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BLM Greater Sage-grouse Team
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Subject: **Comments on the Northwest Colorado Greater Sage-Grouse Draft Land Use Plan Amendment and Environmental Impact Statement**

Dear Erin and Team:

Thank you for the opportunity to comment on BLM and USDA Forest Service's Northwest Colorado Greater Sage-Grouse Draft Land Use Plan Amendment and Environmental Impact Statement (EIS). In keeping with our mission "to conserve the lands and waters on which all life depends," The Nature Conservancy (TNC) has a strong and dedicated interest in ensuring the maintenance and improvement of the greater sage-grouse and its habitat. Over the last decade, The Nature Conservancy has invested significant resources into sage-grouse conservation efforts in Colorado and throughout the species' range through planning, conservation easements, and coordination with agencies and other conservation organizations. Through these activities and informed by the best available science, we have gained an understanding of the opportunities to conserve sage-grouse, as well as the complexities in doing so.

Our enclosed comments on the EIS are intended to increase the likelihood of the sage-grouse's persistence over time in this region while enabling the agencies to achieve their multiple-use mandates, and respect valid and existing rights. We understand that BLM and USFS aim to "maintain and enhance populations and distribution of [greater sage-grouse] by protecting and improving sagebrush habitats and ecosystems that sustain [greater sage-grouse] populations (p.143) (BLM 2011). **While there are many positive aspects to the Preferred Alternative D, this alternative is unlikely to maintain or enhance populations of greater sage-grouse because it will allow for continued and increasing disturbance over time without sufficiently avoiding the most important habitat and corridors or fully compensating for impacts.** Key elements of Alternative D are not sufficient to protect greater sage-grouse based on the best available science.

To maintain and enhance populations, more robust application of the "mitigation hierarchy" is needed -- avoid, minimize, reclaim/restore, and offset impacts to sage-grouse, in that order. Many opportunities exist to strengthen the use of all four components in this plan, particularly related to avoidance and

compensatory mitigation – again while still allowing for multiple uses. We urge BLM follow DOI (2013) Order 3330 Improving Mitigation Policies and Practices of the Department of the Interior and incorporate the approach and guidance for offsite mitigation outlined in the Draft Regional Mitigation Manual Section 1794.

If you have any questions concerning The Nature Conservancy's comments, please contact Megan Kram (720-974-7004) or Terri Schulz (720-974-7024).

Sincerely,

\s\ Tim Sullivan

Tim Sullivan, State Director
The Nature Conservancy in Colorado

Comments from the Nature Conservancy in Colorado
Northwest Colorado Greater Sage-Grouse, Draft Land Use Plan Amendment and
Environmental Impact Statement

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About The Nature Conservancy and Sage-Grouse Conservation Efforts

The Nature Conservancy (TNC) is an international non-profit conservation organization working around the world to conserve the most important lands and water on which all life depends. We employ a science-based, collaborative approach to developing creative solutions to conservation challenges. We conduct on-the-ground conservation work in all 50 states and more than 35 countries with the support of approximately one million individual members. We have helped conserve nearly 15 million acres of land in the United States and Canada and more than 102 million acres with local partner organizations globally and in partnership with communities, industry, and state and federal governments. Using an approach called “Development by Design” (<http://www.nature.org/ourinitiatives/urgentissues/smart-development/>), we apply conservation science to balance energy development and other land uses with the habitat needs of wildlife, including but not limited to the greater sage-grouse. Finally, TNC and its partners have invested significant resources in the conservation and management of sage-grouse and plan to continue and build upon these efforts.

Details of our comments follow.

A. Adjust habitat designations

We support the definitions in Alternative D of preliminary priority habitat (PPH), preliminary general habitat (PGH), and linkage/connectivity habitat (p. xxii, Figure I-4, etc.). Such categories are highly useful for developing strong conservation strategies. In addition we request that BLM do the following:

Adjust the boundaries of PPH and PGH to cover all currently occupied habitat and/or provide a rationale for why this is not the case. PGH is defined as “areas of seasonal or year-round habitat outside of PPH” (p. xxii). Yet according to Figure 1-3, some areas of current greater sage-grouse distribution do not appear to be included in either of the designated habitat categories. Per the definition, it would seem that all currently occupied sage-grouse habitat should be included in one or the other of the categories.

B. Avoidance provisions

Strengthening the avoidance and compensatory mitigation provisions of the plan are especially important to maintaining sage-grouse populations. The historical and recent declines in this species warrant clear efforts to stop any additional losses and mitigate any unavoidable losses. Outlined below are our recommendations for changes and additions to the avoidance provisions in the EIS. (See Section E for comments regarding compensatory mitigation.)

- 1) **Conserve and restore linkages such that they are functional for sage-grouse.** We support the identification of the linkages in the plan and their conservation. At present, although the plan delineates linkages, habitat within linkages is not proposed to be managed or restored for the benefit of sage-grouse. We recommend applying the same management requirements to linkages as to PPH within and adjacent to suitable habitat, including but not limited to the use of disturbance caps, compensatory mitigation, closures, and stipulations on fluid or solid mineral leasing. Mapped linkages are clearly a mosaic of different topographies and vegetation types – even land uses. Sage-grouse are known to move through such mosaics (Colorado 2008), using suitable habitat patches or islands of habitat, to maintain a connection between two otherwise isolated populations or subpopulations. While it is clear that some of the habitat types in the mapped linkages are either unsuitable or degraded, we recommend that the suitable habitat should be treated in the same manner as the PPH, including the need for compensatory mitigation when these areas are degraded or lost (see citations in the Colorado Greater Sage-Grouse Conservation Plan (2008: pp 287-288)). Linkages play an essential role in maintaining or enhancing populations of most species. Knick et al. (2013) demonstrated that there is a high level of connectivity among populations. However, in their study area, some populations at the edges of the range or in heavily disturbed landscapes were highly isolated. Colorado’s populations, at the southeastern edge of the range, already have the potential to become isolated making linkages even more important for these populations. In that context we recommend that the linkages be provided a stronger level of conservation management and protection to assure that the region’s populations have the ability to benefit from the conservation activities that are going to take place in management zones.

- 2) **Modify disturbance caps (Appendix F).** Overall we support the use of disturbance caps to help reduce impacts to sage-grouse and offer the following recommendations to strengthen them for sage-grouse persistence.
 - a) **Apply disturbance caps to PPH as a whole and sagebrush habitat within linkages, not just to ecological sites within PPH.** Under the preferred Alternative D, the disturbance cap pertains only to PPH that supports sagebrush - “ecological sites capable of supporting 12% canopy cover of Wyoming sagebrush, or 15% canopy cover of mountain sagebrush.” Based on this definition, ecological sites do not include other vegetation cover and types that are used by sage-grouse and may play a significant role in population persistence. Habitat conversion or other impacts (e.g., tall structures) adjacent to or near sagebrush need to be considered as disturbances if they are known to have impact on sage-grouse (see Wisdom et al. 2011, Knick et al. 2013, and Connelly et al. 2000). If the final EIS only considers PPH, we recommend BLM/USFS provide justification as to why only PPH was considered in the development of disturbance caps.
 - b) **Maintain no more than a 3% disturbance cap.** Currently, the preferred Alternative D uses a disturbance cap of 5% whereas Alternatives B and C recommend no more than 3% surface disturbance. We urge BLM/USFS to adopt the 3% surface disturbance cap in the preferred alternative and to apply it to both linkages and PPH. Best available

scientific literature has identified that many populations show negative impacts at disturbance values lower than 3% and there are significant, demonstrable negative impacts to the species at 3% disturbance (Knick et al. 2013). Therefore a 5% cap is not sufficient and would limit the ability to achieve the objectives of sage-grouse conservation and increase the risk that this species will continue to decline in areas that exceed the recommended 3% cap (see Holloran 2005, Naugle et al. 2011, Baruch-Mordo et al. 2013, and the recommendations of the NTT (pp 7-9)). While there is limited if any data on the effects of disturbance in *linkage* areas, we recommend that BLM/USFS consistently apply the 3% disturbance cap in linkages and PPH until such data is available.

- c) **Provide rationale for the total disturbance cap of 30%.** We know of no science-based rationale for a 30% total disturbance cap. We recommend that BLM/USFS either provide the rationale for the 30% cap based on peer-reviewed science, or reduce it to a lower amount substantiated by the following citations. It is clear from the research of Wisdom et al. (2011) and Knick et al. (2013) that areas of persistent sage-grouse populations are dominated by sagebrush. Knick et al. (2013) found that sagebrush cover totaled 79% of the area within 5 km of occupied leks. We believe that the 30% cap would place the sage-grouse populations at risk and not achieve the goal of conserving and restoring sage-grouse.

3) Retain and strengthen stipulations applicable to fluid mineral leasing and land use authorizations (Appendix E). We recommend the following:

- a) **Revisit the 0.6-mile NSO buffer around sage-grouse leks.** According to Holloran et al. (2010), infrastructure within 0.6 miles of leks reduces annual survival of chicks. From 75% to more than 80% of nesting hens occur within a 4-mile buffer (NTT 2011). Therefore, we recommend modifying the buffer distances to those stated in Alternative B (p.163) which are supported by best available science.
- b) **Retain and ensure application of the exception criteria.** Including clear and enforceable waiver and exception criteria is one way to help ensure that stipulations are effective on the ground. We support the current language of exception criteria that reads, “Where data-based documentation is available to warrant a conclusion that a) GRSG populations in the available Colorado GRSG MZ are healthy and stable at objective levels, or increasing, and b) an exception, modification, or waiver would not adversely affect GRSG population due to habitat loss or disruptive activities, the Authorized Officer may grant an exception, modification, or waiver.” (p. E-6).
- c) **Apply stipulations to split estate.** To increase the likelihood of conserving and restoring sage-grouse across its range, we support the use of conservation measures for split estate lands where BLM owns the mineral rights. We recommend that BLM adopt the language included in Alternatives B and C into Alternative D: “(PPH) Where the federal government owns the mineral estate and the surface owner is in nonfederal ownership, apply the conservation measures applied to public land” (p. 177).

4) Retain the language for the following resources to benefit sage-grouse, and add “linkages” to these provisions:

- a) ROW – We support the designation of PPH as avoidance areas for new ROW permits and exclusion areas for large transmission lines (p. 146).
- b) Solid minerals – coal – We support the language in Alternatives B, C, and D, “Grant no new mining leases unless all surface disturbances...are placed outside of the GRSG PPH area” (p. 170). We support the addition of exploration language for Alternative D (p. 171).
- c) Fuels management – We support the inclusion of “wildfire” in the assessment of the total disturbance cap (p. 178).
- d) Oil shale – we support the stated exclusion of PPH from oil shale leasing, as well as the application of the management actions for fluid minerals to oil shale resources in PGH (p. 188).

5) Add designations and practices that provide more predictable maintenance or enhancement outcomes for the sage-grouse. The use of stipulations alone is insufficient to achieve the “maintain and enhance” objectives for sage-grouse. We recommend that *closures* as well as Candidate Conservation Agreements (CCAs) in specified areas for fluid minerals, rights-of-way, and mineral material sales be used to strengthen the protection for sage-grouse.

- a) Close to fluid mineral leasing PPH areas as recommended in Alternative B. Any closures would provide a high degree of conservation benefit for at least the duration of the plan. We also recommend that BLM close PPH to fluid mineral leasing upon expiration or termination of existing leases as recommended in Alternative B (p. 161).
- b) Increase efficiency and effectiveness of the plan by coupling the RMP amendment with the tool of CCAs: This would result in conservation of higher durability as it requires partnership with the U.S. Fish and Wildlife Service. This new approach would be an important step to assuring long term conservation outcomes for the sage-grouse.

C. Minimization provisions

BLM addresses many aspects of minimization well; some specific comments are below.

- 1) **We support the use of Timing Limitations within 4 miles of leks during lekking, nesting, and early brood rearing and recommend also including critical winter range.** Research has identified that the most severe impacts occur from development within 4 miles and in some cases at greater distances of an active lek (Holloran 2005, Naugle et al. 2011, Walker et al. 2007). We recommend also applying this Timing Limitation to critical winter range as justified based on the above literature.
- 2) **Range standards should be maintained and new tools implemented.** We support the application of grazing standards across PPH and PGH. Additional standards that are suggested in the plan will lead to greater levels of conservation for sage-grouse. We support the development of drought contingency plans across PPH and PGH (p. 152). We also support the creation of “reserve allotments” (grass banks) when allotments are voluntarily relinquished and for temporary nonrenewal permits (p. 159). These grass banks provide additional flexibility across the landscape and allow critical areas for sage-grouse to be rested and restoration to be realized more quickly.
- 3) **Clarify Lease Notice 54d** - We support Notice to Lessees-54d, “Within PPH, complete Master Development Plans instead of single well Applications for Permit to Drill...” It is unclear, however why Alternative B applies this to “all but wildcat wells” while Alternative D applies this to “all but exploratory wells.” Please define “wildcat wells” in this context and, if different than exploratory wells, provide rationale (p. 166).

D. Reclamation provisions

- 1) **Count reclamation against disturbance caps.** Currently, the plan uses compensatory mitigation as the count against disturbance caps (Appendix F). We urge BLM instead to use reclamation as the count against disturbance caps. This should help ensure that reclamation is done efficiently and effectively, recognizing that reclamation success depends largely on site-specific factors such as moisture and soils. Reclamation acres “counted” should also be prorated based upon their habitat values and not fully counted until structure and composition goals have been achieved.
- 2) **Retain and expand upon reclamation standards in the Surface Reclamation Plan (Appendix G).** We support the success criteria and requirements for Phase I, Phase II, and Final Reclamation. We support the ability to “update a reclamation plan to incorporate current reclamation practices” (G-13). This requirement is justified since it can be many years between beginning and ending development. The comparison of current vegetation with a Desired Plant

Community and the use of cover and shrub density in determining reclamation success is recommended. The following success criterion statement is unclear (page G-14): “Vegetative cover values for woodland and shrubland sites are based on the capability of those sites in an herbaceous state.” We highly recommend that sagebrush shrublands not be considered reclaimed until they have 80% similarity in cover and density of sagebrush when compared to reference sites. We also strongly recommend against the utilization of aggressive nonnative species such as crested wheatgrass and alfalfa (Seed mix 9 or 10 - G-24). If needed, sterile annual grasses could be used to stabilize soil until native species begin to recover. We support the statement and recommend that it be required within PPH and PGH to use “local accessions of sagebrush...to accelerate the redevelopment of sagebrush where canopies have been removed or adversely modified.”

3) Retain the language for the following resources to benefit sage-grouse:

- a. Fluid minerals – We support the requirement of “full reclamation bond. ... Ensure bonds are sufficient for costs relative to reclamation that would result in full restoration of the lands to the condition it was found prior to disturbance” (p. 168).
- b. Fuels Management - We also support the “use of native plant seeds for vegetation treatments” (p. 179).
- c. Habitat Restoration – As above, we support the use of native plant seeds (p. 184). We also support working “with local plant material centers and/or groups to establish seed harvest areas and local seed stocks” (p. 186).

E. Compensatory mitigation provisions

The Conservancy fully supports BLM’s inclusion of compensatory mitigation to address impacts to sage-grouse habitat that are unavoidable, as part of the application of the mitigation hierarchy. We believe that such a program is a critical part of a successful sage-grouse conservation plan. BLM’s Draft Regional Mitigation policy (MS-1794) contains approaches, direction and guidance specific to off-site compensatory mitigation that we encourage BLM Colorado to incorporate into the EIS revision.

In addition, Conservancy staff with expertise in mitigation policy and practice have developed an approach to compensatory mitigation that we have included as Attachment 1 to these comments. This document outlines the necessary elements of a compensatory mitigation program that is transparent and efficient. In addition, we would ask BLM to consider the following changes and additions to the EIS:

1) Identify and prioritize potential compensatory mitigation sites through this planning process.

BLM’s Draft Regional Mitigation policy (MS-1794) encourages the Bureau to “anticipate future mitigation needs and identify potential sites that could benefit from mitigation projects and measures” (pp. 1-3). We urge BLM to take advantage of this opportunity in this planning process to identify these sites, particularly since BLM is already authorizing compensatory mitigation in the EIS’s preferred alternative. Theoretically the mitigation sites could be the same

as the Colorado management zones shown in Figure 1-1. However, to facilitate quick mitigation action once the plan is accepted, it would be more efficient to identify smaller sites where mitigation would be applied. Effective mitigation should preferably be conducted in PPH. We support the prioritization of mitigation in PPH and the same population area where the impact is realized as recommended by the NTT (Alternative B, p. 167).

- 2) Require or offer incentives for compensatory mitigation for all impacts to All Designated Habitat.** Achieving the goal of conserving and restoring sage-grouse habitat will require implementation of the full mitigation hierarchy (McKenney and Kiesecker 2010), including compensatory mitigation for all unavoidable impacts – not only for those impacts exceeding disturbance caps (see the recommendation for counting reclamation against disturbance caps instead, Section D-2 of these comments), and not only for ecological sites within PPH as the preferred alternative is currently written (Appendix F). As we have noted within these comments, disturbances within occupied habitat (PPH and PGH) and linkages of sage-grouse are also impacts and should be recognized as such and should be considered in true compensatory mitigation. Colorado’s sage-grouse populations are not strong and growing. Therefore, decline is their likely path unless (and perhaps even if) safeguards are put into place to maintain or enhance current occupied habitat.

- 3) Make conservation easements eligible for compensatory mitigation and identify priority areas for easement acquisition.** Appendix F implies that conservation easements would not count toward compensatory mitigation (F-4). Conservation easements, which are one form of indirect mitigation, are an effective tool for protecting other habitat permanently from future impacts. The creation of a conservation easement leads to the permanent reduction or elimination of many threats to sage-grouse. Restoration and reclamation on conservation easement lands leads to permanent protection as well as habitat improvement. TNC has developed methods to calculate offset acreage for both direct *and* indirect mitigation which we would be happy to share with BLM/USFS. Please let us know if this would be useful. Alternative B and C call for the identification of areas where acquisitions and conservation easements would benefit grouse. We strongly recommend that BLM/USFS add this to the preferred alternative.

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Attachment 1. A Compensatory Mitigation Program (“Regional Mitigation Plan”)

We encourage BLM to use the information below to design a Regional Mitigation Plan for sage-grouse.

Compensatory mitigation has been used as a tool for offsetting the impacts of infrastructure development on species and habitats for over two decades (McKenney and Kiesecker 2010). In 2000, the Council on Environmental Quality designed a hierarchy to guide a sequence of decisions to avoid, minimize, rectify, reduce, or offset environmental stresses from development projects. Recent experience has shown that managed effectively, this protocol can reduce the environmental impacts of construction projects and produce significant resources for restoration and conservation of the natural environment (Wilkinson et al. 2009).

Too often, however, compensatory mitigation is designed project by project, the process is opaque and the results are ineffective for biodiversity conservation and inefficient for developers and regulatory agencies (McKenney and Kiesecker 2009). To address these limitations, we propose a programmatic approach to compensatory mitigation via a program designed to produce net benefits (or at a minimum, no net loss) for the species, through strategic investment of mitigation resources. A well designed regional compensatory mitigation program based on the best available science and, to the greatest degree possible, consistently applied across the range of the greater sage-grouse, offers a wide array of benefits. Energy developers will have an efficient, consistent and reliable mechanism for meeting compensatory mitigation objectives and permit conditions and increased certainty regarding project costs. Local communities and public land stakeholders gain greater transparency in public land use decision-making, and opportunities to engage in crafting effective conservation and development investments to best meet public benefits and community goals. Most importantly, federal and state land managers and regulators will have information and decision support tools to help assess project impacts, offset benefits and cumulative effects and reduce conflicts between protection of important ecological resources and economic development.

To be effective, a compensatory mitigation program must be transparent, efficient and should include the following elements:

- Formal coordination & management across ownerships and jurisdictions;
- A methodology to assess and quantify unavoidable impacts, i.e. determines the site and landscape scale impacts associated with proposed development or land uses from baseline habitat conditions and functions and post project or activity conditions and functions;
- A methodology to determine mitigation obligations or costs;
- Guidance on how mitigation investments will be made (based on regional conservation objectives);
- Monitoring and adaptive management - verifying and tracking the mitigation investments.

BLM recently released an Interim Policy, *Draft – Regional Mitigation Manual Section-1794*, specific to off-site, compensatory mitigation. This operational draft policy marks an important step forward in how BLM evaluates and implements off-site compensatory mitigation. While the Interim Policy will undergo further revisions and refinements before being finalized next year, much of it represents and or incorporates many of the following recommendations and comments. In addition to giving the following recommendations full consideration, we strongly encourage BLM, at a minimum, to incorporate the

approaches, direction and guidance of the Interim Policy into its RMP revisions to conserve greater sage-grouse.

1) Coordination & Management

We recommend the creation of formal compensatory mitigation program steering committees or boards, and as appropriate, designating a program administrator, to oversee and manage compensatory mitigation on public lands. These committees need to be organized state by state, and to the greatest degree possible, the approach and rules should be consistent and actions should be coordinated across state boundaries.

At a minimum the steering committees should include key federal and state land and wildlife management agencies and tribes. Local government representatives, implementation organizations such, the Natural Resource Conservation Service, Soil and Water Conservation Districts, non-profit conservation organizations, private landowners and stakeholders should also be allowed to participate as appropriate.

Recognizing that individual agencies have different directives and mandates, steering committees should work to align rules and protocols to the greatest degree possible, and streamline processes for addressing remaining differences in project review and permitting. They would define clear and accessible standards and an efficient process for rejecting projects in areas that will cause significant direct or indirect adverse ecological impacts; and define, manage and update regional priorities and offset rules and protocols (described below).

Mitigation offset requirements can be met through actions implemented directly by project proponents, or they can be met by actions implemented by third parties through in lieu fee programs. In the latter case, the project proponent either makes a payment into a fund, or purchases credits from mitigation banks established by public or private entities that meet the purposes and requirements of the offset mandates. In both instances, i.e. funds or banks, they are managed by a third party with fiduciary responsibility for managing payments or credits received. We recommend adoption of the “in-lieu” approach to compensatory mitigation as this approach provides better opportunities for strategic implementation, allows the project proponent to focus on their development, and puts protection and restoration actions in the hands of agencies and organizations with expertise in habitat protection and restoration.

Mitigation funds should be held in dedicated accounts and managed based on agreed to terms to assure that target biological conditions will be attained and maintained as necessary. We recommend that mitigation investments be held in a manner that allows for the accrual of interest; and the funds required for meeting mitigation obligations be permanently restricted to achieving the conservation results required under those mitigation obligations. Terms of management of endowments and restoration funds should meet sound financial accounting principles and best management practices.

2) A Methodology to Assess and Quantify Unavoidable Impacts

The Nature Conservancy urges BLM, the USFS and others to identify and employ, with input from stakeholders, a single and transparent methodology to assess and quantify unavoidable impacts. Selection of a single methodology will provide certainty for developers and stakeholders alike in terms of how impacts will be assessed and quantified. We emphasize that this methodology should employ the

best available scientific techniques, and offer the following recommendations to strengthen the methodology chosen:

- Be based on an assessment of baseline or pre-construction condition and function of sage grouse habitat, and as possible, sage grouse populations;
- Any methodology to assess and quantify unavoidable impacts should be able to specifically capture cumulative impacts and the temporal nature of impacts, (i.e. over the life of the impact, likely in perpetuity). The temporal nature should consider the length of operation of the proposed land use or project, how long it would take to restore the project site post operation, and/or the length of time it will take to achieve any compensatory offsets;
- Evaluation of unavoidable impacts should be informed by region-wide cumulative impact analyses done not just for sage grouse, but also for other listed and sensitive species, and for natural communities at the ecological system level. We recommend cumulative impact assessments consider the full range of threats to sage grouse and their habitats, including impacts projected to be caused by climate change; and
- Increases in sage grouse population size and viability are the appropriate measure of success for mitigation efforts; ideally, population size should be used as the currency on which impacts are measured and offset (see Doherty et al. 2010 PLoS ONE for an example for sage-grouse). However there may be instances when it may be necessary to utilize a common unit of measurement or common currency in-lieu of population size for measuring project impacts and the benefits of mitigation offsets, e.g. some measure of habitat area such as acres or habitat units. In these instances the common currency must be linked to sage grouse population viability and size.

3) A Methodology to Determine Mitigation Obligations or Costs

The Nature Conservancy recommends inclusion of a method for determining mitigation obligations or costs for individual projects. We urge the BLM, the USFS and others to provide and use transparent and standardized methods and approaches for valuing impacts to provide clarity and certainty to both developers and key stakeholders.

In order to translate impacts into mitigation obligations the methodology selected, in quantifying land use or project impacts, should include:

- Loss of baseline habitat area and function due to conversion, fragmentation and avoidance, or degradation of habitat condition;
- Land use or project attributes that reduce reproductive potential or increase mortality of key species of conservation concern;
- Indirect impacts facilitated by the development such as growth and other induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems; and
- Land use or project interactions with other threats (e.g. invasive species, alteration of natural fire regimes, climate change).

We recommend the development of a rule set that details what activities would be considered and how the specific costs would be assigned. For example, for mitigation obligations that are met with land acquisition, best practice would include the following elements:

- Average costs for land protection;
- An endowment to fund annual management costs based on an assessment using PAR (a cost estimation tool developed by the Center for Natural Lands Management);
- Administrative costs;
- Average costs of activities needed to provide the required uplift;
- Methods for addressing any time delays between project impacts and offset benefits; and
- A bond or other financial instrument for performance equal to 1 time replacement cost for restoration adjusted by a number that quantifies the risk of failure.

It is very important to note that sagebrush ecosystems are notoriously difficult to restore. Sagebrush species are long-lived. When lost it may require decades to recover full-function necessary to support healthy sage grouse populations. Mitigation obligations or costs should also account for contingencies associated with delivering compensatory mitigation, including an estimate of the risk of failure (i.e., the probability that offsite mitigation will not result in any measureable conservation outcomes) for each mitigation site or project.

4) How Mitigation Investments Will Be Made

The Nature Conservancy recommends BLM, the USFS and others establish a program to work in conjunction with other federal, state and local agencies, Tribes, and other stakeholders to establish regional objectives for prioritizing mitigation investments at a regional scale. We believe this approach is critical to ensure mitigation investments achieve significant and lasting benefits for wildlife, habitats and ecosystem processes. These objectives should be reflected in the revisions to RMPs and LUPs being undertaken by the BLM and the USFS to ensure the conservation of greater sage-grouse.

We recommend that BLM and the USFS use the landscape-scale ecological assessments previously mentioned to develop a regional conservation mitigation plan for each geographic area –based on resources (e.g., population unit, eco-region, section of eco-region, watershed) and using scientifically vetted and accepted conservation planning tools (e.g., Marxan). BLM and USFS should use existing plans where adequate and appropriate to ensure mitigation across the appropriate scale. Additionally, we recommend that mitigation investments be evaluated using landscape context and biodiversity as two key factors in determining prioritization of these investments. The Nature Conservancy strongly recommends that areas identified for mitigation investment exhibits one or more of the following attributes:

- An area where surrounding land uses are likely to preserve and enhance mitigation benefits over time. Mitigation investments should be avoided in areas significantly impacted by trespass, dominated by non-native species, that have adverse changes in water quantity or quality due to human activities, and/or areas with significant levels of human presence, anthropogenic dust, noise, or night-time light, as they are unlikely to provide much ecological benefit (e.g., they may support no target species or may even serve as a population sink for species that they do attract);
- Areas where the highest and best use of mitigation investments is restoration that will ensure the persistence of sage grouse, increase local populations or increase current occupancy into

abandoned historic habitat or degraded, yet still occupied habitat. Mitigation investments may be to address key threats degrading sage-grouse habitat suitability via removal of infrastructure or restoration of lands and waters with significant disturbance, e.g. cheat grass and or highly altered fire regimes ;

- Areas with heterogeneity in biota, climate factors, or physical gradients that will facilitate adaptation and expand the available bioclimatic “space” for species to adjust to changing conditions. Adjacency or connectivity to areas with these characteristics is suitable if they are not available at a sufficient scale on the site itself;
- Areas that provide movement corridors between ecologically-defined and effectively protected landscape units or habitat blocks. Areas that are bounded by closed barriers between adjacent and nearby units should be avoided. Linkage protection is an example of a conservation action that can yield ecological benefits far beyond the location of an individual project;
- When mitigating water impacts, areas featuring aquatic and riparian habitats supplied by perennial, protected sources of water are desirable. If compensatory mitigation occurs in areas with over-allocated and depleted groundwater basins, water acquisition to reverse the situation should be part of the required mitigation;
- Areas featuring distinct or unique assemblages of species or communities or locations that provide valuable ecosystem services (e.g., rare plant assemblages, desert washes);
- Sites featuring high-quality habitat for, and healthy populations of, both target species (especially those that are special-status) and non-target species. Existing conservation and resource management plans often identify these areas;
- Areas that contribute to ensuring mitigation investments will address impacts over the life of the impact, and that offer assured long-term protection of conservation values. This protection can consist of perpetual conservation easements, areas where uses have been withdrawn, or areas with agency conservation-centric designations and management. Investments in areas that continue to allow uses or activities that might prevent successful implementation of mitigation actions are not appropriate and should be avoided;
- Mitigation investments focused on improved land management should target or address key threats to sage grouse population or habitat viability. The USFWS (2012) and other assessments have identified key threats to greater sage-grouse and their habitat in each of the defined management zones for the species. Practices eligible for compensatory mitigation offsets should address these threats. As described above, landscape assessments and conservation plans should be used to evaluate the best places to address the key threats and ensure enduring benefits from the investments; and
- Note that The Nature Conservancy has conducted assessments that demonstrate that much of the core and intact habitat for sage grouse is under the management of the BLM and USFS. Thus, under certain conditions, these lands may be appropriate places for compensatory mitigation investments and could be a valuable approach to improving the viability of sage grouse populations and habitats.

In addition, we recommend federal land managers explicitly state that the proximity to impacts should not be the primary factor in identifying mitigation investment. Rather, priority should be given to sites that present the best options for successful mitigation and conservation co-benefits, without regard to proximity to the impact area. The offset and impact need to be ecologically similar but the assumption that “closer is better” in mitigation siting is often not defensible ecologically, especially given the associated edge effects caused by nearby infrastructure.

Two critically important concepts of compensatory mitigation are “additionality” and “durability.” Ensuring additionality of compensatory mitigation investments, means ensuring, in all cases, that mitigation investments are additive to existing and/or other required conservation management actions federal land managers are responsible for to maintain the ecological health of our public lands. Offset investments must demonstrate that they provide additional benefits beyond what is required under current regulations or mandates, business as usual practices, previous mitigation investments, and/or required under existing public agency management plans (including those that are planned or required but not yet implemented). This additionality requirement ensures credit is awarded for doing more than what would otherwise have happened. For public lands, meeting the additionality test presents significant challenges, yet in certain settings public lands may provide the best opportunities for compensatory mitigation. Where this is true, BLM and the USFS must doubly ensure that the mitigation is well-defined and transparent to demonstrate the additionality (and thus the accountability) of mitigation investments on public lands.

Ensuring durability of mitigation investments is even more critical. In order for the mitigation investment to be appropriate, the investment needs to be “durable”, i.e., be able to last over the life of the impact, in some instances in perpetuity. This presents several challenges, especially if the species and habitat on these lands continue to be threatened through uses or activities that are incompatible with conservation.

Similar to avoidance areas, areas where mitigation investments are likely to be made must ensure that incompatible uses cannot occur or are limited to minimize disturbance. BLM and the USFS have policy tools to ensure protection of these areas – they can withdraw uses, exclude areas from mineral entry or leasing, modify management regimes, e.g. transportation or forage, establish criteria for surface disturbance and occupancy, establish conservation areas, etc. We strongly recommend that BLM and the USFS identify potential mitigation areas via the planning process previously described, and include delineation of these areas in RMP and LUP revisions, and include the long-term cessation of activities that may negatively impact native species, natural communities, and/or ecosystem processes, i.e. their delineation should be coupled to decisions to ensure that mitigation investments made in these areas (or any mitigation investments) will be durable over the life of the impact. The agencies should consider full use, and specific inclusion in RMP and LUP revisions, of the tools they have available to ensure that mitigation investments are durable over time.

In its Interim Policy, *Draft – Regional Mitigation Manual Section-1794*, page 1-11, BLM describes durability as follows:

3. **Long-term Durability**. The BLM should ensure that mitigation conducted outside the area of impact will, at a minimum, be effective for as long as the land-use authorization affects the resources and values. This would include the time it takes to appropriately restore the affected onsite resources and values after the expiration of the land-use authorization. The land use plan may be the most effective tool for protecting important regional mitigation sites on BLM-managed lands from future impacts in order to ensure the durability of mitigation projects. The durability of particular mitigation measures depends in part on the location of the mitigation measures, the land status and ownership of the lands in that location (i.e., private, State, or Federal) and the particular legal regime governing those lands.

Example: A priority for habitat protection or enhancement efforts would be an area protected from future disturbance. An area with valid existing leases or permits may

benefit from mitigation, but may not provide opportunity for long-term protection. The land use plan may be the most effective tool for protecting important mitigation sites from future impacts.

Example: If onsite impacts will be long-term or permanent, such as for the development of an oil and gas field; wind farm; or the construction of a high use, permanent road; then the mitigation should also be effective for the life of that project, long-term or permanent. This would also include the time it takes to complete final reclamation and the restoration of lost resources or values.

Our recommendations support this definition and the examples provided – we strongly urge BLM to make full consideration of durability as key element of compensatory mitigation within its RMP revisions to conserve greater sage-grouse.

Mitigation banking on public lands is one potential tool for designating specific public lands to receive additional protection through investment in the management of those lands. However, this tool has not been applied before to federal lands and should be tested to determine if public lands mitigation banking can provide the durability, permanence and or additionality required.

5) Monitoring and Adaptive Management

The Nature Conservancy strongly believes that monitoring and adaptive management are key to successful regional mitigation, as well as to the successful implementation of mitigation actions that occur outside of any regional mitigation plan. We recommend BLM and the USFS clarify that all mitigation investments be measurable and relevant to the impacts they are mitigating. In other words, there needs to be some measurable effectiveness attributable to actions required for compensatory mitigation. Both the actions themselves, and the intended (hypothesized) benefits should be documented in the conceptual models for the monitoring and adaptive management plans. Each mitigation action should address a stressor in the conceptual model with an intended benefit to the viability of conservation targets. Measurable indicators of that benefit need to be identified so that the monitoring program is designed to monitor for and measure whether mitigation actions are having the intended beneficial consequences. This information, in turn, should be used in the adaptive management program.

Additionally, we recommend BLM, the USFS and others adopt accounting systems that track the effects of compensatory mitigation actions to a range of affected habitats, in area, abundance or other functional units across a number of infrastructure projects to assess cumulative effects. Monitoring and reporting should feed into a regional monitoring system that allows for the analysis of broader impacts, cumulative impacts, and the progress of restoration over time.

BLM's Assessment, Inventory, and Monitoring (AIM) strategy could fill critical, largely missing elements in current mitigation efforts, especially for infrastructure development: post-decision assessments of the effects of permit terms and mitigation requirements, including the ecological condition of plant sites and surrounding areas. Without these assessments, adaptive management actions cannot be formulated or effected.

We recommend BLM and the USFS require adequate resources to implement improved long term monitoring and adaptive management into current development permits as a condition of approval.

Long term monitoring is critically important in assessing whether mitigation investments generate their predicted benefits, and is especially important where mitigation takes the form of action on public lands rather than private land acquisition.

As mentioned above, the monitoring and adaptive management plans should explicitly link to the mitigation obligations established through regional mitigation plans or individual projects and must measure the effectiveness attributable to actions required for compensatory mitigation. Both the actions required for mitigation and the intended benefits of those actions should be explicitly stated, and indicators for monitoring should be identified.