with the results, along with the methods and data layers used. For most disturbance types, existing

west-wide data layers will be used, as explained in the GRSG Monitoring Framework. Mining features will need to be identified and digitized with field assistance. States may recalculate the disturbance cap at the BSU scale using more accurate local data. For example, in Oregon, the BLM will use the Ground Transportation Routes Network (GTRN) data layer to identify "minor roads."

- Regional mitigation strategies for sage-grouse management zones that cross state boundaries will be coordinated between states.

External Coordination Needs

- Data sharing with states and counties for proper administration of the disturbance cap at the BSU scale. If a partner agency provides disturbance data (i.e., to calculate disturbance cap), they would need to give permission for BLM to distribute it through SDARTT.

- Regional Mitigation Strategy Teams will include representation from partner agencies.

- Data sharing protocols with state partner agencies may need to be developed or defined (probably refer to the data group). There has been some concern in the past about protection of potentially sensitive data and how it will be managed under federal FOIA and state-level "sunshine laws."

Monitoring and Adaptive Management

Section 1: ROD and Plan Commitments

Commitment to Monitoring

Monitoring tied to proposed LUP decisions has four parts: (1) implementation monitoring (i.e., are decisions being implemented in a timely manner, are actions implemented consistently with the plan decisions), and (2) habitat monitoring (i.e., sagebrush availability and condition, habitat degradation, and energy and mining density), (3) population (demographics) monitoring, and (4) effectiveness monitoring (i.e., are the decisions and implementation actions achieving the desired conservation goals). Through effectiveness monitoring, the BLM can answer questions about how decisions and actions impact GRSG habitat. Understanding the effectiveness and validating results of LUPs and management decisions is an important part of measuring performance under the Government Performance and Results Act. For example, riparian condition is a primary measure for LUP effectiveness (see Washington Office Instruction Memorandum 2010-101). Monitoring that is applicable for evaluating management effectiveness can also be used to address a number of other critical habitat variables (e.g., location, condition, habitat loss or gain, size of patches, etc.). Ideally, monitoring attributes of GRSG habitat, in coordination with population monitoring by state wildlife agencies and other partners, will allow linking real or potential habitat changes (from both natural events and management actions) to vital rates of GRSG populations. This analysis will enable managers to identify indicators associated with population change across large landscapes and to ameliorate negative effects with appropriate conservation actions.

GRSG Monitoring Framework and Disturbance Appendix

The purpose of the BLM and USFS Greater Sage-Grouse Monitoring Framework (2014) (hereafter, monitoring framework) that was included as an appendix in all of the RODs is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM's national planning strategy. The regulations for the BLM (43 CFR 1610.4-9) and the USFS (36 CFR part 209, published July 1, 2010) require that LUPs establish intervals and standards, as appropriate, for monitoring and evaluations based on the sensitivity of the resource to the decisions involved. Therefore, the BLM and the USFS will use the methods described in the monitoring framework to collect monitoring data and to evaluate implementation and effectiveness of the GRSG planning strategy and the conservation measures contained in their respective LUPs. The GRSG Disturbance Caps appendix further describes methodology for monitoring habitat degradation. A monitoring plan specific to the EIS, LUP, or field office will be developed after the ROD is signed.

The national-scale deployment of AIM, known as the Landscape Monitoring Framework (LMF), commenced in 2011 in coordination with the NRCS, with the collection of 1,000 plots of field-collected monitoring data across the Western United States. LMF aims to provide nonbiased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. A group of GRSG habitat and sagebrush plant community subject matter experts from the BLM, USFWS, WAFWA, NRCS, ARS, state wildlife agencies, and academia identified those vegetation indicators collected at LMF sampling points that inform GRSG habitat needs. The common indicators that were identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of GRSG, additional plot locations in occupied GRSG habitat (sage-grouse intensification) were added in 2013. The common indicators are

also collected on sampling locations in the NRCS Rangeland Monitoring Survey. The GRSG baseline data will be collected over a 5-year period, and an annual report will be prepared describing the status of the indicators. Beginning in year 6, the annual status report will be accompanied with a trend report, which will be available on an annual basis thereafter contingent upon continuation of the current monitoring budget. This information, in combination with mapping information, mid-scale habitat suitability indicator measures, and sagebrush availability information will be used to assess the effectiveness of the planning strategy.

The BLM and the USFS have made significant commitments in the proposed LUPs to monitoring actions to conserve GRSG habitats at multiple scales. The results from the monitoring will inform the agencies of the effectiveness of efforts to reduce disturbance and restore seasonal habitats in priority areas, and of the status of the triggers set in the proposed LUPs for adaptive management. The BLM and the USFS will report annually on the results of the monitoring efforts.

Adaptive Management

Each proposed LUP includes an overarching adaptive management strategy that includes soft and hard triggers and responses. These triggers are not specific to any particular project but identify habitat and population thresholds. Triggers are based on the two key metrics that are being monitored—habitat loss and/or population declines.

Soft triggers represent an intermediate threshold indicating that management changes are needed at the implementation level to address habitat or population losses. If a soft trigger is tripped during the life of the proposed LUPs, the BLM and USFS response is to apply more conservative or restrictive conservation measures to mitigate for the specific causal factor in the decline of populations and/or habitats, with consideration of local knowledge and conditions. In each proposed LUP, a soft trigger begins a dialogue between the state, USFWS, and the BLM or USFS to see if the causal factor can be determined and what implementation-level activities can be used to reverse any trend. These adjustments will be made to preclude tripping a “hard” trigger (which signals more severe habitat loss or population declines). Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from GRSG conservation objectives set forth in the BLM and USFS proposed LUPs. In the event that new scientific information becomes available demonstrating that the hard trigger would be insufficient to stop a severe deviation from GRSG conservation objectives set forth in the BLM and USFS proposed LUPs, the BLM and/or USFS will immediately assess what further actions may be needed to protect GRSG and its habitat and ensure that conservation options are not foreclosed. This could include a formal directive such as an instruction memorandum or a plan amendment, which, to the extent that it is supported scientifically, may be drawn from the range of alternatives analyzed in the development of the proposed LUPs.

Section 2: Implementation Topics and Guidance

Establishing Sample Points for Monitoring Terrestrial and Aquatic Resources

The BLM will establish a master list of sample points to use when developing a statistically valid sample design for terrestrial and aquatic resources. This is referred to as the sample. These are the sample points from which all AIM sample designs will be established. Sample designs are intended to be comprehensive across all BLM lands and are intended to ascertain achievement of the GRSG conservation strategy, land use plan objectives, the effectiveness of fire and vegetation projects, and the effectiveness of individual treatments. Drawing sample points from the master sample will be

accomplished by the National Operations Center (NOC) Assessment and Inventory Branch with input from the local field office or larger management unit as appropriate. It is imperative that all sample designs are drawn from the BLM master sample to ensure the data collected in one field office can be combined with other field offices so the BLM and our partners can use the data points to answer resource questions at multiple scales (e.g., the biologically significant unit, planning unit, region). If the master sample does not contain the density of sample points necessary to inform specific management questions (e.g., habitat improvement project effectiveness), or to increase the accuracy of the estimate in habitats of high value, additional sample points will need to be established and validated by the NOC to ensure the data are compatible with the master sample. This will minimize the additional sample points and allow the data to be available at multiple scales to answer multiple management questions. This is critical to maximizing the benefit of the sample points.

State monitoring leads should begin working with the NOC and field or district offices as soon as possible to establish a sampling framework for aquatic and terrestrial sample sites. The sample design and identification of sample locations should be completed in early spring 2016. Additional funding will be used to augment the current staff at the NOC to support this effort.

Collecting AIM Data (Including Supplemental Indicators) for Habitat Assessment Framework Site-Scale Assessments and Using This Information to Inform Habitat Objectives

Beginning in FY 2016, state monitoring leads will work with the NOC and field or district offices to initiate local monitoring programs to collect information that can be used to inform the GRSG habitat assessments. Just to clarify, AIM describes a process to design and implement a monitoring plan using consistent indicators and methods, and HAF describes a process to interpret the data to make a suitability determination for GRSG habitat. Currently, AIM monitoring projects are utilizing seasonal field crews for data collection and are being hired through agreements with partner organizations, concentrating on those that engage youth. Agreements to hire seasonal crews should be coordinated through the BLM state monitoring lead (monitoring lead) in coordination with field offices, districts, and the NOC. Training is a significant need for these crews which will be organized using a train the trainer approach that will be organized by the state monitoring leads and supported by the AIM training cadre. Training will include methods for BLM core and HAF indicators, calibration, and quality control and as appropriate, Interpreting Indicators of Rangeland Health (Pellant et al. 2005). District and/or field offices will need to organize field crew day-to-day operations, and they will have the primary responsibility for ensuring safety of the field crews and the quality of the data through regular calibration of the crews. Alternatively, there may be monitoring programs (e.g., Utah State, AREMP, PIBO) that can serve as valid data collection programs. Regardless of the approach, the AIM implementation team at the NOC must be involved in the development and implementation of the monitoring plan to avoid the collection of data that cannot be aggregated into the national database, TerrADat (or AquADat for the aquatic AIM data), or is inadequate to answer your management question. Training to complete the habitat assessment (HAF) is being coordinated by the Washington Office Wildlife Program (WO-230) and will be available for use in FY 2016.

The site-level data collected with the BLM core methods is the data that will be used to determine if the area is meeting the vegetation objectives described in the LUPs. Vegetation objectives are specific to each planning area.

Supplemental indicators may be necessary to adequately describe some seasonal habitats, but these supplemental indicators may not currently be supported by the AIM field collection tablets or the national monitoring database, TerrADat. In these cases, the additional data will remain the responsibility

of the field office wildlife program. In many cases, the need for these supplemental indicators will become apparent while the interdisciplinary team is in the field completing the land health assessment, and the indicators can be collected at that time.

As a side note and reassurance for those states that have ongoing AIM monitoring projects, the data collected in prior years is completely compatible and valuable to inform baseline, derive HAF indicators, serve as control sites, and for use at multiple scales to answer multiple questions. In some instances, supplemental indicators will need to be added to answer specific GRSG seasonal habitat requirements.

Since the HAF is an interagency document, methods other than those described in BLM Technical Reference 440, MacKinnon et al. (2011) were included. However for the BLM, the seasonal crews will collect data following the methods described in Technical Reference 440, with some modifications for supplemental seasonal habitat indicators, which will accommodate the use of field tablets; the Database for Inventory, Monitoring, and Assessments (DIMA); and the national BLM EGIS database for monitoring data, Terrestrial AIM Data (TerrADat). Indicators and methods outside those supported in DIMA will not be eligible for uploading and management through TerrADat. BLM core terrestrial and aquatic indicators will be collected using consistent methods and electronic data capture.

Identifying Methodologies and Measuring the Mid-Scale HAF Indicators (e.g., patch size, patch connectivity, linkage areas and landscape matrix, and edge effects) and Indicator Importance in LUP Implementation

The GRSG Disturbance and Monitoring Sub-team used the ecological systems in LANDFIRE (2103) to identify the current geographic extent of sagebrush and the geographic extent of lands capable of producing sagebrush within GRSG habitat management areas. Those ecological systems are listed in the GRSG Monitoring Framework in an Appendix in the proposed LUP and were aggregated into the sagebrush base layer. This layer provides a first approximation of mid-scale habitat amount and distribution, and can be used in a case by case basis in implementing land use plans. At finer scales, field units should use existing GRSG seasonal habitat classification mapping and inventories (where available), to compliment the mid-scale indicators to further inform GRSG habitat use at smaller scales of habitat selection and more local–scale analyses.

Field offices should work with their state wildlife agency and BLM state office counterparts to identify projects that need mid-scale habitat indicators. State BLM offices will work with the NOC to identify capacity and methodologies to support the use of these indicators in project authorizations. Some state wildlife agencies or planning areas have identified potential GRSG linkages as part of their habitat delineation maps. In addition, lek connectivity information is available from USGS (Knick and Hanser 2011) for use in analysis during project authorization. In addition, other community types (that do not contain sagebrush) are occupied and used by GRSG to meet various life history requirements. Therefore, to inform seasonal habitat objectives, and to implement the HAF, further information and tools are needed for habitat identification. Therefore, the BLM has initiated multiple projects with the USGS to identify west-wide approaches to measure the mid-scale indicators. As these methodologies are developed, additional guidance on implementing the HAF, and coordination with monitoring, will be issued. Initial models will be developed by the end of FY16. These models will be validated and refined through coordination across BLM and partners. The BLM will continue partnerships with the Rangewide Interagency Sage-Grouse Coordinating Team (RISCT) and the Executive Oversight Committee (EOC) to incorporate coordinated radio telemetry/GPS and GRSG population data into the models. These data will be used to validate and improve these initial models, refine models to

adjust models for regional conditions, and develop empirically based occupied seasonal habitat models. These partnerships promote the information development and sharing processes under the USDI/USDA/WAFWA Sage-Grouse MOU. In addition, WAFWA has an ongoing genetics project (from feather collection and sampling) to identify genetic distance between populations. These analyses will be used to improve initial models, and both projects will use radio telemetry or GPS data to inform and validate various linkage areas within or between populations.

Completing Multiscale Assessments and Reporting on the Terrestrial, Aquatic, and Special Status Species (e.g., sage-grouse, habitat condition and trend)

Table 14 describes the monitoring commitments at the broad and mid scales. Broad-scale characteristics are the availability of large expanses of sagebrush or grass/sagebrush habitat, presence of migration corridors, and juxtaposition of other habitats and land uses within these large expanses. Mid-scale habitat characteristics are related to the configuration of sagebrush or grassland/sagebrush habitat patches and the land cover or land use between the habitat patches within a subpopulation.

Table 14. Monitoring commitments at the broad and mid scales

Monitoring Type		Scales				
		Broad Range	**Broad and Mid WAFWA MZ**	**Mid Population**	**Mid BSU**	**Mid LUP**
Vegetation - Sagebrush Condition	What?	Core & HAF Indicator Values (e.g., cover, composition, bare ground, invasive species)				
	How?	LMF & AIM	LMF & AIM	LMF & AIM	LMF & AIM	LMF & AIM
	Who?	NOC and SO	NOC and SO	NOC and SO	NOC and SO	NOC and SO
	When?	Annually	Annually	Annually	Annually	Annually
Vegetation - Sagebrush Availability	What?	% Sagebrush in the Area of Interest				
	How?	Landfire, Grass-shrub, & Fire	Landfire, Grass-shrub, & Fire	Landfire, Grass-shrub, & Fire	Landfire, Grass-shrub, & Fire	Landfire, Grass-shrub, & Fire
	Who?	NOC	NOC	NOC	NOC	NOC
	When?	Annually	Annually	Annually	Annually	Annually
Disturbance/ Degradation	What?	% of Distrete Disturbance in Scale of Interest				
	How?	National Data	National Data	National Data	National Data	National Data
	Who?	NOC	NOC	NOC	NOC	NOC
	When?	Annually	Annually	Annually	Annually	Annually
Disturbance/ Degradation (Density of Energy & Mining)	What?	Number of Energy & Mining Facilities per 640 Acres				
	How?	National Data	National Data	National Data	National Data	National Data
	Who?	NOC	NOC	NOC	NOC	NOC
	When?	Annually	Annually	Annually	Annually	Annually

Table 15 describes the monitoring commitments at the fine and site (treatment) scales and for effectiveness of vegetation treatments. Fine scale habitat assessments take into account seasonal use areas or home ranges of sage-grouse associated with a lek or group of leks. Seasonal habitat availability, connectivity, and anthropogenic disturbances should be described at this scale. Fine scale habitat mapping uses the information gathered at the mid-scale and refines it to show seasonal habitat patterns for a home range of interest. Site (treatment) scale measures describe the availability of protective vegetation cover and food resources within seasonal habitats.

Table 15. Monitoring commitments at the fine and site (treatment) scales and for effectiveness of vegetation treatments

Monitoring Type		Scales	
		Fine	Site or Project
GRSG Seasonal Habitat	What?	Core & HAF Indicator Values	
	How?	HAF	HAF
	Who?	FO	FO
	When?	As needed	As needed
Habitat Availability	What?	Local Vegetation & Seasonal Habitat Maps	
	How?	Veg Map	Veg Map
	Who?	FO	FO
	When?	As needed	As needed
Disturbance/ Degradation	What?	Acres Disturbed	
	How?	SDARTT	SDARTT
	Who?	FO and SO	FO and SO
	When?	Each Project	Each Project
Disturbance/ Degradation (Density of Energy & Mining)	What?	Number of Energy and Mining Facilities per 640 Acres	
	How?	SDARTT	SDARTT
	Who?	FO and SO	FO and SO
	When?	Each Project	Each Project

Integrating Fine- and Site-Scale Monitoring Data with Mid-Scale Products to Meet Annual Reporting Needs

The fine- and site-scale data will be integrated into a number of the mid- and broad-scale products. The quantitative monitoring field data collected using the AIM core method protocol will be shared with our mapping partners (i.e., LANDFIRE, USGS) to improve the quality of the source data used in our broad- and mid-scale Sage grouse products. The more data the BLM can submit to these efforts that has been collected and verified utilizing the AIM data collection and stewardship process, the higher the accuracy of the mapping products will become. Ultimately, the accuracy of LANDFIRE and Grass/Shrub mapping products will reach a level that additional mapping efforts will not be needed for individual BLM units thus providing a nation-wide base vegetation maps with adequate accuracy to initiate new planning efforts and determine the effectiveness of landscape vegetation objectives in our existing LUPs. .

More directly, the fine and site scale data will feed updates to the Sagebrush Availability dataset annually generated by the NOC. As fine and site scale, monitoring data that documents restoration success will allow sagebrush areas that have been removed from the sagebrush availability dataset to be returned to that layer thus increasing the amount of available sagebrush. As currently described in monitoring framework in the RMPs, the only way to add sagebrush areas back into the availability layer is through successful restoration documentation through fine and site scale monitoring data.

Given that the fine and site scale data are collected using consistent methodology (e.g. AIM Core Indicators) along with using the statistically valid sample from the terrestrial and/or aquatic monitoring master sample, data collected at this finer scale can be integrated into larger-scale assessments. The intent of using the master sample to establish monitoring locations is that data collected at any scale can be appropriately weighted through the use of statistical tools for use at multiple scales.

Information Needed to Determine if the LUP Area is Meeting or Making Progress Toward Meeting Land Health Standards

The Greater Sage-grouse Monitoring Framework found in each of the GRSG Conservation Plans commits the BLM to report on the areas within GRSG habitat that are meeting or making progress toward meeting the land health standards. Since each state has developed a number of different land health standards, it is difficult to address the indicators for each of those standards in an overarching document. However, the state defined land health standards must, at a minimum, address the four fundamentals of rangeland health, 43 CFR 4180.1. Thus, for this discussion we will describe the data needed to address the fundamentals at the LUP scale recognizing that additional data may be required for state land health standards that address resources not described in the fundamentals. At a minimum, the ratings and summary report that result from completing TR 1734-1, Interpreting Indicators of Rangeland Health (Pellant et al. 2005) and from The Sage-Grouse Habitat Assessment Framework, Technical Reference 6710-1 (Stiver et al. 2015), will be used to inform the land health fundamentals and the land health standard evaluation. TR 1735-1, Introducing the Framework and Indicators for Lotic Systems, provides quantitative information to evaluate watershed function, in-stream aquatic habitat and water quality standards. Taken together this information will provide the baseline information to determine if the GRSG areas within a LUP are meeting or making progress toward meeting the appropriate land health standards and thus meeting or making progress toward or meeting the four fundamentals. This is not an allotment by allotment approach; this is evaluating a larger geography such as a grouping of watersheds or other landscape unit.

Monitoring Forb Availability and Cover in Wet Meadows, Seeps and Springs, and Riparian Areas to Meet Site-Scale Habitat Objectives

Monitoring of forb availability and cover in wet meadows, springs, seeps and riparian areas that provide important brood rearing habitat for the Greater Sage-grouse is an area that will require development and adoption of a consistent protocol. Additionally, the location of many of these wet areas is unknown identifying a significant data gap. Both the development of a methodology to measure and the inventory of these important areas will require additional work. In the interim, field offices will use existing information such as the Proper Functioning Condition (PFC) assessment, TR 1737-15, which has been recently updated, and the Multiple Indicator Monitoring for streams method (TR 1737-23), where applicable, in conjunction with the HAF Summer-Riparian suitability worksheet and professional judgment to help inform summer-late brood habitat assessments. Deploying these methods should be coordinated in those important brood rearing areas where a GRSG habitat assessment is being completed to provide the necessary information to complete the suitability determination for these habitats. Please note that PFC is not approved for multi-scale assessments and is intended for use at the site scale only. Upland terrestrial AIM methods, which are multi-scale approved, if deployed with a statistical sample design, may be adapted to determine preferred forb abundance in riparian or lentic areas.

Monitoring LUP Implementation

Table 16 describes the information that is required to track authorizations and other management actions.

Table 16. Process to track authorizations and other management actions

Monitoring Type		Scale
		Project
Implementation	What?	Decision Tracking
	How?	ePlanning Log
	Who?	FO and SO NEPA teams
	When?	By project

Monitoring LUP Effectiveness

The Land Use Planning Handbook describes the analysis and reporting requirements for effectiveness of RMP for renewable resources. To assess whether resource management plans for renewable resources are effective in achieving objectives, RMP monitoring reporting will occur on a 5-year basis, as documented in the evaluation schedule. Plan evaluations should also be completed prior to any plan revisions and for major plan amendments. Special or unscheduled evaluations may also be required to review unexpected management actions or significant changes in the related plans of Indian Tribes, other Federal agencies, and state and local governments, or to evaluate legislation or litigation that has the potential to trigger an RMP amendment or revision. The effectiveness monitoring questions as required by the Land Use Planning Handbook, and modified by the GRSG plans (italicized), are: : 1) Is the plan effective in achieving (or making progress toward achieving) desired outcomes based on land health standard objectives and the sage-grouse habitat objectives; 2) are RMPs meeting, or making progress toward meeting, land health standards, including Special Status Species/wildlife habitat standard; and 3) Is the plan meeting the disturbance objective(s) within the RMP area, and 4) are the populations within this plan boundary increasing, stable, or declining? The RMP evaluation can be used to determine if 1) decisions remain relevant to current issues, 2) any decisions need to be revised, 3) any decisions need to be dropped from further consideration, and 4) any areas require new decisions.

The information needed to complete the resource management plan evaluation is described in the GRSG Monitoring Framework and in the IM for effectiveness monitoring of renewable resources. Resource condition and disturbance data will be made available by the NOC through the EGIS web portal and geospatial gateway and population data should be available through the WAFWA MOU or other agreements with the state. State Offices will be responsible for completing the 5-year LUP effectiveness report with the NOC will providing tools to facilitate the development of these reports. When possible the effectiveness reporting should coincide with the LUP review.

Making Adaptive Management Decisions

Each plan currently describes a timeline for evaluating soft and hard adaptive management triggers, but in all cases, triggers must be evaluated annually. Adaptive management triggers are typically assessed in the fall after the fire season has ended and the state's wildlife agency has provided the BLM with its final lek count data. Hard and soft trigger thresholds will also be considered during analysis of proposed projects or land use changes affecting GRSG habitat. In addition, anthropogenic disturbance caps will be evaluated at the project scale by the field in coordination with the respective State Office, before

proceeding with the NEPA requirements. Additionally, the amount of disturbance on all lands within the BSU will be calculated by the NOC on an annual basis using the consistent, west-wide datasets identified in the Monitoring Framework.

Adaptive management is also intended to be implemented at the project scale, the required design feature scale, and the best management practices. In these cases, implement and monitor to see if the action precipitated the desired result and if not, determine what was missing and make the necessary changes in the next treatment or authorization. Adaptive management is a continuous improvement cycle.

Plans currently describe the metrics and consequence of tripping soft or hard habitat and/or population triggers. Habitat availability is assessed through examining the amount of sagebrush within the BSU. Methods to assess population trends at the BSU scale are described in each plan. Adaptive management decisions would generally follow within (see the individual plan requirement) days of the evaluation of the soft and hard population and habitat triggers. The evaluation should be completed by the appropriate state or management zone implementation team and should include participation by or input from the state wildlife agency relative to population triggers. Field units and GRSG local working groups or other partners may also play a role. A summary report detailing the analysis and rationale will be developed by the Implementation Team and provided to the BLM or FS line officer along with any recommendations. If a hard trigger is tripped, the responses go into effect immediately and once the causal factor is identified adjustments to subsequent decisions may be justified. For most states if a hard trigger is tripped, a land use plan amendment will be required to change the more restrictive decisions. Soft trigger responses are described in the plan and will be implemented for all future authorization where the response is appropriate.

The decision authority for adaptive management decisions rests with the appropriate BLM and FS line officer, depending on the scale of the Biologically Significant Units or other scale from which adaptive management triggers are described. For the BLM, the decision maker will likely be the BLM State Director.

Engaging Partners in Population and Habitat Monitoring

Partners can participate in a number of monitoring activities. Population monitoring is the responsibility of the state wildlife agencies; however BLM biologists often assist state wildlife management agencies to conduct lek counts. Other entities may participate in lek count efforts and any agreements to assist with population monitoring should be coordinated with the state wildlife agencies.

Agreements between individual states and/or other entities may be necessary to formalize a cooperative habitat monitoring strategy for each State. Formal agreements may be needed to ensure that methodologies are consistent between BLM monitoring protocols and partner monitoring protocols.

Potential Future Changes in the Methodology Used by States and WAFWA to Estimate Sage-Grouse Population Trends

Ongoing and future science efforts are evolving to improve and standardize sage-grouse population and trend estimation. When the wildlife agency partner comes forward with a modified methodology that may affect the use of the data for adaptive management purposes, the matter will be taken up by the WAFWA MZ Conservation Team (which will be formed by 12/22/15) to determine whether the data resulting from the use of new methodology will result in a need to modify the adaptive management

triggers in the land use plan. Close coordination between BLM, FS and state wildlife agencies is imperative to ensure that population monitoring and analysis can provide accurate information to assess the status of populations and their status relative to management triggers in our LUPs.

Using Legacy Data in Sage-Grouse Monitoring

Though the majority of our legacy data cannot be used for quantitative reporting on condition and trend as required by our monitoring commitments for Sage grouse, the data are still extremely useful. The most direct use for our legacy monitoring data is helping to attribute causation to conditions of resources. These data can also be used to help inform expectations and provide a context for developing adaptive management triggers. The quantitative monitoring data being collected as part of AIM and the HAF currently lack information on causation of conditions that these legacy datasets are specifically designed to provide.

Section 3: Applicable Diagrams

Table 17. Composite diagram describing the monitoring, data, and reporting commitments at the various scales

		Scales					Scales		
		Broad	Broad and Mid	Mid	Mid	Mid	Fine	Site	Site
Monitoring Type		Range	WAFWA MZ	Population	BSU	LUP	Habitat	Project	Local
Vegetation - Sagebrush Condition	What?	Core & HAF Indicators							
	How?	LMF	LMF	LMF	LMF	LMF	HAF	HAF	HAF
	Who?	AIM	AIM	AIM	AIM	AIM	Local	Local	Local
	When?	Annually	Annually	Annually	Annually	Annually	As needed	As needed	As needed
Vegetation - Sagebrush Availability	What?	% Sagebrush							
	How?	Landfire	Landfire	Landfire	Landfire	Landfire			
	Who?	NOC	NOC	NOC	NOC	NOC			
	When?	Annually	Annually	Annually	Annually	Annually			
Disturbance/ Degradation	What?	% Disturbance					% Disturbance		
	How?	National Data	National Data	National Data	National Data	National Data	SDARTT	SDARTT	SDARTT
	Who?	NOC	NOC	NOC	NOC	NOC	Local	Local	Local
	When?	Annually	Annually	Annually	Annually	Annually	By project	By project	By project
Disturbance/ Degradation (Density of Energy & Mining)	What?	Density of Energy & Mining							
	How?	National Data	National Data	National Data	National Data	National Data			
	Who?	NOC	NOC	NOC	NOC	NOC			
	When?	Annually	Annually	Annually	Annually	Annually			
Implementation	What?					Decision Tracking			
	How?					ePlanning Log	ePlanning Log	ePlanning Log	ePlanning Log
	Who?					NEPA teams	NEPA teams	NEPA teams	NEPA teams
	When?					Annually	By project	By project	By project
Population	What?	Population Trend							
	How?								
	Who?	WAFWA	WAFWA	WAFWA	WAFWA	WAFWA			
	When?	Annually	Annually	Annually	Annually	Annually			
Effectiveness	What?				Effectiveness of Treatments and Management Actions				
	How?					TerrADat	TerrADat	TerrADat	TerrADat
	Who?					Local	Local	Local	Local
	When?					Set by Project	Set by Project	Set by Project	Set by Project

Section 4: Policy, Training, Data, and Tools

Policy

- Instruction memorandum for implementation of AIM at LUP and GRSG level is written but needs to be signed and distributed.
- BLM Tech Note 445- AIM-Monitoring: A Component of the BLM Assessment, Inventory, and Monitoring Strategy (Taylor et al. 2014).
- BLM Technical Note 440- BLM Core Terrestrial Indicators and Methods (MacKinnon et al. 2011).
- BLM Technical Reference 1735-1 titled AIM National Aquatic Monitoring Framework: Introducing the Framework and Indicators for Lotic Systems (AIM-NAMF).

Training

- AIM training supports implementation of the vegetation objectives and the site-scale indicators for the HAF as part of the standard AIM field collection protocol. Some seasonal habitats may require supplemental indicators
- HAF training is needed for data interpretation and completing the summary reports for each scale and habitat type.
- Support is needed to implement the train-the trainer model to implement the data collection commitments in the GRSG plans. The amount of training to implement core indicator monitoring, GRSG habitat monitoring (at various scales), terrestrial, aquatic, riparian and disturbance tracking should not be underestimated. Regional centers of excellence exist for aquatics (e.g. Utah State, AREMP, PIBO) and may be an option to augment training for some areas and potentially a model that could help implement terrestrial training.

Data

- A significant data gap is an inventory of the lentic area locations and some of the lotic resources. This is beyond the scope of current capacity. USFWS is the authoritative data source but that data is not adequate to meet our needs. May need to look to USGS or similar for support. The possibility exists to use remote sensing and GIS applications to provide a base layer for these areas; however, it should be supplemented with field verification.
- Datasets needed for monitoring and reporting have been identified by the monitoring and disturbance sub-team of the GRSG planning effort and have been included composite list developed by the GRSG sub-team, the DAC and the DAWG and the GSC Landscape Data Team
- Datasets needed to complete APDs and Grazing Permit Renewals have been identified by the GSC teams looking at these two processes that have been significantly changed with the GRSG plan decisions. These datasets have been included in the composite list developed by the GRSG sub-team, the DAC and the DAWG and the GSC Landscape Data Team

Tools

- DIMA is available for terrestrial field data collection and the National Aquatic Monitoring Center has developed a tool to collect the aquatic core indicators.Master Sample design tool is in development and deployment through Sitka Tech but managed through the NOC branch of assessment and monitoring.
- TerrADat is used as an enterprise terrestrial data base and a geocortex tool is under construction for reporting.
- Tools and methods are needed for riparian (both lentic and lotic) vegetation monitoring. PFC is appropriate for assessments; however it clearly states that it is not appropriate for monitoring.
- A significant gap has been identified in the ability to analyze data and generate reports. Since the plots are weighted, simple statistical analysis methods (i.e. simple averages) are not appropriate for analyzing data collected using a statistically valid sample design. More complex statistical analysis is required. This capacity issue must be addressed before any significant level of reporting can begin.
- The BLM cannot currently evaluate condition for some areas given the lack of ecological site description or reference sites. Interim tools are needed such as decision support models that incorporate available data and best professional opinion will be useful until additional ESDs are developed and empirically derived models completed.

Section 5: Internal and External Coordination Needs

Internal Coordination Needs

Items related to data collection or analysis should be coordinating throughout BLM, across all programs.

External Coordination Needs

USFS

State Wildlife Agencies

NRCS

ARS

USGS

Data

Section 1: ROD and Plan Commitments

Data provides the foundation for the final Land Use Plans (LUPs) and their implementation. Through the planning process, the Bureau worked collaboratively with State wildlife agencies to delineate habitats and generate geospatial representations of these areas (see the Habitat section of this document). These habitat data served as the basis for the development of allocation decision data representing management direction for the various programs and activities of the Bureau within the identified Habitat Management Areas (HMAs). The allocation decision and habitat data are the primary geospatial products of the planning process and will serve as a reference point for the implementation of management decisions. In addition, the LUPs commit the Bureau to quantifying sagebrush availability and disturbance at multiple scales as well as to specific monitoring approaches within the range of GRSG and detailed reporting requirements. The plan generated data (HMAs and allocation decisions) as well as the implementation generated data (monitoring and reporting information) are not standardized through the plans themselves. Instead, this information is being generated, stored, analyzed, and reported within the context of being evaluated for standardization as described in more detail in the sections below.

Further, numerous internal and external datasets exist which are utilized by the field to inform management decisions in conjunction with the Plans and the datasets generated by the planning process. These data vary in source and ideally are available to all personnel regardless of location. Internal dataset accessibility, standardization and metadata are discussed in the Questions and Answers below along with a strategy for accessing externally generated data for use in LUP implementation. Due note that a comprehensive list of datasets used by BLM personnel in the performance of their duties is far to extensive to detail in this document.

Section 2: Implementation Topics and Guidance

New Geospatial Datasets Critical for LUP Implementation and Monitoring

In addition to the extensive suite of data utilized by BLM staff during their daily work, the following datasets or dataset themes are critical to LUP implementation and monitoring and have either been created through the planning process or will be created through plan implementation. These are recognized as neither officially standardized nor subjected to the standards development processes established by the Bureau. As implementation progresses, integration of these data under a standardization framework may be evaluated via the processes established by the Data Advisory Committee (DAC) and/or the Data Advisory Working Group (DAWG), including but not limited to, deeming the existing creation and/or collection methods as sufficient for a nationally recognized dataset.

Plan Allocation Decisions (numerous datasets and themes)

These datasets were developed through the planning process and detail the areas where the Bureau prohibits, restricts or allows various types of activities under its multiple use mission. Developed individually for each Plan, these data are a primary reference when considering project authorizations. During plan development the National Operations Center, in coordination with the planning leads and in consultation with the planning handbook, consolidated allocation data across all planning efforts into 15

program areas and over 40 individual datasets representing discrete management decisions. This approach facilitated alternative analysis across all 10 states involved in the planning effort, however many planning units were required to consolidate more refined datasets into the program area categories and decision specific datasets. The Record of Decision data will be collected and consolidated at the National Operations Center and used to facilitate the development and evaluation of standards for these data themes.

Storage/access: Housed by each S.O. / EIS. Will be consolidated and made available for internal use by the NOC.

Dataset and Standards Status: Datasets in place and official standards in development. While official data standards are in development for these types of geospatial data, no finalized guidance is available for developing allocation decision datasets. The consolidated Plan decision data will be utilized to assist in the finalization of allocation decision data standard development.

Sagebrush Focal Areas

The U.S. Fish and Wildlife Service provided the Bureau with a geospatial dataset representing Highly Important Landscapes (Memorandum FWS/AES/058711, October 27th, 2014) for consideration when developing land use allocation decisions in 2014. The National Operations Center worked with planning leads, the Washington Office and individual plan personnel to refine these data to represent a subset of Priority Habitat Management Areas within the Bureau's decision space which would be managed under allocation decisions deemed most protective for sagebrush ecosystems.

Storage/access: Housed by each S.O. / EIS, consolidated and made available for internal and external use by the NOC.

Dataset and standards status: In place, no official data standard. This dataset is a derivative of several Bureau and non-Bureau data products. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through plan maintenance or amendment.

Priority, Important, and General Habitat Management Areas (PHMA, IHMA, and GHMA)

Geospatial representations of sagebrush ecosystems comprising sage-grouse habitat which were developed by state fish and wildlife agencies, with varying degrees of Bureau input, across the species' range. These data served as the basis for allocation decision development by each plan in coordination with regional and national planning leads. While delineations may have been more specific within certain plans, these data were collected and consolidated to create a range-wide data layer delineating Priority, Important (Idaho only), and General Habitat Management Areas (HMAs) by the National Operation Center.

Storage/access: Housed by each S.O. / EIS (including more refined delineations), consolidated into PHMA, IHMA, and GHMA format and made available for internal and external use at the NOC.

Dataset and standards status: In place, no official standard. This dataset is primarily derived from non-Bureau data products and analyses. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through plan maintenance or amendment.

Disturbances – Fine and Site Scale

Each Plan details an approach to quantify discreet disturbances when evaluating proposed projects for approval as outlined in the Greater Sage-Grouse Monitoring Framework (see the Disturbance section of this document for details on disturbance calculations). The creation, storage and analysis of geospatial data representing disturbance is a new requirement for the Bureau and involves two databases, each of which has its own schema and data capture methods:

- **WY DDCT Application** – Developed by the State of Wyoming to support its Core Area Strategy. Each plan in Wyoming will utilize this database and analysis tool to quantify disturbance at the fine & site scales, with Montana planning to implement the same application in the future.
- **SDARTs** – An application in development by the BLM in partnership with the USGS. Similar to the DDCT tool in Wyoming, the application will capture, store and analyze geospatial data depicting disturbance at the fine and site scale. Once fully deployed, this application will be capable of consuming data developed using the WY DDCT tool.

Storage/access: **WY DDCT Application** – Access and utilization is coordinated with the State of Wyoming. Information and access can be located at: https://ddct.wygisc.org/home.aspx
SDARTS – Currently in Beta-Testing. Will be housed and maintained by the USGS with BLM staff access via approval based on Active Directory Credentials. The potential for the BLM to assume responsibility at the National Operations Center will be evaluated in the future.
Dataset and standards status: **WY DDCT Application**: In place, no official standard. The data generated using this application is based on a robust database schema which has been in use for some time. Disturbance calculations for the LUPs in WY follow the methodologies established by the State of WY and may differ from surrounding states. These data are not subject to standardization by the BLM.
SDARTS Application: In development, no official standard. The data generated using this application will be based on a database schema which facilitates the capture of geospatial data representing the 19 landscape level and site specific degradation threats identified in the Greater Sage-Grouse Monitoring Framework. As deployment and application refinement ensues, these data may be evaluated for designation as standardized datasets.

Disturbances – Broad and Mid Scale
As detailed in the Greater Sage-Grouse Monitoring Framework, these data are an assemblage of various public and proprietary datasets depicting the 12 landscape level degradation threats in a consistent manner across the 10 state range of the Greater Sage-Grouse.
Storage/access: These data are acquired and analyzed annually, as detailed in the Greater Sage-Grouse Monitoring Framework, by the National Operations Center and made available for internal use. Statistics for broad and mid-scale summary units (Management Zone, Population, BSU) may be made available for external use.
Dataset and standards status: In place, no official standard. A consistent suite of data sources and standardized analysis approach is outlined in the Greater Sage-Grouse Monitoring Framework. These data are available for DAC/DAWG review and consideration as standardized datasets, although this process has not been initiated.

Assessment, Inventory, and Monitoring Field-Collected Data
These data are generated through field surveys conducted according to the methodologies outlined in the Assessment Inventory and Monitoring Strategy for Integrated Renewable Resources Management (Toevs et. al, 2011).
Storage/access: Data is collected by Field, District and/or State offices. Consolidation of field collected data undergoes national aggregation at the National Operations Center and is available for internal use. External publication is expected.
Dataset and standards status: In place, standardized collection methodologies. The Assessment, Inventory, and Monitoring Strategy details explicit field data collection methodologies based on the principle of “single collection, multiple use”. While the BLM DAC/DAWG have not created official standards for these data, the protocols outlined in the Assessment, Inventory, and Monitoring strategy can be considered standardization guidance.

Habitat Assessment Framework Field-Collected Data
These data are generated through field surveys conducted within habitat management areas according to the methodologies outlined in the Sage-Grouse Habitat Assessment Framework (Tech. Ref. 6710-1, June 2015).
Storage/access: Data will be collected by Field, District and/or State offices. Consolidation at the State level is expected and national aggregation will leverage the existing database infrastructure created for Assessment Inventory and Monitoring (AIM) data and will be performed at the National Operations Center. Both internal and external publication is expected.
Dataset and standards status: Collection yet to be implemented, standardized collection methodologies. The Habitat Assessment Framework (as well as the related Assessment, Inventory, and Monitoring Strategy) detail explicit field data collection methodologies based on the principle of "single collection, multiple use". While the BLM DAC / DAWG has not created official standards for these data, the protocols outlined in the Habitat Assessment Framework can be considered standardization guidance.

Habitat Assessment Framework Habitat Suitability Reports and Seasonal Delineations
These data are generated through the interpretation of field surveys conducted in habitat management areas according to the methodologies outlined in the Sage-Grouse Habitat Assessment Framework (Tech. Ref. 6710-1, June 2015). Data collected by Field, District and/or State offices will be interpreted by local subject matter experts to detail site suitability and drive seasonal habitat delineations. These data may represent both spatial and non-spatial in nature.
Storage/access: To be determined. These interpretations have not been widely conducted. A storage, access and data management approach will be developed as assessments are completed and may evolve as the program matures.
Dataset and standards status: Yet to be implemented. The Habitat Assessment Framework details the approach for determining habitat suitability and seasonal habitat delineations, however professional judgment by the subject matter expert is involved in the final reports. These spatial and non-spatial data will utilize the standard approaches outlined in the Habitat Assessment Framework, but may not be candidates for data standardization under existing protocols.

Biologically Significant Units (BSUs)
These data represent an intermediate scale of aggregation of greater sage-grouse habitats and vary among the final LUPs in their delineation. In general, they are based on sage-grouse populations or other biologically meaningful habitat groupings. Their intended purpose is for the Bureau to calculate the percent disturbance on PHMA per unit for intermediate scale monitoring.
Storage/access: Housed by each S.O. / EIS, consolidated and made available for internal use at the NOC.
Dataset and standards status: These data are derivatives of Bureau and non-Bureau data products and identified in each LUP as the intermediate scale monitoring unit. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through plan maintenance or amendment.

Priority Areas for Conservation (PACs)
This dataset represents areas of importance to greater sage-grouse as identified by the Conservation Objectives Team in 2013 and revised by the FWS for use in the listing decision in 2015. Broad and mid-scale sagebrush availability and disturbance estimates may be calculated within these areas.
Storage/access: Data has been obtained from the FWS representing these areas and will be made available for internal use by the National Operations Center. The National Operations Center will coordinate acquisition and distribution of any potential future updates.

Dataset and standards status: In place. This dataset is a non-Bureau data product. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through modification mechanisms deemed appropriate by the data creator.

Sage-Grouse Management Zones

This dataset represents regional analysis units, based on major floristic provinces and threats to sagebrush ecosystems. They were designated by the Western Association of Fish and Wildlife Agencies (WAFWA) and refined in 2015 for use in the FWS listing decision. Their use will be to serve as a landscape level unit of measure for annual reporting and 5 year trend analysis.

Storage/access: Data has been obtained from the FWS representing these areas and will be made available for internal use by the National Operations Center. The National Operations Center will coordinate acquisition and distribution of any potential future updates.

Dataset and standards status: In place. This dataset is a non-Bureau data product. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through modification mechanisms deemed appropriate by the data creator.

Sage-Grouse Populations, Including Estimates, Trends and Lek Locations

These data represent aggregations of greater sage-grouse into distinct population and sub-population units and descriptive (non-spatial) information about the of sage-grouse within them. The spatial data were designated by the Western Association of Fish and Wildlife Agencies (WAFWA) and refined in 2015 for use in the FWS listing decision. Their use will be to serve as a unit of measure for annual reporting and 5 year trend analysis. The non-spatial data will be acquired annually under a MOU with WAFA for use in annual reporting and 5 year trend analysis through coordination with the Washington Office and the National Operations Center.

Storage/access: Geospatial data has been obtained from the FWS representing these areas and will be made available for internal use by the National Operations Center. The National Operations Center will coordinate acquisition and distribution of any potential future updates. Descriptive population statistics have yet to be acquired, but will be utilized for annual and 5 year trend reporting.

Dataset and standards status: In place. This dataset is a non-Bureau data product. It can be considered finalized and eligible for designation as a standard dataset, subject to revision solely through modification mechanisms deemed appropriate by the data creator.

Existing Vegetation Type (EVT)

This derived raster dataset represents sagebrush related pixels found in the Landfire dataset and is created and updated at the National Operations Center according to procedures as outlined in the Greater Sage-Grouse Monitoring Framework. Its purpose is to inform broad and mid-scale sagebrush availability metrics.

Storage/access: Created, stored and made available internally by the National Operations Center.

Dataset and standards status: In place. This dataset is derived from Bureau and non-Bureau data as outlined in the Sage-Grouse Monitoring Framework and updated annually. Each annual product can be considered final and is available for evaluation as a standardized dataset.

Biophysical Setting Capable of Supporting Sagebrush (BpS)

This derived raster dataset represents pixels found in the Landfire dataset which are capable of supporting sagebrush ecosystems and has been created by National Operations Center according to procedures outlined in the Greater Sage-Grouse Monitoring Framework. Its purpose is to inform broad and mid-scale delineation of areas capable of supporting sagebrush vegetation.

Storage/access: Created, stored and made available internally by the National Operations Center.
Dataset and standards status: In place. This dataset is derived from Bureau and non-Bureau data as outlined in the Sage-Grouse Monitoring Framework. The product can be considered final and is available for evaluation as a standardized dataset.

NEPA Project Locations
These data represent point locations for NEPA related projects. They provide basic descriptive information about each project and link to the associated NEPA documents.
Storage/access: Created by Field, District and/or State Offices. The points and associated documents are stored and made available internally by the National Operations Center through the ePlanning application.
Dataset and standards status: In deployment. EPlanning is currently undergoing a phased deployment to the field. NEPA documentation and point capture for project locations have not been subjected to standardization processes employed within the Bureau.

Treatments (Vegetation)
These data represent the location and details regarding vegetation treatments conducted or supported by the Bureau under various programs.
Storage/access: Created by Field, District and/or State Offices and currently stored in several program specific databases. Access varies by program and database, however a consolidated data entry and reporting application is in development.
Dataset and standards status: In place/in development. Comprehensive vegetation treatment data standards are currently in development to support a Vegetation Treatments Solution which will aggregate the various databases and facilitate uniform spatial and tabular data capture and reporting across all programs.

Regional Habitat Models and Intactness Measures
These data are in development in partnership with the USGS. Their intended use is to facilitate consistent habitat delineations across the range of the greater sage-grouse and to assess landscape level fragmentation of habitats, amongst other metrics.
Storage/access: To be determined.
Dataset and standards status: Not applicable. These data are in development, but may be available in the future.

Grass Shrub Mapping Products
These data are in development in partnership with the USGS. Their intended use is to improve the accuracy of grass & shrub dominated ecosystem mapping to assist in habitat delineations and long term monitoring efforts.
Storage/access: To be determined.
Dataset and standards status: Not applicable. These data are in development, but may be available in the future.

Data Standards and Standardized Data and Their Importance
Data standardization, metadata development, enterprise level management, and publication of data, in combination with robust data QA and update processes, are required components of a mature data approach that can support land management decision-making at multiple scales. While traditional methods of local data gathering and assessment within specific management units have generally been effective for managing individual units, the Bureau is moving towards assessing, reporting on, and

managing lands at multiple scales to facilitate its mission. By setting and adhering to minimum data standards, the data gathered at local units can be rolled up confidently for assessment and reporting across units and larger landscapes, as well be as utilized as the basis for consistent management approaches at appropriate scales. Thoughtful and useful metadata details the quality, currency, purpose, origin and other factors of the data itself and can provide information about the quality of data on a record by record level if implemented correctly. This allows analysts, decision-makers, land management partners, and the public to confidently and appropriately use data with a fundamental understanding of its limitations. Finally, centralized management and publishing/distribution of data ensures users are accessing the same information for decision-making and that their information is the most current available, not an obsolete snapshot taken at some point in the past. As new data comes in, existing data is updated and improved, which facilitates sharing within the Bureau and with our land management partners, other agencies and the public with confidence.

A full data standard is based on identified business requirements. These requirements are captured and documented in a process involving subject matter experts and modeling sessions where the data requirements are defined and a full logical data model is developed. This process enables the organization to capture and document any specific business requirements, how they relate to other data within the organization, and any specific business rules for the governance of the data. Following the logical data model development, implementation requirements are identified and defined. Once an implementation method is initiated a standardized schema is developed, complete data standard can be finalized.

A standardized dataset can be developed by performing an analysis of existing physical data stores and determining the overlap or commonalities across datasets. Based on this type of analysis, a schema that contains the identified common elements and uniform definitions for the dataset or data theme is finalized. The schema development is a critical step to ensuring that the quality of the data can be measured. While this is much quicker and easier than developing and documenting a full data standard, there is an assumption that the existing data stores were meeting the business data requirements.

The identification of critical datasets is ongoing, involving multiple Program leads to help identify data priorities for the Bureau. The Data Advisory Working Group (DAWG) is tasked with recommending the annual data priorities to the Data Advisory Committee (DAC). A structured effort is currently underway where the Data Advisory Committee (DAC) is examining these organizational priorities, with continuing input from the business leads, to ensure that organizational needs are being addressed. The priorities list for FY2016 is currently being developed by the DAC and DAWG and involves the evaluation of several hundred datasets and themes, including those identified in Question 1 of this document. A finalized draft of the datasets under consideration is expected to be available in mid-November 2015. Once this processes is complete, prioritization and initiation of data standards and/or standardized dataset designation will commence. The existing data standards and standardized data schemas can be explored by visiting the National Operations Center Data Management SharePoint site: http://teamspace/sites/blmnds/default.aspx.

While standards development is driven primarily by data management experts and business leads across programs, compliance is the responsibility of the data creator and is discussed in more detail in Question 3 of this document. The National Operations Center not only facilitates the establishment of standards, it provides expertise in data quality to assist in generating compliant datasets from the field to the national level.

Data Action Plan

Table 18 is an action plan for the required datasets for implementation. This action plan is an attempt to coordinate a large workload at multiple levels of the organization using existing resources and capacities. The action plan is subject to change pending ongoing coordination between the WO, NOC, state leads, and data stewards.

3424 Table 18. Action plan for the required datasets for implementation

Plan Allocation Decisions		
Tasks	**Assigned To**	**Deadline**
Gather data ● Currently, data stored by EIS ● Admin record to be compiled by end of Oct. 2015, can piggy-back that effort	State GIS Leads	Dec. 2015
Replication Setup	State GIS Leads NOC for National Dataset	Dec. 2015
NOC Gather State Data for National Datasets	NOC	Dec. 2015
Assign Data Steward for Sage Grouse Related Plan Allocation Data	Sage Grouse Coordinator	Dec. 2015
Work with NOC to consolidate fields and decide on interim data standards	Data Steward	Jan. 2015
Publish data internally to Portal	NOC/Data Steward	Jan. 2015
Publish data externally to Landscape GeoPortal	NOC/Data Steward	Jan. 2015
QAQC Data (especially boundary effects)	State/Local GIS	Mar. 2015
Crosswalk with established data standard	State/Local GIS	When national data standard established

3425

Sagebrush Focal Areas		
Tasks	**Assigned To**	**Deadline**
Nothing needed		

3426

Priority, Important, and General Habitat Management Areas (PHMA, IHMA, GHMA)		
Tasks	**Assigned To**	**Deadline**
Nothing needed		

3427

Disturbances – Broad and Mid-Scale		
Tasks	**Assigned To**	**Deadline**
Nothing needed		

3428

Biologically Significant Units (BSUs)		
Tasks	**Assigned To**	**Deadline**
Assign Data Steward	Sage Grouse Coordinator	Dec. 2015
Publish data internally to Portal	NOC/ Data Steward	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC/Data Steward	Dec. 2015
Create data standard	NOC	July 2016
Crosswalk existing data into standard when created	State/FO GIS	TBD

3429

Priority Areas for Conservation		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal	NOC/Data Steward	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC/Data Steward	Dec. 2015

3430

Sage Grouse Management Zones		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal	NOC/Data Steward	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC/Data Steward	Dec. 2015

3431

Sage Grouse Populations, Including Estimates, Trends and Lek Locations		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal	NOC/Data Steward	Dec. 2015

3432

Existing Vegetation Types (EVT)		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal ● Need to break out by type	NOC	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC	Dec. 2015

3433

Biophysical Setting Capable of Supporting Sagebrush (BpS)		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal ● Need to break out by type	NOC	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC	Dec. 2015

3434

Vegetation Treatments		
Tasks	**Assigned To**	**Deadline**
Publish data internally to Portal ● Need to break out by type	NOC	Dec. 2015
Publish data externally to Landscape GeoPortal	NOC/ Data Steward	Dec. 2015

3435

Subsurface Management/Mineral Rights/Mineral Estate		
Tasks	**Assigned To**	**Deadline**
Compile existing data by State, create replication structure	State Office GIS	Dec. 2015
Compile existing data Nationally, create replication structure	NOC	Dec. 2015
Assess which FO or States need to be digitized	State Office GIS	Jan. 2015
Appoint National Data Steward	WO-300	Dec. 2015
National Data Steward determines fields for interim data standard	Data Steward	Feb. 2015

National Data Steward works with states to digitize missing data by: ● Engaging with WO-300 for funds for contractors, students, etc. to digitize ● Work with Jeff Nighbert who is developing a Geocortex application to extract LR2000 case records ● Work with 100k group at the NOC who produced subsurface maps, may have some useful data to expedite process	Data Steward	Aug. 2015
Create national data standard	NOC	TBD
Cross walk data into national data standard	State Office/Field Office GIS	TBD
Publish data internally to Portal	NOC	TBD
Publish data externally to Landscape GeoPortal	NOC	TBD
Clean up boundary effects	State Office/Field Office GIS	TBD

In addition to the datasets detailed above, an effort should be encouraged for existing national datasets to be QAQC'd to ensure a very high level of quality. Field and state office data stewards (or program leads) should work with GIS staff to ensure the local copy of the data is equivalent to the national data.

Data Quality, Data Replication, and Data Publication Responsibilities

All specialists at all levels of the bureau have a role to play in data quality. The field and district office is primarily responsible for collecting and entering the data, the state office program lead checks for accuracy and consistency, as does the Washington Office program lead. The NOC produces a data quality report regarding the condition of the tabular data (if it accurately followed data standards) and the geometry (i.e. only if allotment boundaries are crossing each other, but NOT if the allotment boundaries are correct on the ground - that is the responsibility of the field office).

Each state currently has its own data replication infrastructure in place to reap the field and or district office data, consolidate, and replicate to the NOC. There are currently about twenty datasets currently being replicated successfully. The Sage Grouse implementation effort would not change this infrastructure or the current roles and responsibilities, but only add to the number of replicated datasets.

With approval from the national data steward (usually at the WO), national services are created through coordination with the NOC. Layer files are available on the Geospatial Gateway and through EGIS Portal (internal access only). The service can be moved for external consumption if requested by the data steward, with a statement regarding the data quality, and metadata completed to BLM standard.

Figure 6 displays the roles and responsibilities at each level of the agency regarding data quality, data replication, and data publication - and the interaction between different levels.

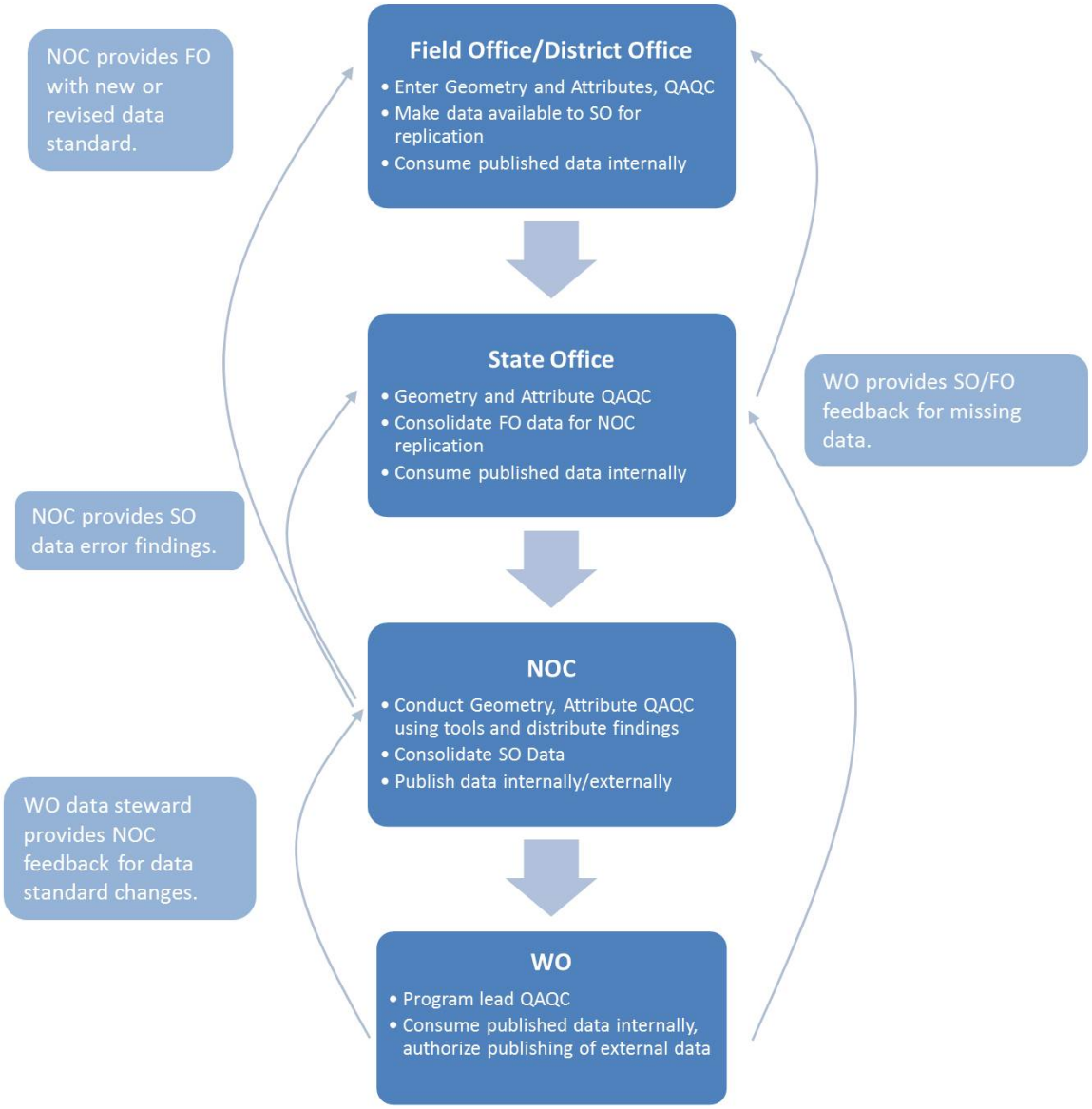

Figure 6. Roles and responsibilities at each level of the agency regarding data quality, data replication, and data publication

Metadata Requirements and Documenting Limitations and Uncertainties of the Data

The Bureau requires metadata for both spatial and non-spatial data to facilitate the location of data in large corporate holdings and document the numerous aspects involved in the generation of a dataset. The Dublin Core metadata standard is utilized for non-geospatial data and is comprised of fifteen properties which describe the resource represented in the non-spatial data. This standard was developed to be applicable to a wide variety of data types from electronic (web and digital files) to

physical (books, CD, etc.) resources. The content and format is relatively simple in comparison to metadata used with geospatial datasets.

The Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata (FGDC CSDGM) standard is the basis for Bureau geospatial metadata. The Corporate Metadata Advisory Team (CMAT) is the entity within the Bureau responsible for the development of metadata standards as well as tools and templates utilized to apply these standards. In addition, they are tasked with evaluation modifications to these standards as technology and external best practices evolve. The FGDC CSDGM standard has been modified to fit the DOI metadata harvesting procedures, which facilitates the consumption of BLM metadata records by data.doi.gov, where it will be used in reporting and other analyses. Metadata records are then automatically harvested to data.gov as the federal government's single point for searching for data of all types. Additionally, the geospatial metadata records are also harvested to the Geospatial Platform for those interested in searching specifically for geospatial data holdings with the federal government. See Question 5 of this document for additional discussion on data sharing and accessibility. While the CMAT is the governing entity for Bureau metadata standards, *each individual* who creates data is responsible for also creating compliant metadata. The geospatial metadata requirement details are too extensive to comprehensively include in this document, however in general they require the inclusion of: keywords, general dataset descriptions, detail processing history, accuracy assessments, attribute definitions, disclaimers regarding known or potential issues in the use of the dataset as well as use and distribution limitations. The National Operations Center has developed several templates to streamline the creation and application of compliant metadata as well as tools to assist in the evaluation of metadata against the standard requirements. Additionally, all data standards and standard data schemas released by the National Operation Center are accompanied by a template pre-populated with the most common metadata elements to any datasets developed using them. Additional information regarding the metadata standards, tools for creating and evaluation standards and explicit direction in the form of Handbooks and Instructional Memoranda can be found in the National Operations Center Data Management SharePoint site: http://teamspace/sites/blmnds/default.aspx.

Making Data Accessible Internally and Externally for LUP Implementation

Data sharing, either internally or externally, begins with a robust data storage and management structure. Centralized data storage and management provides a single access point, ensures that all users are consuming the most current version of a uniformly generated dataset, enhancing repeatability and confidence in analysis. Once a data standard is completed and released with an IM, or a standardized dataset is developed, each state office is responsible for following the associated implementation guidelines. This initiates the collection of data from the field/district office and consolidation within a state-held enterprise geodatabase structure. This process requires the input of both subject matter experts and GIS specialists to ensure collected data meet the established standard(s) and are properly documented with applicable metadata. The State Office may apply additional requirements to data collection to meet their specific business practices, however only those elements meeting the standard requirements are replicated to the National level at the National Operations Center. The National spatial datasets are processed through quality checks, which generate quality reports, and national level metadata are then created. This replication and quality check cycle is most commonly completed on a monthly basis, with a few spatial dataset exceptions (SMA for example).

With approval from the National data steward, National ArcGIS Server Services are created and made internally available on the Geospatial Gateway through layer files. The services are also made available

through the rest end point (https://gis.blm.doi.net/arcgis/rest/) and EGIS Portal (https://egisportal.blm.doi.net/portal/home/).These centralized consolidation and distribution approaches allow for Bureau-wide access for mapping and analysis.

National Services, initially developed and deployed for internal use, can also be moved to public facing services if requested by the data steward through rest end point (https://gis.blm.gov/arcgis/rest/) and/or by registering the data through layer packages on Landscape Approach data portal (http://www.landscape.blm.gov/geoportal/catalog/main/home.page). This approach also facilitates the consumption of the published data by other Federal data warehouses by leveraging the required metadata elements (discussed in Question 4) in federated searches. By implementing these data consolidation and distribution practices the public as well as external partners can be confident when acquiring approved for release data generated by the Bureau.

The internal distribution of non-standardized, non-public data is facilitated by the EGIS directory structure. Datasets can be stored and accessed, with permissions controls as appropriate, across the Bureau as official standardization processes are developed. Further, the aggregation and distribution of non-Bureau data which is frequently utilized for day to day activities, particularly those necessary for LUP implementation, are consolidated in the Reference National folder of the EGIS directory. A spreadsheet detailing the items consolidated in Reference National, along with their currentness and additional distribution information is maintained in the directory. Recommendations for additions to this repository by those who rely upon authoritative externally sourced data are encouraged, as it will build the repeatability and reliability of analyses across the Bureau and minimize redundant data storage.

While these approaches to sharing standardized data are effective for internal (DOI) and public consumption, a gap still exists when the need to share non-public datasets with external partners arises. Currently, electronic transmission as email attachments is possible for smaller datasets, but larger files are typically shared on solid storage devices via personal or courier delivery. A method to share these types of datasets with non-DOI partners is a necessary item to be addressed for Plan implementation as well as to increase the Bureau's overall capacity to collaboratively work in data intensive partnerships.

Geospatial Dataset Analysis and Reporting

Data analysis and reporting responsibilities are scale dependent and timing of these activities may vary as Bureau and partner needs arise. Additional information regarding the evaluation and reporting on spatial and non-spatial data is discussed in the Monitoring and Adaptive Management Section of this document. Below is an outline of each level of analysis along with general roles and timelines. As LUP implementation progresses, analysis and reporting methods may be refined.

Broad and mid scale (first and second order: rangewide, management zone, population, PAC):

When – Annually, with a trend analysis performed every 5 years to be provided to the FWS.

Who – An interdisciplinary team comprised of the Regional Implementation Coordinators, National Operations Center, and WO ***should be formed*** to consult with the FWS to determine the exact report structure, content, and delivery format.

How – Multiple types of information will be compiled and reported annually as outlined in the Monitoring Framework Appendix included in each LUP.

1. Compile and summarize project-level and site-specific actions and authorizations in relation to plan allocation decisions and habitat delineations by extracting and analyzing ePlanning and other consolidated authorization databases (data calls may be necessary until ePlanning is fully deployed).
2. Using range-wide vegetation and disturbance data to calculate the following habitat descriptors:
    - Sagebrush Availability (EVT) and its relation to what the landscape could potentially support (EVT vs BpS)
    - Habitat Degradation
    - Energy and Mining Density
3. Using Population demographic information provided by WAFWA/State wildlife agencies in concert with the degradation and sagebrush metrics to establish trends and explore causation.
4. Integrate the results of items 1 through 3 above with available fine and site scale data to inform Individual Land Use Plan and National Strategy effectiveness.

Fine and site scales (third and fourth order: local and/or project):
When – As needed (Project proposals, Seasonal Field Studies, Bureau or Partner need, etc.) and Annual Summaries

Who – State, District, and Field staff in coordination with regional implementation teams and the National Operations Center.

Each level of organization will play slightly different roles in data analysis and reporting as outlined below. Flexibility is encouraged to facilitate the most effective application of personnel and equipment resources.

- State offices will serve as the primary link between local and regional/national data collection and analysis. Primary roles include:
    - Coordinate with District/Field offices and National Operations Center on field project data consolidation and summary reports.
    - Coordinate with State wildlife agencies on modifications to habitat delineations (Either HAF derived or through partner agency determinations).
    - Ensure project level disturbance and density calculations are consolidated in appropriate systems (SDARTS – when available, DDCT).
    - Ensure authorizations (projects, treatments, etc.) are documented in appropriate systems (ePlanning, etc.).
    - Coordinate with National Operation Center to determine LUP effectiveness and need for adaptive management actions.

- Field or district offices will lead data collection, stewardship and quality control and should maintain close coordination with state offices. Primary roles include:
    - Data collection, quality control and reporting
        - HAF – Third and Fourth order summaries
        - PFC
        - AIM
        - LHA
        - Wildlife monitoring/Surveys
        - Treatments
        - Other local projects
    - Project level NEPA analysis and approvals (disturbance, treatments, reclamation, etc.)

How - Data collection and analysis will follow relevant applicable protocols as outlined in existing and pending guidance.

Interpreting Results of Dataset Analysis

Analysis results will be used by multiple specialists and decision makers at all levels of the Bureau. Similar to the performance of analyses as discussed in the previous question, analysis interpretation is scale dependent and generally falls within the categories described below. It is important to realize, however, that each "level" of analysis and interpretation influences the others and in practice are interconnected through data consolidation, analysis, causation determinations and subsequent recommendations. Additional information regarding how data is analyzed and interpreted can be found in the Monitoring and Adaptive Management Section of this document.

Broad and mid scales: Assessing National Planning Strategy Effectiveness (WO & NOC) -The effectiveness of the National Planning Strategy will be evaluated using a suite of questions, outlined in the Greater Sage-Grouse Monitoring Framework, aimed at landscape level measures and trends to determine if changes are beneficial or detrimental to the long term viability of the sagebrush ecosystem. These analyses will provide a basis for recommendations to alter any negatively trending landscape level metrics. Generally, the information evaluated at this scale will include: overall sagebrush availability, amount of habitat degradation and the intensity of activities, any change in population estimates, estimation of BLM & FS contribution to any changes in sagebrush availability, and an estimation of BLM & FS contribution to changes in disturbance.

Assessing LUP Effectiveness (State Office, Regional Implementation Coordinators, NOC, WO) - The effectiveness of each LUP will be examined using a similar suite of questions as those employed for the National Strategy Effectiveness evaluation as outlined in the Greater Sage-Grouse Monitoring Framework. These questions will be evaluated to determine if each Plan is meeting the unique objectives within it and, if not, why these objective are not being met. In general, the LUP effectiveness evaluation will be based on: if vegetation conditions are meeting land health standards and habitat objectives with an allotment and sage-grouse habitat management areas respectively, the amount of disturbance within habitat management areas, and any change in population estimates.

Fine and site scales (district, field, and state office): Fine and site scale data interpretation involves staff applying their professional judgement to analysis outputs in relation to plan objectives and authorization approvals. These activities include, but are not limited to, evaluation of project proposals in relation to allocation decisions and disturbance caps (NEPA analyses), initiation of adaptive management actions based on plan specific thresholds, vegetation treatment prioritization, mitigation coordination, and the delineation of seasonal habitat utilizing field collected monitoring data.

Combining Internal and External Professional Scientific Expertise with Quantitative Data

BLM's Advancing Science Strategy outlines two goals; ensure effective and consistent science integration into BLM's Core work processes, and ensure relevant, timely scientific information is accessible to BLM staff and managers http://www.blm.gov/wo/st/en/info/blm-library/publications/blm_publications/advancing_science.htm The following discusses the two goals with guiding principles and practices and how they apply to Sage Grouse implementation.

- **Use best available scientific knowledge relevant to problem or decision, relying on peer reviewed literature:** Geospatial data collection and analysis methods should be informed by a

regular review of literature for the best available scientific knowledge. For example, the lek buffers and respective distances outlined in the Monitoring Framework of the RMP's were discussed in the USGS article "Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review" http://pubs.usgs.gov/of/2014/1239/.

- **Recognize the dynamic and interrelated nature of socioecological systems within which BLM operates:** Interdepartmental and interagency projects relating to landscape level ecosystem analysis and multiscale metrics should be encouraged. Current efforts include work with state wildlife agencies to modify habitat delineations as needed using telemetry data, lek, and other data sources; work with USGS to develop landscape level metrics to support BLM Land Health Assessments and applications to range-wide seasonal habitat mapping at multiple scales; work with USGS to map grass and shrubs; and work relating to climate change.

- **Acknowledge, describe, and document assumptions and uncertainties:** Limitations of individual datasets should be described in its metadata (see Q&A #4). Any report created for internal or external purposes should disclose the assumptions and uncertainties associated with the datasets utilized, the methods used, shortfalls of a model, and the implications of the analysis. Considerations could include, but are not limited to, the scale of the data (using 30m resolution raster data), timeline of analysis (disturbance cap being calculated annually), and accuracy of various equipment for collecting GPS data.

- **Use quantitative data when it exists, in combination with internal and external professional scientific expertise:** This is not just for calculating acres. Leverage monitoring and geospatial data to synthesize quantitative data when possible to describe trends and prescribe management actions. Internal and external professional expertise can be used to inform methods, calibrate models, and inform coefficients.

- **Use transparent and collaborative methods that consider diverse perspectives:** The use of partnerships with other agencies, research institutions, and stakeholders will introduce diverse perspectives, as discussed above. Analysis should be documented using models or scripts to encourage both transparency and repeatability. Meticulous record keeping and data storage is encouraged for tracking calculations and time stamped data is encouraged at all levels of the bureau.

- **Ensure relevant, timely scientific information is accessible to BLM staff and managers:** Details regarding how data will be accessible internally and externally can be found at Q&A #5.

Accountability Measures

First, PE codes need to state the specifics of the data requirements. A unit of accomplishment will only could when it is measured with the specific data requirements. If data is not collected with the prescribed methodology, to a standard, or to a defined quality, it will not equal a unit of accomplishment. For example, if an office's target for the year is 2,000 acres of invasive species to be treated, even if that 2,000 acres is completed on the ground - if the office has not recorded the spatial extent and proper attributes into the VTRT and or NISIMS database (pending the forthcoming VTS database), the accomplishment would not be counted.

Second, a monthly dashboard should be maintained by field office, by state, that identifies the datasets that have been collected at the site-level on vegetation, habitat, aquatic, riparian, wet meadow,

vegetation treatment, etc. reporting the compliance of each standard. This would provide fellow resource staff, GIS staff, managers, and leadership a picture of both the quality of the data being used to inform decisions and the level of completion.

Finally, the data action plan (while likely not final) should be used as a tool for staff and managers alike. Working with the Sage Grouse coordinator, any tasks falling behind should be brought to respective leadership's attention. If a national data steward needs to be appointed - the DAC should appoint someone (see below for list of existing data standards without a national data steward, and above in question #2 for the need to appoint data stewards for new sage grouse related datasets). When regarding state and field office GIS and program staff, the ELT and line officer leadership should be engaged when needed. Likewise, if the NOC has not completed necessary tasks, their leadership should be approached. The success of sage grouse implementation is highly dependent on the entry, use, maintenance, and analysis of high quality and consistent data (both spatial and non-spatial) - hence the importance of new conversations and ideas with leadership regarding accountability measures.

Section 4: Policy, Training, Data, and Tools

Policy

Existing instruction memorandums: spatial data standards

A number of existing IMs mandate use of determined data standards for datasets critical to accomplishing not just sage-grouse implementation, but all bureau work. States may have processes to attach additional data fields, but the instruction memorandums in Table 19 detail the minimum standard required. The SharePoint site for data standards is located at: http://teamspace/sites/blmnds/Established%20Data%20Standards/Forms/Grouped%20by%20Standard.aspx.

Table 19. Instruction memorandums that detail the minimum data standard requirements

Dataset	Instruction Memorandum Link	National Data Steward
Area of Critical Environmental Concern		TBD
Administrative Units	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2012/IM_2011-063_ch1.html	Kathie Libby WO-800
Cadastral Data Content	http://web.blm.gov/internal/wo-500/directives/dir-10/im2010-133.html	Bob Ader WO-300
Fire Management Planning Unit/Decision Area	http://web.blm.gov/internal/fire/Directives/IM2012/FA_IM2012026.pdf	TBD
Fire Polygons	http://web.blm.gov/internal/fire/Directives/IM2012/FA_IM2012026.pdf	Dianna Sampson NIFC
Grazing Allotments and Pastures	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-076.html	Richard Mayberry WO-200
Ground Transportation Linear Features	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2015/IM_2015-061.html	TBD WO-200
Land Health Reporting	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2012/IM_2012-124.html	Richard Mayberry WO-200
Land Use Planning Area Boundaries	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-199.html	Leonard Gore WO-210
National Landscape Conservation System	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2011/IM_2011-057.html	TBD
Riparian Proper Functioning Condition	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-197.html	TBD
Vegetation Treatment Areas	http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2011/IM_2011-115.html	TBD
Wild Horse and Burro Management Areas	http://web.blm.gov/internal/wo-500/directives/dir-13/im2013-019.html	Bea Wade

Proposed instruction memorandums: A number of IMs will be forthcoming related to data throughout the implementation effort. These would include, but are not limited to:

- Any new data standards issued.
- Mandating the use of the SDARTS and DDCT decision support systems to enter disturbances at the project scale, calculate disturbance caps, and track mitigation efforts.
- Mandating use of national Surface Management layer and the establishment of a process (by state) to update the geospatial layer on a regular (at least quarterly) basis with the requirement of replicating those updates to the national standardized dataset.

Training

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