



September 12, 2014

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Re: **Scoping comments on BLM's Planning 2.0 initiative**

Dear Mr. Stout:

Please accept and consider the following comments on behalf of The Wilderness Society (TWS) and its members and supporters regarding the Bureau of Land Management's (BLM) Planning 2.0 initiative. The mission of TWS is to protect wilderness and inspire Americans to care for our wild places. The Wilderness Society's BLM Action Center focuses on land use planning efforts and management of BLM lands nation-wide. The BLM Action Center is deeply interested and supporting of the Planning 2.0 initiative. We believe this initiative could lead to significant and constructive change in land use planning and management and can be a model for other land managers. We appreciate your consideration of these comments and welcome any questions or feedback you may have.

Contents

Introduction.....	2
I. A Landscape Approach to Planning for BLM-Managed Lands.....	3
II. Program and Resource Specific Decision Guidance.....	11
III. Making planning more efficient and adaptive.....	44
Conclusion	52
References	53
Attachment A: Examples of Night Sky Management in BLM Land Use Plans.....	54
Attachment B: Recommended Risk Assessment and Management Approach for Addressing Climate Change in BLM Planning.....	56

INTRODUCTION

The National System of Public Lands as managed by the BLM is the fabric that connects our western lands. BLM has more contiguous land and varying management regimes than any other federal land management agency. BLM is in a unique position among public land agencies to lead a coordinated management strategy for both resource conservation and use in the face of threats, such as global climate change, across the West.

Our public land management agencies are facing the greatest challenges they have ever seen. For example, considering recreation alone, a report prepared for the Public Land Law Review Commission in 1969 showed that the major recreational uses of BLM-managed lands in 1967 amounted to 17,398,600 visitor days.¹ The most recent estimates of recreational use from 2012 show recreational use of BLM-managed lands at 72,650,000 visitor days,² greater than a 400 percent increase. Not only are the public lands experiencing unprecedented levels of human use, they are also facing the exceptional challenge of land management in the face of human-caused climate change.

Dramatic shifts in the way our public lands are being utilized as well as advances in science since the 1970s call for a modification of the way public land managers plan for the future. Fortunately, the Federal Land Policy and Management Act (FLPMA) allows for BLM discretion in steering agency approaches to land use planning so long as certain mandates and laws are observed.³

BLM planning follows the primary directive of the multiple use and sustained yield mandate. As provided in FLPMA, multiple use management does not require the balance of uses on every tract of public land, but rather a combination of resource conservation and uses to “best meet the present and future needs of the American people.” The notion that BLM must allow a certain amount of public land to be allocated to conservation purposes is explicit in the definition of “multiple use,” whereby BLM is required to make:

the most judicious use of the land for *some or all* of these resources *or related services* over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of *some land for less than all of the resources*; a combination of balanced and diverse resource uses that *takes into account* ⁴
the long-term needs of future generations for renewable and non-renewable resources.

¹ Herman D. Ruth & Associates, Outdoor Recreation Use of the Public Lands (1969) at V-17. This report was prepared for the Public Land Law Review Commission.

² Bureau of Land Management, *Public Land Statistics* (ed. 2012), Table 4-2: “Estimated Recreational Use of BLM-Administered Public Lands for Recreation Activities Under Various Fee Authorizations, Fiscal Year 2012” at 191-193.

³ These mandates and laws include, but are not limited to, observing the principles of multiple use and sustained yield, using a systematic interdisciplinary approach to science, prioritizing the designation and protection of ACECs, relying on inventory of public lands, their resources, and other values, considering present and potential use and the relative scarcity of the values of public lands, weighing long-term benefits to the public against short-term benefits and complying with applicable pollution control laws. FLPMA, 43 U.S.C. § 1712(c).

⁴ FLPMA, 43 U.S.C. § 1702(c).

Managing and planning for multiple use and sustained yield necessarily means that there must be a significant portion of public lands devoted to conservation in order to sustain resources. Sustained yield does not only apply to outputs from resource extraction or industrial uses. As stated in FLPMA, BLM is to manage multiple uses “without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.”⁵ BLM is also to maintain in perpetuity “a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.”⁶ Importantly, sustaining yield not only applies to extractive uses, but also to sustaining high-level yields of natural landscapes, scenic resources, clean air and water, wildlife, night skies, soundscapes, and opportunities for solitude, quiet-use, and primitive types of recreation.

BLM should make it explicit in the Land Use Planning Handbook that BLM can only fulfill its obligation to manage public lands for multiple use and sustained yield when it dedicates a sufficient amount of land and water to conservation and restoration purposes prior to allocating lands and waters to resource extraction and use. This overarching theme should guide BLM’s actions through the Planning 2.0 process.

I. A LANDSCAPE APPROACH TO PLANNING FOR BLM-MANAGED LANDS

The current model of land use planning for BLM-managed lands is ill-equipped to deal with the management challenges of today and the future. First, the current model limits inventory and planning to arbitrary political boundaries that are a small subset of broader ecosystems with ever-shifting dynamics that will become more dynamic and uncertain in the face of climate change. Second, the current model directs BLM to look at all of the multiple uses and resource conservation from the same starting point, inadequately incorporating concepts of multiple use and sustained yield as defined and intended in FLPMA and set forth in the section above. Third, BLM has yet to account for, and incorporate an approach to public land management in the face of climate change. Fourth, planning does not incorporate needed mitigation strategies for project-level planning. Finally, baseline data and monitoring regimes are insufficient to create a dynamic, adaptive planning process.

Despite these shortcomings with the current planning model, a modified approach to planning requires neither a change to the laws or regulations currently governing planning nor a major overhaul of the current structure of the BLM. The following is our suggested landscape approach to land use planning within the current organization and legal and policy framework for lands managed by the BLM.

⁵ *Id.*

⁶ *Id.* at § 1702(h).

A. EVERY BLM FIELD OFFICE SHOULD BE ASSOCIATED WITH A BROADER ECOREGION(S)

BLM is currently undertaking an effort to complete Rapid Ecoregional Assessments (REA) for the majority of lands it manages. The REAs, combined with other landscape-scale assessments can help the agency better evaluate the environmental impacts and opportunities for conservation, restoration and development. The REAs also provide data and indicators of both how resources may be allocated within a planning area and their impact on other resources in the broader landscape. Likewise, such assessments inform how decisions in the broader landscape may be allocated or impact resources in the planning area.

Recommendation: As part of its overall “Landscape Approach” and to aid in future planning efforts, BLM should issue policy guidance assigning each field office to one or more associated ecoregions. Each field office within or partially within an ecoregion will be tasked with evaluating impacts to and from that ecoregion from decisions about uses or allocations in the planning area relative to other uses or allocations in the ecoregion.

B. BLM SHOULD ADOPT A LANDSCAPE APPROACH TO PLANNING

In order to fulfill its obligations to manage for multiple use and sustained yield as set out in FLPMA, BLM must reconfigure its planning process in order to respond to needs of contemporary management of public lands. This includes ensuring that planning areas can sustain uses of resources, and that restoration and conservation of important and imperiled public lands and resources are planned for prior to allocating the planning area for multiple uses. The following is a suggested step-by-step approach to planning that seeks to strike this balance in a more logical way.

Step 1: Assessment: Landscape-scale analysis of the carrying capacity of the area.

The first step involves a baseline analysis of the carrying capacity of the landscape that encompasses the planning area. This should include, but is not limited to areas of high conservation value, intactness, restoration potential, fish and wildlife populations, high value habitats, lack of development or roads, and dense cultural resources, in addition to areas that cannot be restored or where uses or public access is prohibited. This analysis should also contain the current distribution of resource uses in the landscape including recreation areas, oil and gas leasing, mining claims, grazing allotments, roads, renewable energy development or zones, and **transmission lines**. BLM’s rapid ecoregional assessments and other landscape-scale evaluations and data can help to inform this analysis.

This essential and foundational analysis is consistent with NEPA’s requirement that the agency “describe the environment of the areas to be affected or created by the alternatives under consideration.” 40 C.F.R. § 1502.15. The “areas to be affected” do not include just the planning area itself, but any land, air and water in the vicinity that will be foreseeably impacted by the agency’s decisions.

This analysis is also necessary in order to understand the baseline conditions of the entire landscape so that BLM can manage “without permanent impairment of the productivity of the land and the quality of the environment.” 43 U.S.C. § 1702(c). The BLM must rely on the inventory of public lands, their resources and other values as required by FLPMA, 43 U.S.C. § 1412(c)(4).

Step 2: Set priority areas for conservation and restoration based on the analysis in Step 1

This step takes the landscape analysis required in Step 1 and prioritizes certain areas for conservation and restoration purposes based on certain criteria, including, but not limited to:

- Ecological integrity (content, structure and processes of the ecosystem are intact)
- Wilderness values
- Connectivity
- Areas important for climate adaptation
- Wildlife habitat
- Restoration potential
- Cultural resources
- Scenic viewsheds

These priority areas are in addition to other designations as established by Congress or the president as well as areas of critical environmental concern as required by FLPMA and eligible and suitable wild and scenic rivers as required by the Wild and Scenic Rivers Act.

Establishing priority areas for conservation and restoration will help to ensure that resources are managed “without permanent impairment of the productivity of the land and the quality of the environment” and that BLM is fulfilling its mandate to maintain sustained yield of resources consistent with multiple use, as required by FLPMA. 43 U.S.C. § 1702.

Step 3: Divide the landscape into Restoration, Innovation and Observation Zones

Once BLM has decided what the lay of the landscape is, in terms of carrying capacity and conservation and restoration potential, it can go on to designate appropriate zones to facilitate climate change adaptation. This “portfolio approach” to adaptation is set out in broader detail in section C directly following this section.

Step 4: Evaluate the potential for distribution of the resource uses in the landscape

The fourth step is an analysis of the potential distribution of the resource uses in the landscape. These uses include, but are not limited to recreation, oil and gas development, mining, grazing, transportation, renewable energy development, and utility transmission lines. An understanding of what is already being distributed to resource uses in the landscape will provide a better understanding of how resource uses might be allocated within the planning area among the priority areas for conservation and restoration as well as the actual carrying capacity of the area.

Step 5: Allocate resource uses for the planning area appropriately

Once BLM has followed all of the steps to evaluate carrying capacity, allocate and designate priority conservation and restoration areas and potential for resource uses at the landscape, then BLM should go on to decide how the resource uses should be distributed under the multiple use and sustained yield mandate of FLPMA. This step pertains only to the planning area itself but only after considerations of conservation, restoration and resource uses are taken into account from the broader landscape-scale evaluations and allocations. This will ensure that BLM is “making the most judicious use of the land for some or all of these resources or related services,” as required by FLPMA, 43 U.S.C. § 1702(c).

Step 6: Set triggers for RMP amendments

This final step requires BLM to set certain indicators and thresholds of change that inform the point in time in which an amendment should be prepared. This will assist in achieving one of BLM’s stated goals for Planning 2.0, to “create a dynamic and durable planning process that is responsive to change, making it more efficient to keep plans current through amendments.”

The essential goal here is to transition resource management plans into adaptive management plans. A dynamic planning and management process, however, cannot rely solely on nonbinding commitments to monitor and apply adaptive management in the future. Monitoring and adaptive management must be built into the planning process with triggers and action items that lead to desired conditions (as set out in the management plan) through the steps outlined above under the multiple use and sustained yield mandate of FLPMA.

BLM should develop appropriate indicators and thresholds for change during planning by incorporating its Assessment, Inventory and Monitoring (AIM) Strategy into its planning process. The AIM Strategy is in conformance with the inventory, planning and management provisions of FLPMA and the general multiple use and sustained yield mission. See, IB 2012-080. By incorporating the AIM Strategy into land use planning, BLM should make binding commitments of monitoring and adaptive management at the planning level to make the planning process more dynamic and efficient when amendments are needed.

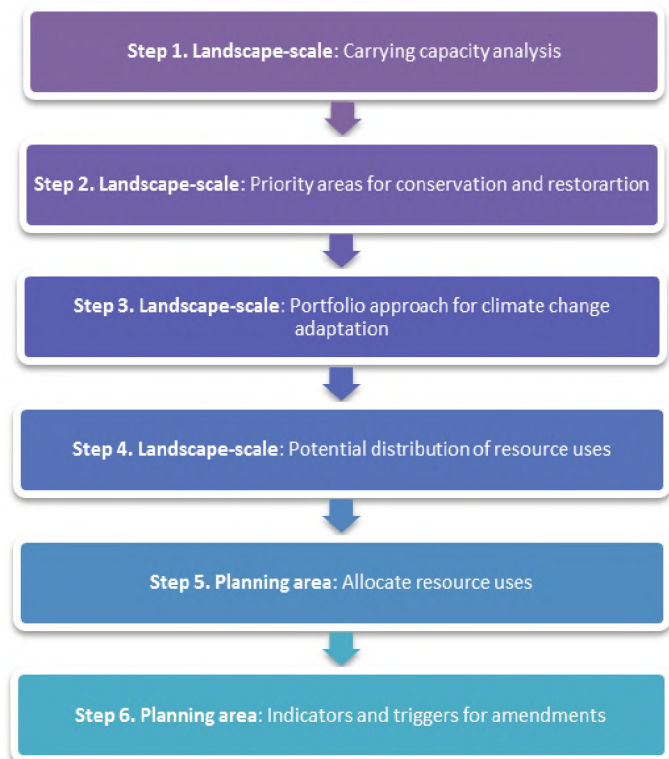


Figure 1. Steps in the Landscape Approach to Land Use Planning

C. BLM SHOULD ADOPT A PORTFOLIO APPROACH FOR CLIMATE CHANGE ADAPTATION MANAGEMENT PLANNING

The biggest question that land managers face today is how we respond to uncertainty in the face of global climate change. It is especially challenging for planners to make predictions about future ecosystem dynamics 10, 20 or 50 years down the line. Adaptation to changing conditions is and will be essential. However, general statements that BLM will plan to “be adaptive” is not planning—it is a strategy that is reactive only. A true plan for climate adaptation will require applying knowledge and foresight gained from a “learn as you go” approach.

This experimental, adaptive design is an essential component to the “portfolio approach” of management strategies in land use plans (Belote et al.).⁷ As stated by Belote et al., “[u]ncertainty about how ecosystems and species will respond to co-occurring, interactive, and synergistic impacts of the Anthropocene precludes our ability to know which strategy will best sustain wildland values in to the future.” Thus, Belote et al. concludes that land managers should use an experimental zoning approach for managing certain lands that include the following zones as management strategies:

- **Restoration Zones:** areas that are devoted to forestalling change through the process of ecological restoration;
- **Innovation Zones:** areas that are devoted to innovative management that anticipates climate change and guides ecological change to prepare for it; and
- **Observation Zones:** areas that are left to change on their own time to serve as scientific “controls” and to hedge against the unintended consequences of active management elsewhere.

These strategies should be used in conjunction with each other in order to spread the risk among the different strategies and to allow for diverse outcomes to inform rapid learning about management strategies in the future. This is the kind of deliberate yet dynamic planning process that BLM should be fostering when thinking about the future of land use planning.

The BLM is especially equipped to apply this type of portfolio approach due to its wide variety of designations and management regimes. The purpose of restoration zones is to sustain existing or historical ecosystems. This type of strategy lends itself to designations such as national monuments, national conservation areas, ACECs and other lands that are set aside for conservation of natural and cultural resources, but that may also be appropriate for restoration in certain areas.

Due to the acknowledgement that returning to historical range of variability is an increasingly challenging concept in the study of climate change, innovation zones are also necessary. This is where the forecasting of climate change may drive greater intervention to experiment with things

⁷ These concepts are set out in Belote, et al. “Wilderness and Conservation Strategy in the Anthropocene.” The Pinchot Letter (Spring 2014).

like anticipatorily boosting resiliency or facilitating transition to an altered future state where shifts seem inevitable. This strategy would be more appropriate for BLM-managed lands that have already sustained substantial change or where future impacts of climate change may severely disrupt the production of ecosystem goods and services. Conservation designations or allocations would typically not fall within this management strategy.

The third strategy of establishing observation zones is necessary to allow for ecosystems to generally change without specific intervention, as a scientific control. This management strategy would be most appropriate for Wilderness, WSAs, and lands managed for wilderness characteristics, but would also be the default strategy for lands that could not be managed for treatment under the restoration and innovation zones due to budget and operational constraints or in lands between such designations where connectivity is desirable to facilitate movement in response to climate change.

A shift to landscape-level planning and management through a portfolio approach could begin by utilizing the National Landscape Conservation System (National Conservation Lands) as a laboratory. Secretarial Order 3308 regarding the management of the National Conservation Lands explicitly calls out climate change as one of the top priorities in managing the system, mandating that

“[t]he NLCS components shall be managed as an integral part of the larger landscape, in collaboration with the neighboring land owners and surrounding communities, to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change.”

There is uncertainty regarding which management actions will yield the greatest risk reductions in risk. Thus, a portfolio of approaches must be undertaken within a framework of experimentation that facilitates rapid learning. BLM’s National Conservation Lands provide scientific laboratories and ecosystems as controls, which are managed under differing degrees of protection and uses. For example, Wilderness Areas may provide the most restrictive management for a scientific control. On the other hand, national conservation areas, still with a conservation priority, may allow for a broader range of management options for adaptation than wilderness areas. National monuments may be somewhere in the middle between depending on the proclamation or legislation. Finally, the range of available management options is most diverse for BLM lands than for any other management agency.

The National Conservation Lands are to be managed at a “landscape-level.” These lands are surrounded by a sea of state, private, and other federal lands that must be integrated with the diverse classifications of BLM lands when considering management actions. When viewed at the landscape level, and incorporating and coordinating across other public land jurisdictions, climate change adaptation can involve a coordinated effort of connected landscapes across the West. The BLM is in a unique position: there is no other agency with this type of massive landscape-level climate laboratory at its disposal to address climate change.

Recommendation: As the largest public landlord in the nation with a wide variety of management regimes, BLM is the best positioned agency to lead land managers on planning for

climate change adaptation. BLM should implement a portfolio approach to land use planning that allows for diverse strategies and adaptive, dynamic planning. This should be incorporated into BLM's landscape approach to land use planning as set forth above (see, Step 3). BLM should issue guidance that recognizes the role that BLM's National Conservation Lands could play in addressing and mitigating the impacts of climate change, providing specific direction for management.

D. BLM SHOULD INCORPORATE THE DOI MITIGATION STRATEGY INTO LAND USE PLANNING

Secretarial Order 3330 requires the development of a landscape-scale mitigation policy for the Department of Interior. Section 4(c) of Secretarial Order 3330 directs the Task Force to:

[I]dentify any new policies or practices, revisions to existing policies or practices, or regulatory or other changes that could be implemented to incorporate landscape-scale planning into mitigation-related decisions... The Task Force will also determine what steps can and should be taken to ensure that mitigation opportunities are identified as early in the permitting process as possible, such as at the scoping or pre-application stage, to maximize predictability and transparency in the review and permitting process.

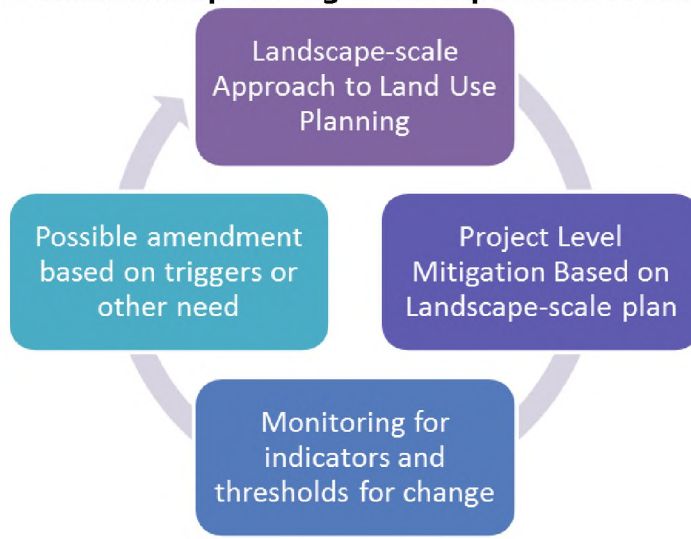
This mitigation policy should be integrated with BLM's landscape approach to land use planning as described above as any mitigation from development will be evaluated at the broader regional scale within the context of land use planning. After BLM has taken the appropriate steps in the planning process, BLM can use the plans and landscape-level evaluations to assess its options for mitigation from development. This will ultimately make the landscape planning and mitigation process more efficient by ensuring that the planning steps and environmental analysis are not duplicated through separate processes.

In a report to the Secretary of Interior, the Energy and Climate Change Task Force laid out a landscape approach to mitigation (Clement, J.P. et al. 2014). This approach contained the following steps:

1. Identifying key landscape attributes, and the conditions, trends and baselines that characterize these attributes;
2. Developing landscape-scale goals and strategies;
3. Developing an efficient and effective compensatory mitigation programs for impacts that cannot be avoided or minimized; and
4. Monitoring and evaluating progress and making adjustments, as necessary, to ensure that mitigation is effective despite changing conditions.

These steps should be folded into and should complement the landscape approach to land use planning as set forth above. Steps 1 and 2 of the mitigation approach will be mostly covered by steps 1-4 of the landscape approach to planning. Step 3 of the mitigation approach would be the heart of the project and permitting-level mitigation strategy where impacts cannot be avoided or minimized. Step 4 of the mitigation approach would fit into the last step of the landscape approach for land use planning where the agency sets indicators and thresholds for change that it is actively monitoring for. The following chart shows the relationship among the processes:

Figure 2. Relationship Among Landscape-scale Processes



BLM’s current guidance (IM No. 2013-142 and Draft Manual Section 1794) incorporates mitigation strategies into planning, based on its acknowledgment that BLM can condition approval of uses on sufficient compensatory mitigation and the detailed standards incorporated for designing appropriate mitigation. The guidance includes three main components:

1. Regional Mitigation Strategies which identify and facilitate mitigation opportunities (sites and measures) at a landscape scale and can be on BLM-managed public lands or other federal, tribal, state or private lands;
2. Regional Mitigation Planning to incorporate sites and measures and mitigation strategies into land use plans. This, including a regional baseline, mitigation objectives, land use allocations or “areas for landscape-level conservation and management actions” – the manual highlights areas of critical environmental concern and sage-grouse priority habitat as examples of these; and
3. Mitigation Implementation, as part of approving specific land uses, which may be “within (onsite) or outside of the area of impact.” The manual emphasizes that on-site mitigation is always the first choice (including a “mitigation priority order”, then discusses options to provide off-site mitigation by replacing or providing similar or substitute resources or values through “restoration, enhancement, creation, or preservation” all discussed in further detail. Preservation is an interesting addition, focusing on permanent or long-term protection by legal and physical means, so a big part of our “conservation” concept.

The BLM’s policy emphasizes that it is designed to “shift the BLM’s mitigation focus from a permit-by-permit perspective to a proactive regional-scale mitigation planning perspective” and to cut across jurisdictions and land ownership to “attain[] the highest mitigation benefit, regardless of land ownership.” These key tools from the agency’s guidance should also be emphasized as important aspects of incorporating mitigation into land use planning.

BLM is also considering new tools and approaches the agency could use to increase the effectiveness of mitigation on public lands, including layering protective management and

designations and exploring creative ways existing authorities could be used for conservation gains. Effective new mitigation tools and approaches should be integrated into planning as well.

More specifically, lands that have been identified as having wilderness characteristics should explicitly be included as those that should be mitigated for elsewhere. If impacts occur to lands identified as having wilderness characteristics, BLM should look to manage other lands identified as having wilderness characteristics for protection of those characteristics or through other special designations, such as ACECs or SRMAs, as provided for in Manual 6320.

Recommendation: BLM should integrate its strategy on landscape-scale mitigation with the landscape-scale approach to land use planning as set out in these comments above. This will create a more unified and efficient process for planning and management at the landscape level in a more dynamic manner.

II. PROGRAM AND RESOURCE SPECIFIC DECISION GUIDANCE

A. NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

1. National Conservation Lands

Since the last Land Use Planning Handbook was issued, BLM has issued several policies and manuals to address management of the National Landscape Conservation System. These include the following manuals:

MS-6100: National Landscape Conservation System Management
MS-6120: Congressionally Required Maps and Legal Boundary NLCS Designations
MS-6220: National Monuments, National Conservation Areas, and Similar Designations
MS-6250: National Scenic and Historic Trail Administration
MS-6280: Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation
MS-6330: Management of BLM Wilderness Study Areas
MS-6340: Management of Designated Wilderness Areas
MS-6400: Wild and Scenic Rivers - Policy and Program Direction for Identification, Evaluation, Planning, and Management

These new policies also include **Secretarial Order 3308 and BLM's 15-year Strategy** for the National Landscape Conservation System. BLM should incorporate all of the above into its Land Use Planning Handbook. The National Landscape Conservation System should provide an example for landscape-level and conservation planning and management of the public lands.

2. Administrative Designations

The Federal Land Policy and Management Act (FLPMA) incorporates many aspects of conservation into land use planning. The BLM is responsible for the conservation and protection of a multitude of natural and cultural resources, and for managing the public lands "... in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air

and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use” (43 U.S.C. § 1701(a)(8)) and to achieve “harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.” 43 U.S.C. § 1702(c).

Pursuant to its responsibilities for managing the public lands in accordance with the principles of multiple use and sustained yield, FLPMA directs the BLM to prepare land use plans that “provide by tracts or areas for the use of the public lands” (42 U.S.C. § 1712(a)), requires that BLM “give priority to the designation and protection of areas of critical environmental concern” (42 U.S.C. § 1712(c)(3)) and also provides for “the use of some of the lands for less than all of the resources (42 U.S.C. § 1702(c)). These obligations and authorities set forth a direction for the BLM to incorporate conservation of various resources through administrative designations.

In addition to areas of critical environmental concern (ACEC), the BLM has used its authority under Section 202 of FLPMA to use other types of administrative designations to manage areas for recreation, wildlife habitat, scientific research and experiencing historical trails, among others. These designations have evolved as the uses of our public lands have developed, an important part of the BLM’s broad authority under FLPMA. Recommendations for many of these designations, such as lands with wilderness characteristics, areas for quiet use recreation and night skies, appear in the sections by issue below. Other designations that should be highlighted in the updated Land Use Planning Handbook should include wildlife corridors and managing intact, undeveloped backcountry lands for habitat and recreation (as those two uses occur together). For all types of administrative designations, BLM’s mandates require not only designation but also specific and effective management in order to fulfill these aspects of multiple use and sustained yield.

Recommendations: The Land Use Planning Handbook should explicitly acknowledge the important role of administrative designations in conserving the various resources and uses of the public lands and also require specific management prescriptions be incorporated in all such designations to ensure they are effective.

3. ACECs

As noted above, FLPMA requires the BLM to prioritize the designation and protection of ACECs. Unfortunately, BLM’s ACEC manual has not been updated in decades, nor has any other interim guidance on ACECs been issued. Accordingly, BLM should take the opportunity in the update of the Land Use Planning Handbook to reiterate its commitment to this prioritization and require specific actions for designated ACECs.

The handbook should define “priority” to indicate an overall preference for maintaining existing ACECs and designating new ACECs to manage relevant and important values. The handbook

should also incorporate definitions of relevance and importance and emphasize that where those values can be protected through designation of an ACEC, then designation should occur.

Further, the handbook should require that each ACEC designation include specific management prescriptions that will protect the values for which the ACEC has been designated, including addressing energy development, rights-of-way, travel and transportation designations.

Naming ACECs in a manner that relates to the purpose of their designation, such as the migration corridor designated in the Pinedale RMP, would also provide for setting out guidance as to the various types of ACECs that are being designated. Other types of ACECs that should be expressly called out for consideration during the planning process include, but are not limited to, Research Natural Areas, Outstanding Natural Areas, Important Bird Areas, and Scenic Corridors.

In addition, ACECs should also be categorized by type with baseline management prescriptions by each type. As defined by FLPMA (43 U.S.C. § 1702(a)), there are at least four logical categories that BLM can lump ACECs into in order to set baseline management prescriptions to build upon:

- Important historic or cultural values.
- Scenic values.
- Fish and wildlife resources, or other natural systems or processes.
- Protection of life and safety from natural hazards.

Recommendations: BLM should strongly emphasize its commitment to prioritizing both designation and protection of ACECs and provide specific guidance to make this priority a reality that meaningfully protects relevant and important values, as described in detail above. BLM should also set baseline prescriptions by type of ACEC.

4. Wild and Scenic Rivers

The Wild and Scenic Rivers Act (WSRA) of 1968, 16 U.S.C. §§ 1271-1287, was passed in order to preserve America's free-flowing and extraordinary rivers and river segments. Rivers are defined to mean a "flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, rills, and small lakes." *Id.* at §1286(a). Wild and Scenic Rivers (WSR) may be designated and added to the National Wild and Scenic Rivers System (NWSRS) in three ways: (1) Congress may designate a WSR directly; (2) the Secretary of Interior may make a designation via application by a State Governor if the State has already protected the river under its laws; and (3) an agency may study and recommend a river for inclusion to Congress. BLM can make recommendations through the land use planning process that can influence all three of these designation options.

BLM's study and recommendation process involves three steps:

1. Identify rivers that are "eligible" for designation;
2. Classifying them as "wild," "scenic," or "recreational"; and
3. Deciding which of those are ultimately "suitable" for designation, which serves as a recommendation to Congress.

BLM Manual 6400 at 3-1.

For a river or river segment to be considered eligible for preservation under the WSRA, it must be free-flowing and possess an “outstandingly remarkable value” (ORV). Manual 6400 at 3.1. “Free flowing” does not require the river to be “naturally flowing” and the “existence low dams, diversion works, or other minor structures does not automatically render a segment ineligible for designation.” *Id.* at 3.1(B). ORV refers not only to the river itself, but also the adjacent land area. *Id.* at 3.1(D). These values include scenery, recreation, geology, fish (population or habitat), and wildlife (population or habitat); or those historical or cultural in nature; or “other values.” 16 U.S.C. § 1271; Manual 6400 at 3.1(E). If these inventory criteria are satisfied, then the BLM must apply one of three classifications to the river or river segment as specified and defined in the WSRA. Manual 6400 at 3.3. See also 16 U.S.C. § 1273(b). This classification establishes management guidelines until a suitability determination is reached. Manual 6400 at 3.3. A suitability determination is required for each eligible river or river segment and serves as a recommendation to Congress for inclusion in the NWSRS. *Id.* at 3.4.

The eligibility, classification, and suitability process mentioned above, as described in the BLM Manual 6400, is predicated on the BLM inventorying rivers and river segments on BLM-administered lands. BLM is obligated under the WSRA to identify study rivers for their potential eligibility for preservation under the Act. 16 U.S.C. § 1276(d)(1). “In all planning for the use and development of water and related land resources, consideration shall be given by Federal agencies involved to potential national wild, scenic, and recreational rivers...” *Id.* BLM guidance states that this ongoing consideration is to occur through the land use planning process. Manual 6400 at 4.1(B). BLM’s obligation to inventory study rivers is further expressed in the Federal Land Policy Management Act (FLPMA), which requires the Secretary to “prepare on a continuing basis an inventory of all public lands and their resource and other values.” 43 U.S.C. § 1711(a) (emphasis added).

Recommendations: Due to the close relationship between the land use planning process and the study requirements of the WSRA, it is critical that BLM adequately address the WSR process within its land use planning guidance in order to give full effect to the WSRA. While the BLM has a separate, detailed handbook providing guidance on WSR, see Manual 6400, the BLM should use the Planning 2.0 process to increase the reference to its WSR manual in its Land Use Planning Handbook, H-1601-1. This will insure that the BLM is fulfilling its obligations under the WSRA through the land use planning process.

Specifically, BLM should do the following:

- 1) **Affirmatively state in its land use planning handbook the BLM’s intention to actively strive to maintain a current inventory of study rivers and river segments consistent with its obligations as contained in 16 U.S.C. § 1276(d)(1) and 43 U.S.C. § 1711(a).**

Ensure that the land use planning handbook affirms that classified, eligible rivers or river segments will be managed through their corresponding resource management plans consistent with the management prescriptions and definitions contained in WSRA and BLM’s WSR guidance. Similar to the recommendation above, this can be achieved

through the inclusion of select provisions of the WSR guidance in the land use planning handbook or by increased citation in the land use planning handbook to the WSR guidance.

- 2) Incorporate specific language related to its WSR guidance into its land use planning handbook. The single, parenthetical reference in an appendix to the land use planning handbook, see H-1601-1, App.C at 27, to the WSR guidance is insufficient to give full, meaningful effect to the congressional declaration of policy contained in the WSR, 16 U.S.C. § 1271 (declaring “selected rivers...be preserved...for the benefit and enjoyment of present and future generations”). Without additional WSR guidance within the land use planning handbook itself, insufficient consideration is given to these valuable resources in the resulting resource management plans.

4. Wilderness Characteristics

In 2012 BLM released new guidance regarding inventory and management of lands with wilderness characteristics. IM 2011-154 and Manuals 6310 and 6320 direct BLM to comply with FLPMA’s requirement that the agency maintain an inventory of the public lands resources and consider how best to manage those resources by inventorying lands with wilderness characteristics on a continuing basis and consider protecting those lands in land use planning processes. The Land Use Planning Handbook should incorporate the IM and manuals to ensure that wilderness resources on the public lands are acknowledged and considered in management decisions.

a) Inventory of Potential Lands with Wilderness Characteristics

The Handbook should direct BLM to conduct and maintain inventories regarding the presence or absence of wilderness characteristics, regardless of past inventory or citizen-submitted information. Like all resources of the public lands, wilderness inventory data must be current and comprehensive to serve as the baseline from which impacts are analyzed under NEPA and management decisions are made. The Handbook should emphasize that LWC inventory is a separate process that precedes evaluation of management alternatives, and management considerations should not affect inventory findings. LWC inventory is a data-gathering process that informs management alternatives and decisions. BLM should not eliminate areas from inventory because they may be difficult to manage; rather those areas should be inventoried and the full results of those inventories—including road determinations, photographs, and maps detailing the locations of the photographs—should be released for public review and verification. If BLM finds them to possess wilderness characteristics, then BLM can decide whether or how to manage those characteristics through land use planning.

In land use planning, BLM must ensure the LWC inventory is current for the full planning area. This requires a comprehensive inventory evaluation for potentially roadless public land parcels (5,000 acres or greater or adjacent to existing protected areas such as Wilderness and Wilderness Study Areas). We recommend field offices begin this comprehensive inventory evaluation by conducting a GIS-based roadless analysis of the entire field office or planning area to determine potential lands with wilderness characteristics. For example, most BLM field offices in Colorado completed GIS roadless analyses as a starting point for their LWC inventories, and these types of

analyses have proven useful and informative for determining potential LWC units to be inventoried in the field. However, because BLM road data is often faulty or incomplete, and because BLM road data does not differentiate between routes that meet the definition of a “road” for wilderness inventory purposes as defined by Manual 6310, the resulting analyses are often flawed and/or incomplete. As a result, ground verification is necessary. Our experience is that GIS analysis alone is inadequate to ensure that the routes ultimately used to identify boundaries and make size determinations comply with BLM guidance in Manual 6310. BLM must utilize the definition of “wilderness inventory roads” established in Manual 6310 to assess roadlessness, and field inventory must confirm the existence and present condition of those roads on the ground.

For example, the White River Field Office in northwestern Colorado conducted an initial “desktop inventory” to identify potential lands with wilderness characteristics, using GIS data to determine roadless areas. The Wilderness Society verified the White River Field Office’s findings on the ground, and found many errors resulting from inaccurate or outdated GIS data. Specifically, we found two major issues arising from the preliminary inventory:

1. Several parcels were entirely missed by the desktop inventory. Possibly because the BLM’s desktop inventory was based on an out-of-date or inaccurate road layer the resulting collection of potential LWC polygons was deficient and missed several blocks of BLM lands that could qualify as LWCs. In particular, several contiguous blocks of unroaded BLM lands less than 5,000 acres in size but that were later found to be adjacent to Wilderness Study Areas were originally overlooked. BLM Manual 6310 is clear that units of less than 5,000 acres in size *can* meet the size criteria if they are found to lie adjacent to lands currently managed for their wilderness characteristics.
2. The potential LWC units that were identified were often defined by boundaries that do not meet the criteria for boundary delineation laid out in BLM Manual 6310. Manual 6310 states that the boundary delineation for a LWC unit “is generally based on the presence of wilderness inventory roads” (BLM Manual 6310.06 (C)(1)). BLM defines a wilderness inventory road as a vehicle route that has “been improved and maintained by mechanical means to ensure relatively regular and continuous use” (BLM Manual 6310.07). A “way” that is either solely “maintained” by the passage of vehicles, is used regularly but not maintained, or was originally constructed using mechanical means *but is no longer being maintained by mechanical methods* is *not* a road. *Ibid.* Without conducting field visits to these areas with the express intent of assessing whether or not the proposed boundary line meets the definition of a “wilderness inventory road” or other defining feature, it is very difficult to draw an accurate boundary for a potential LWC unit.

We would expect similar errors to occur in any GIS-based desktop inventory. Therefore, while we support the utilization of GIS analysis to obtain an initial understanding of the lay of the land, fieldwork is necessary to verify boundaries and assess the presence or absence of wilderness characteristics within potential LWC units.

Notably, after conducting our own field inventory in the White River Field Office, we submitted comments to the BLM outlining these errors in detailed specific instances, prompting the field office to conduct its own field inventory of those areas. The field office then agreed with our assessment and adjusted its inventory to match our findings.

Of primary importance in field verifying GIS-based roadless analyses is boundary delineation. BLM Manual 6310 states that the “boundary [for a wilderness characteristics inventory unit] is usually based on the presence of wilderness inventory roads” but can also be based on changes in property ownership or developed rights-of-way. Wilderness inventory roads are further defined as those roads that are “improved and maintained by mechanical means to insure relatively regular and continuous use... A route that was established or has been maintained solely by the passage of vehicles would not be considered a road for the purposes for wilderness inventory, even if it used on a relatively regular and continuous basis” (BLM Manual 6310.07). Route Analysis forms are required to document that routes used as boundaries meet the criteria for wilderness inventory roads.

Our experience in the field verifying BLM’s GIS-based LWC inventories is that oftentimes linear features appear obviously noticeable from aerial imagery, but are not discernable from the ground. Linear features used as LWC boundaries based on aerial imagery frequently do not meet the definition of wilderness inventory roads upon field inspection. Therefore, boundary delineation and verification is a critical component of field inventory.

Where substantially noticeable human impacts do occur within a potential LWC unit, BLM should make an attempt to cut them out of the unit, either through the cherry-stemming of wilderness inventory roads or by cutting out sub-sections of the potential unit entirely. This will determine if a smaller area can be identified that still meets the size criteria but that doesn’t contain substantially noticeable impacts such as wilderness inventory roads, well pads, or other features. Manual 6310 directs BLM to define the area to “exclude wilderness inventory roads and other substantially noticeable human-caused impacts,” and that “lands located between individual human impacts should not be automatically excluded” (BLM Manual 6310.06 (C)(3)).

All potential LWC units that are scrutinized should have documentation available for public review and comment, including those that are identified in the initial roadless analysis but eliminated from further review. In order for the public to fully understand BLM’s inventory process and findings, we should be able to review documentation explaining why certain units may not have been carried forward for further review and/or field inventory. Upon completion of the inventory, permanent documentation files should be posted online for public review (rather than simply shared upon request). The Handbook should direct BLM to accept information from the public regarding inventory findings and utilize that information to update the inventory, especially in areas where BLM is conducting and/or updating inventory for the first time under the new guidance.

Instruction Memorandum 2013-106 provides additional guidance to BLM Manuals 6310 and 6320 on public and cooperating agency involvement in the LWC inventory and planning process. The IM instructs that BLM field offices should make finalized and signed wilderness characteristics inventory findings available to the public as soon as practicable after their

completion and before the inventory data is used to inform decisions. If possible, this should occur prior to, and no later than, the publication of the draft NEPA analysis associated with the action. The Handbook should incorporate IM 2013-106.

Recommendations: The Handbook should direct BLM to complete and maintain a comprehensive inventory of lands with wilderness characteristics in the planning area during land use planning, complying fully with the process and definitions set forth in BLM Manual 6310. BLM should utilize GIS analysis, and current and relevant data, to identify potential lands with wilderness characteristics and follow up with field inventory to identify appropriate boundaries and make determinations as to the presence or absence of wilderness characteristics. The inventory should be a complete, objective assessment of wilderness resources on the public lands, regardless of perceived manageability or other management issues. Inventory findings, including thorough documentation files, should be available to the public prior to the inventory being used to inform management decisions, and BLM should refine and update the inventory based on any new information and/or comments provided by the public.

b) Management of Lands with Wilderness Characteristics

The Handbook should direct BLM to consider a number of alternatives to protect the wilderness values of inventoried lands with wilderness characteristics in land use planning. BLM Manual 6320 states that each alternative should include management actions and allowable uses and restrictions for lands managed to protect wilderness characteristics (BLM Manual 6320.06 (A)(2)(d)). The manual provides examples of land use plan decisions that could protect wilderness characteristics, including: recommend withdrawal from mineral entry; close to leasing or NSO with no exceptions, waivers or modifications; right-of-way exclusion; close to construction of new roads; close or limit motorized and/or mechanized use; designate as VRM I or II; among others. The Handbook should establish baseline management for LWCs that is necessary to protect wilderness characteristics. At a minimum, all LWCs that are managed to protect those characteristics should have the following management prescriptions: prohibit surface occupancy for energy development, including renewable energy; limit motorized use to designated trails; identified as semi-primitive or primitive in the recreation opportunity spectrum; and designate as VRM I or II. Additional protective management should be considered in the range of alternatives.

To minimize potential conflicts between managing lands with wilderness characteristics and managing lands for other resource objectives, we recommend the BLM provide additional detail on how a wider range of uses could be allowed in a manner that is consistent with the retention of wilderness characteristics. So long as baseline management prescriptions are adhered to, it is not necessary to ascribe the same management prescriptions to all LWCs, as long as there are basic guidelines that allow for a range of allocations and prescriptions. This approach gives BLM greater flexibility to manage wilderness resources and achieve multiple use and sustained yield. The Handbook should direct BLM to consider this approach in evaluating management alternatives for LWCs.

By way of example, the Rio Puerco Draft RMP developed three approaches for managing lands with wilderness characteristics: Protect Wilderness Characteristics, Minimize Impacts to Wilderness Characteristics, and Not Managed to Protect Wilderness Characteristics (Rio Puerco

Draft RMP, pp. 2-38—2-40). All three categories, including lands not managed to protect wilderness characteristics, have management prescriptions in place to minimize impacts to wilderness characteristics.

Recommendations: The Handbook should direct BLM to evaluate a full range of alternatives for managing inventoried lands with wilderness characteristics per Manual 6320, and should establish baseline management prescriptions that are necessary to appropriately protect wilderness characteristics. So long as BLM adheres to the baseline prescriptions, BLM should ascribe individual management to LWC units rather than managing all LWCs the same way in a planning area.

5. Visual Resources

It is BLM policy that visual resource management (VRM) classes are assigned to all public lands as part of the Record of Decision for RMPs. The objective of **this policy is to “manage public lands in a manner which will protect the quality of the scenic (visual) values of these lands.”** BLM Manual MS-8400.02. Under the authority of FLPMA, the BLM must prepare and maintain on a continuing basis an inventory of visual values for each RMP effort. 43 U.S.C. § 1701; BLM Manual MS-8400.06. Specifically, IB No. 98-135 states, **“It is the intent and policy of both the Department and the Bureau of Land Management that the visual resource values of public lands must be considered in all land-use planning efforts.”** In addition, NEPA requires that measures be taken to **“assure for all Americans . . . aesthetically pleasing surroundings.”**

Once established, VRM objectives are as binding as any other resource objectives, and no action may be taken unless the VRM objectives can be met. See IBLA 98-144, 98-168, 98-207 (1998). The Handbook must make clear that compliance with VRM classes is not discretionary. Further, the BLM has a nondiscretionary duty under the Wilderness Act and its own guidance to designate congressionally designated wilderness areas and wilderness study areas (WSAs) as VRM Class I. Wilderness Act, 16 U.S.C. §1131(a) (administer wilderness areas for the **“preservation of their wilderness character”**); BLM IM 2000-096 (applying VRM Class I to wilderness areas and wilderness study areas); BLM Manual H-8410, Section V(B)(1) (Class I objective is to **“preserve the existing character of the landscape”**). BLM guidance also currently recognizes that **“management objectives for special areas . . . frequently require special consideration for the protection of the scenic values”** and that adjacent land uses **“can affect the sensitivity of an area.”** BLM Manual H-8410-1, Section III(A)(4)-(5).

Recommendations: To ensure that scenic values are a resource that is conserved, consistent with the authorities and guidance above, the BLM should make the following revisions to its Land Use Planning Handbook to increase efficiency and certainty in regards to the management of visual resources.

- 1) Strengthen the handbook language to make clear that all BLM-administered lands must be inventoried and classified for VRM, and that implementation decisions must conform to those VRM classifications.

- 2) Include in the handbook a statement that VRM Class I applies to all wilderness areas and WSAs.
- 3) Make explicit what is implicit in BLM guidance, see Manual H-8410-1:
 - (a) Special areas designated for conservation require a comparable VRM classification. Like wilderness areas and WSAs, which are automatically designated as Class I, minimum and automatic VRM classifications should apply to other conservation designations that appropriately protect the values of the visual resources contained in those areas. For example, all ACECs should be designated, at a minimum, as VRM Class II.
 - (b) The VRM classification for lands adjacent to areas that are designated for conservation should be considered for the impact that it will have on the designated conservation area. For example, it would be inappropriate to surround a wilderness area (VRM Class I) with “management activities which require major modifications of the existing character of the landscape” (VRM Class IV), as these activities would inherently diminish the “preserv[ation of] the existing character of the landscape” that is required for VRM Class I areas. While individual field offices have recognized this incompatibility, it should be made explicit in the Bureau’s Land Use Planning Handbook. The Farmington Field Office’s proposed VRM plan amendment calls for VRM Class II designation for the foreground and middleground surrounding Chaco Culture National Historical Park and VRM Class III for the background of the park. This tiered approach to VRM classifications is necessary for the actual preservation of the existing character of the landscape within the park and should be applied to Bureau-wide to all VRM Class I areas and their surroundings.

These revisions to the Land Use Planning Handbook will increase certainty for all user groups on BLM-administered land and make land use planning decisions more efficient by setting appropriate expectations related to VRM.

6. Wildlife

One of the most important aspects of landscape-level planning is assessing and enhancing habitat connectivity. The BLM has the legal authority to implement protective management of wildlife corridors, and also the legal obligation to address threats to wildlife and wildlife habitat as stewards of the western public lands. Protecting wildlife corridors through administrative designations is consistent with the BLM’s obligations under FLPMA and NEPA.

In the Pinedale Record of Decision and RMP, the BLM specifically designated and protected an important wildlife corridor as an ACEC. The BLM designated the Trapper’s Point ACEC with the specific goal to “preserve the viability of the big game migration bottleneck, cultural and historic resources, and important livestock trailing use.” Pinedale ROD/RMP, 2008, p. 2-56, available on-line at:

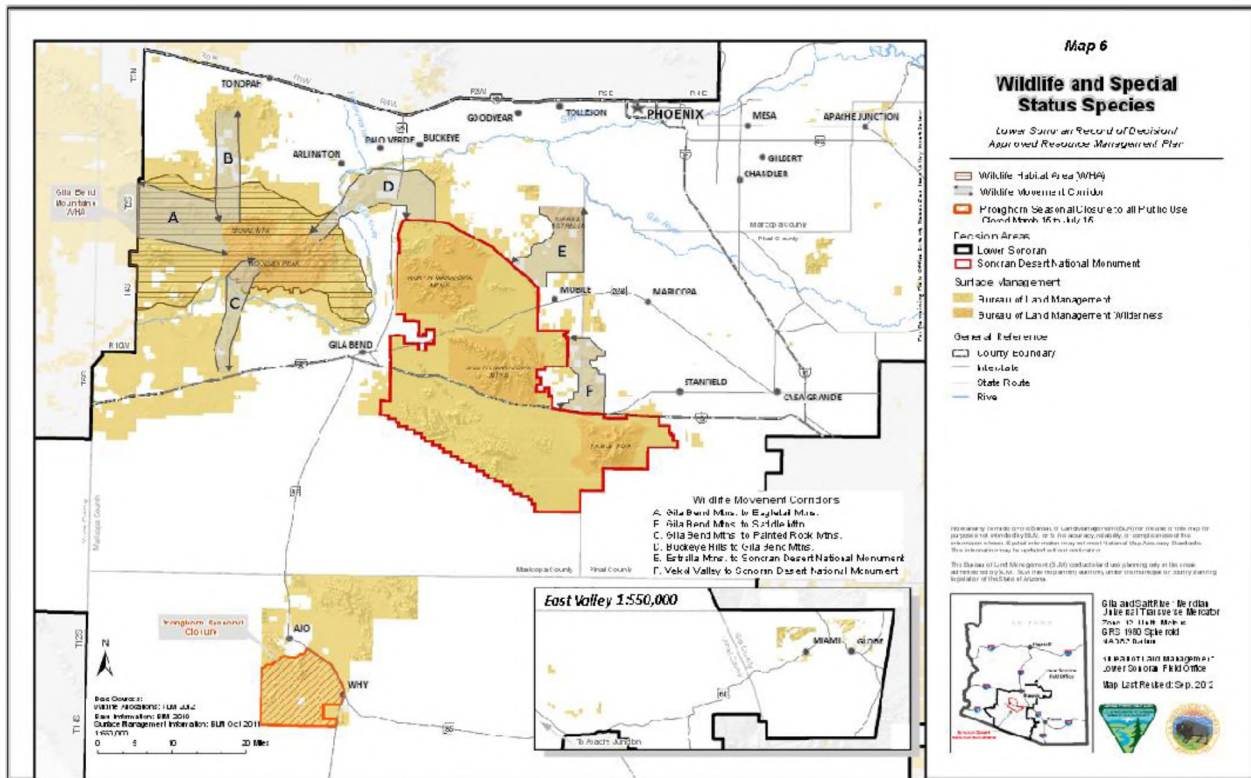
http://www.blm.gov/pgdata/etc/medialib/blm/wy/programs/planning/rmps/pinedale/rod.Par.45058.File.dat/05_Record_of_Decision_and_Approved_Pinedale_RMP.pdf.

The BLM also has the authority to create new and needed wildlife focused designations through formal national guidance or at the RMP level. This should be addressed and encouraged through the planning handbook. See our comments above in the administrative designation section that recommend the creation of wildlife corridor and intact backcountry area designations.

The Resource Management Plans for the Lower Sonoran Field Office and Sonoran Desert National Monument were completed on dual track and were both finalized in September 2012. As a way to address the challenges with managing and protecting priority wildlife, the Lower Sonoran RMP identifies “priority habitats” in the planning area. These areas contain designations for wildlife habitat areas as well as wildlife movement corridors that connect important wildlife habitat. The RMP provides the following explanation:

Priority habitats are large areas that encompass wildlife habitat areas (WHAs) and wildlife movement corridors. Connection between these habitat patches is important to provide wildlife the ability to move along elevation gradients and between habitat areas. As climate conditions change, wildlife must be able to adapt by expanding or contracting according to the needs of their lifecycles. Therefore, it is necessary to maintain corridors of undisturbed vegetation that connect to other undisturbed habitat areas (Lower Sonoran/Sonoran Desert National Monument Proposed RMP at 2-76).

The following map shows how BLM identified and manages the important wildlife movement corridors in the Lower Sonoran Field Office:



(Lower Sonoran Field Office Approved RMP, Map 6)

Identifying and managing wildlife movement corridors is in line with Secretarial Order 3308, which states that “[t]he NLCS components shall be managed as an integral part of the larger landscape, in collaboration with the neighboring land owners and surrounding communities, to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change.” In addition, the 15-Year Strategy for the National Conservation Lands includes the following guidance:

- Use large-scale assessments, such as BLM’s Rapid Ecoregional Assessments (REAs), to identify areas where NLCS units are important for resource protection and conservation within a broader landscape context; such as providing for large-scale wildlife corridors and water-dependent resources.
- Maintain or increase habitat connectivity with other important habitat areas to provide for sustainable populations of native species.
- Utilize existing large-scale assessments and maps, such as BLM’s REAs, wildlife corridor mapping effort, wilderness inventories, and other federal and state agency analyses to inform collaborative planning and land acquisition efforts.

The National Conservation Lands could provide a model for planning and managing public lands for connectivity. This model would then need to be extended to all lands in the planning landscape.

Recommendations: BLM should require each planning effort to identify wildlife movement corridors and other priority habitats at the landscape level as recommended in the “landscape approach to planning” section above. This includes mapping important wildlife movement corridors across the landscape using Rapid Ecoregional Assessments, Crucial Habitat Assessment Tool (CHAT) data, and other landscape-level tools. BLM should then provide appropriate management designations, allocations and prescriptions to protect the connectivity and facilitate movement within corridors and to sustain or improve the function of important habitats.

7. Natural Soundscapes

As part of the Planning 2.0 process, we encourage BLM to consider the evaluation and protection of natural soundscapes as part of its land use planning process. Like viewsheds and air quality, sound is one of the resources on the public lands that is affected by agency-authorized uses and can impact other resources as well, such as recreation and wildlife. BLM has a statutory obligation to manage the public lands “in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition.” 43 U.S.C. § 1701(8) (emphasis added). To fulfill this mandate, it is important for the BLM to consider natural soundscapes in order to give meaningful effect to this provision, especially on those lands which are to be managed in their “natural condition,” including Wilderness Study Areas and Lands with Wilderness Characteristics (LWC).

As a part of its multiple use and sustained yield mandate, BLM must provide opportunities for quiet recreation on the public lands. As a result, BLM must also consider activities that interfere

with the soundscape associated with quiet recreation opportunities, such as energy development and off-road vehicle use. Research shows that for many people, especially quiet recreationists, the primary reason for visiting primitive landscapes is to attain a sense of solitude and tranquility, which are interrupted by non-natural noises. A study performed by psychologists at Colorado State University (CSU) found that acoustic stressors impact visual landscape quality (Mace 1999). In other words, non-natural noise actually affects the perceived naturalness of a landscape. Therefore, in order to preserve the naturalness of an area, BLM must preserve the natural soundscape.

Furthermore, the authors of the CSU study note that “tranquility” and “solitude” are explicitly addressed in the Wilderness Act as values that must be preserved by land management agencies. **BLM guidance directs the preservation of “naturalness” in Wilderness Study Areas, Visual Resource Management I zones, and other areas managed to protect wilderness qualities.** All of these values are negatively impacted when the natural soundscape is impacted; therefore, BLM must retain the natural soundscape in wilderness-quality lands and primitive recreation areas. As supported by the U.S. Geological Survey, dissatisfaction with recreational opportunities can “diminish public support for land-management programs” (Ouren 2007).

BLM’s obligation to preserve natural soundscapes is further described in Executive Order 11644 (1972), as amended by Exec. Order 11989 (1977), which directs the BLM to locate areas and trails so as to: “Minimize conflicts between off-road vehicle use and other existing or proposed recreation uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.” BLM regulations at 43 C.F.R. § 8342.1 reiterate the directives of the executive order. In order to effectively and appropriately achieve this goal, the Colorado BLM issued “**A Recreation and Visitor Services Strategy**” (“Recreation Strategy”) to help field offices provide quality recreation experiences for all users. The Recreation Strategy recognizes that BLM’s obligation to provide recreation areas for many user types requires designation of quiet recreation zones. It defines “quiet recreation” as “outdoor recreation enthusiasts such as hikers, skiers, mountain bikers, equestrians, bird watchers, hunters and anglers *who seek the opportunity to enjoy natural soundscapes*” (p. 17) (emphasis added).

BLM has determined that it will consider noise and its potential impacts on public land during the planning and authorization process. BLM Manual 7300.06D states the following:

When BLM programs, projects, and/or use authorizations have the potential to affect existing resources that may be sensitive to noise such as public health and safety, wildlife, heritage resources, wilderness, wildland/urban interface areas, and other special value areas (such as Areas of Critical Environmental Concern and National Landscape Conservation Areas), BLM will consider noise and its potential impacts on the public and the environment, as well as any appropriate mitigation measures, during the planning and authorization review process. This is especially important when land use proposals include high volumes of motorized vehicles or mechanized equipment.

Additionally, courts have upheld the responsibility of federal land management agencies to evaluate noise impacts on the natural soundscape. *Izaak Walton v. Kimbell*, 516 F. Supp. 2d

982, 985, 995-96 (D. Minn. 2007) (EA prepared by U.S. Forest Service for plan to construct snowmobile trail adjacent to Boundary Waters Canoe Area Wilderness failed to properly analyze noise impacts from snowmobile use, as required by NEPA; EA provided no quantitative evidence of analysis of decibel levels to be projected by snowmobile use of the trail into adjoining wilderness).

By way of example, the Northwest Colorado Greater Sage-grouse Draft EIS includes soundscapes as a separate resource in its affected environment and environmental consequences analyses. The Draft EIS modeled ambient background noises at specific points to determine the expected levels of sound dissipation during winter and summer months as tied to vegetation and topography. The Draft EIS assessed factors influencing the habitat soundscape, including aviation, recreation and off-road vehicle use, transportation routes, energy development, and urban areas (Draft EIS, pp. 397-401). The Draft EIS finds that any change in ambient noise levels would be an adverse impact on soundscapes and further commits the agencies to further analyze impacts on soundscapes at the project-implementation level (Draft EIS, pp. 831-833). Likewise, the Vermilion Cliffs National Monument Approved Resource Management Plan⁸ identifies soundscapes as a separate and specific resource addressed in the plan (Approved RMP, p. 2-50). The plan includes a desired future condition that “Natural quiet and natural sounds will be preserved or restored, where practicable.” *Ibid.*

We recommend BLM manage sound resources on the public lands similar to visual resources, with a classification gradient ranging from most protective of natural soundscapes to allowing significant impacts to the soundscape. This would provide for areas where maintaining the natural soundscape is prioritized to benefit recreation, wildlife, wilderness and other natural values on the public lands. It would also assist the agency with managing activities that impact sound resources by clearly defining where and how those impacts may occur. The classification system should primarily be based on desired and achieved experiences of public lands visitors.

The following classes provide an example of possible BLM guidance for inventorying and managing sound resources in landscape-level planning:

- *Class I Objective:* The objective of this class is to preserve the natural soundscape. This class would be appropriate for lands managed to preserve wilderness characteristics, promote primitive recreation experiences, and protect wildlife habitat and ecological systems. The level of change to the characteristic soundscape should be very low and must not attract attention.
- *Class II Objective:* The objective of this class is to retain the natural soundscape such that noticeable impacts are infrequent and isolated instances. The level of change to the natural soundscape should be low. Management activities may be *heard on occasion*, such as a passing motorized vehicle, but should not detract from the experience of the natural landscape.

⁸ Available at http://www.blm.gov/pgdata/etc/medialib/blm/az/pdfs/nepa/library/resource_management/vermilion_ROD.Par.16341.File.dat/Ch_2.pdf

- *Class III Objective:* The objective of this class is to partially retain the natural soundscape where practicable. Management activities may attract attention but should not dominate the auditory experience of the casual observer. This class would be appropriate for front country recreation areas or other areas where natural soundscapes are not critical to the experience being sought out by visitors.
- *Class IV Objective:* The objective of this class is to provide for management activities which require significant impacts to the natural soundscape, including highly impactful events or impacts sustained over the long term. These management activities may dominate the sound of the landscape and may be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating basic elements.

These potential management objectives for sound resource classes are similar to the BLM Manual for Visual Resource Classes (BLM Manual 8400). Likewise, planning areas could be delineated into sound quality rating units for management purposes. Considerations on rating sound resources, such as landform, vegetation, and scarcity, are among the factors that could logically be incorporated into baseline data and management objectives for auditory resources. Acoustic modeling would be an important component of assessing sound quality rating units.

By going beyond a simple dichotomy of quiet-zones and zones with noise, the BLM can position itself in a way that adequately addresses the adverse effects of noise on public land resources, resource-uses, and existing land designations. Soundscape classes give BLM both the authority and the flexibility to make management decisions that enhance landscape-level planning. While there may be a strong overlap with VRM classes and other designations, soundscape classes provide a viable means to accept or deny certain activities or project proposals. Thus, it would also give BLM more flexibility in creating management prescriptions specific to planning unit and area objectives. Recognizing that lands have different soundscapes, and visitor expectations and experiences vary within a planning area, soundscape classes provide a way to determine appropriate levels of management.

Recommendations: Due to the importance of natural soundscapes to BLM’s statutory obligations, visitor experience on BLM-administered lands, and wildlife and scenic resources, BLM should use the Planning 2.0 initiative to include explicit reference to soundscapes in its Land Use Planning Handbook, H-1601-1. Specifically, BLM should:

- Add resource-specific decision guidance for natural soundscapes in the Land Use Planning Handbook.
- **Similar to Colorado BLM’s Recreation Strategy develop Bureau-wide guidance for minimizing conflict between user groups by establishing quiet use areas and mitigating potential noise impacts on these areas.**
- **Consistent with BLM’s mandate to “use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences” in the development and revision of its land use plans,** 43 U.S.C. § 1712(c)(2), BLM should utilize the SPreAD-GIS model⁹ or other scientifically-based acoustic model to analyze

⁹ SPreAD stands for the System for the Prediction of Acoustic Detectability. The SPreAD-GIS model was developed by The Wilderness Society based on SPreAD, which is a workbook issued by the U.S. Forest Service and

and preserve natural soundscapes, especially in special management areas managed for quiet use recreation. Use of the SPreAD-GIS model will help determine what sounds will impact visitors in each segment of the planning area and what steps can be taken to mitigate those impacts.

- In order to minimize the high level of ambiguity associated with soundscape management and noise impacts in land use planning, BLM should establish a classification system for inventorying and managing natural soundscapes that resemble VRM Classes.

8. Night Sky Resources

The BLM should be actively managing BLM-administered lands for the value of the dark night sky resources they contain. Night skies unimpaired by light pollution are important for the role they play in visitor perception and experience and in various ecological processes. In fact, BLM has been given an explicit, obligatory mandate to manage the lands under its jurisdiction for their scenic and atmospheric values, which includes night skies. See, FLPMA, 43 U.S.C. § 1701(a)(8) (stating that "...the public lands be managed in a manner that will protect the quality of the...scenic...[and] air and atmospheric...values..."); National Environmental Policy Act, 43 U.S.C. § 4331(b)(2) (requiring measures to be taken to "...assure for all Americans...esthetically pleasing surroundings..."); National Historic Preservation Act, 36 C.F.R. § 800.1(a) (requiring federal agencies to consider measures to avoid impacts on historic properties, including their "settings"). A dark night sky is undoubtedly a scenic and atmospheric value within that term's meaning as defined in FLPMA.

Other federal land-use management agencies, such as the National Park Service, have already recognized the importance of this fading resource (See *Managing Lightscaapes*, NATIONAL PARK SERVICE (last updated April 20, 2012), (<http://www.nature.nps.gov/night/management.cfm>)). While the NPS operates under a different set of legal obligations than the BLM, NPS's Organic Act mandate to "conserve the *scenery* and natural and historic objects and the wild life therein to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations," Organic Act of 1916 § 1 (emphasis added), clearly has parallels to BLM's multiple use mandate in FLPMA to "take into account the long-term needs of future generations...including *natural scenic...resources*," 43 U.S.C. § 1702(c) (emphasis added).

Since 1984, BLM has interpreted its mandate as a "stewardship responsibility" to "protect visual values on public lands" by managing all BLM-administered lands "in a manner which will protect the quality of scenic (visual) values." Visual Resource Management Handbook, H-8400-1(.02), (.06)(A). Night sky management is an inherent component of this responsibility. VRM is not restricted to land-based resources. To this end, BLM should develop a Bureau-wide program with minimum management prescriptions to be included in future resource management plans

U.S. Environmental Protection Agency for land managers to "evaluate potential ... acoustic impacts when planning the multiple uses of an area." The Wilderness Society adapted the SPreAD model to a GIS environment so that potential noise impacts could be integrated with other variables being considered in the planning process. We can provide more information in this model at your request. The SPreAD-GIS model can be implemented in BLM's existing ArcGIS software at no additional cost. It is important to note that the original SPreAD operates under the premise that in primitive recreation areas, no noise should be audible above the natural soundscape.

that give due consideration to the value of a dark night sky, consistent with BLM’s multiple use mandate, as defined at 43 U.S.C. § 1702(c). Admirably, individual field offices have already begun to undertake this obligation in the visual resource management portions of their RMPs. (See Attachment A for examples.) In order to give meaningful effect to its obligations and ensure consistency across field offices for the management of this resource, BLM should explicitly include night sky management in the VRM portions of its Land Use Planning Handbook, H-1601-1, and in the Visual Resource Management Handbook, Manual 8400.

Recommendations:

- 1) Explicitly include consideration of night skies in the VRM portion of the Land Use Planning Handbook.
- 2) Develop Bureau-wide minimum management prescriptions for night skies to be included in future resource management plans.

B. RESOURCE USES

1. Comprehensive Trails and Travel Management

Since the last update of the Land Use Planning Handbook, BLM has issued additional guidance on trail and travel management. Furthermore, various court decisions have emphasized the need to explicitly comply with the minimization criteria and to incorporate compliance with the National Historic Preservation Act (NHPA).

a) Minimization criteria

BLM’s regulations relating to management of off-highway vehicles (OHVs) acknowledge the need to address the manner in which motorized recreation can prohibit other experiences, requiring that both areas and routes for off-road vehicles be located to “minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.” 43 C.F.R. § 8342.1.

The BLM’s OHV regulations also provide for protection of other values that are critical parts of not only a healthy ecosystem on BLM lands, but also of enjoying quiet recreation activities, such as hunting, photography and bird-watching, requiring that management minimize “damage to soil, watershed, vegetation, air, or other resources of the public lands” and harassment of wildlife or disruption of habitat, and to prevent impairment of wilderness suitability or adverse affects on natural areas. 43 C.F.R. § 8342.1.

In designating areas as “open” to OHV use (such that cross-county travel is permitted) in compliance with these legal requirements, BLM’s Manual on Travel and Transportation Management provides the following:

Open areas will be limited to a size that can be effectively managed and geographically identifiable to offer a quality OHV opportunity for participants. Expansive open areas allowing cross-country travel, without a corresponding and identified user need or

demand will not be designated in RMP revisions or new travel management plans. Manual 1626.06(A)(2)(a)(3).

The Land Use Planning Handbook should incorporate this language, as well.

BLM's Travel Management Manual 1626 states that BLM must pay particular attention to thoroughly documenting how the minimization criteria was considered in making both ORV designations (Manual 1626.06(A)(2)(a)) and route designations (Manual 1626.06(B)). Further, recent case law has confirmed that the agency should not only explicitly comply with the minimization criteria but also document its compliance. *See, e.g., Wildlands CPR, Inc. v. United States Forest Serv.*, (D. Mont. 2012); *Idaho Conservation League v. Guzman*, 766 F. Supp. 2d 1056, 1068 (D. Idaho 2011); *Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 746 F. Supp. 2d 1055, 1080 (N.D. Cal. 2009); *Southern Utah Wilderness Alliance v. Burke*, 2013 U.S. Dist. LEXIS 157941 (D. Utah 2013). BLM should also be explicit in the Handbook that the FLPMA Title V right-of-way authority should not be used for the creation of new travel routes for off-highway vehicle use as a way to circumvent requirements of the minimization criteria

Recommendations: The Handbook should set out the minimization criteria and require that all designation minimize conflicts among users and damage to natural resources. New open areas should not be designated and current open areas should be reevaluated to ensure that they are located and bounded to meet the minimization criteria and limited to a reasonable size for purposes of BLM management and enforcement. Compliance with the minimization criteria must be clear and documented such that off-highway vehicles are only permitted where their damage and conflicts are minimized.

b) Compliance with National Historic Preservation Act

Recent court decisions have confirmed that inventories for cultural resources and consideration of the resulting opportunities to protect them must be part of route designations. In *Montana Wilderness Association v. Connell*, the court held that the BLM violated the NHPA's "reasonable and good faith" inventory requirement when it adopted the Upper Missouri River Breaks National Monument RMP. Appeal No. 11-35818, 2013 WL 3927754, Slip Op. at 35-45 (citing 36 C.F.R. § 800.4(b)(1)). The court held that BLM's Class I literature review for the RMP did not amount to a "reasonable effort to identify historical and cultural resources" because "[c]onsistent with BLM's own policy documents, BLM is required to conduct Class III inventories for roads, ways and airstrips that have not been surveyed previously or were surveyed decades ago." Slip Op. at 43. The court remanded to the district court to enter an order requiring BLM to conduct Class III surveys. Slip Op. at 45.

BLM should prioritize the most sensitive, important, and at-risk areas for cultural resources and commit to performing surveys before making final resource allocations in the RMP. This should include prioritizing all proposed motorized route designations for surveys since these will have the greatest impact on cultural resources of all routes.

The RMP for the Ironwood Forest National Monument provides one example of BLM completing cultural surveys along routes during an RMP/EIS process. The Record of Decision for the Ironwood Forest National Monument RMP was signed in February, 2013. The Ironwood

Proposed RMP stated that “cultural surveys were conducted in 2007 and 2008 for motorized routes in the monument, as well as some non-motorized routes. Surveys will eventually be completed for all the travel routes in the monument (roads, primitive roads, and trails) and are a priority for available funds. New information from the 2007 and 2008 surveys was considered in the route designations in the Draft RMP, and that resulted in several adjustments to those designations based on the need to protect cultural resources” (Ironwood PRMP at J-151).

A similar approach to what we are recommending was taken in the Grand Canyon-Parashant National Monument RMP for routes that had a high probability of impacting cultural resources:

Ten high-potential route areas on the Monument are recommended for Class III (intensive) cultural resource inventory before route designation occurs in order to determine and mitigate potential route impacts in compliance with IM 2007-030. These routes are not designated with the Approved Plan but would be designated within five years from the signing of the ROD and once Class III inventory and Section 106 compliance is complete, at which time a separate decision will be issued. (GCPNM ROD at 10).

Recommendations: In addressing route designation, the Land Use Planning Handbook should require Class III inventory and consideration of ways to avoid, minimize or otherwise mitigate impacts to cultural resources.

c) Mapping of routes

As part of comprehensive travel management planning, BLM produces route maps to illustrate a base travel network, to generate various route designation proposals, and for purposes of receiving public comments. In these contexts, it is vital that the agency clearly mark on all maps or proposed maps areas with existing restrictions on motorized use, such as: wilderness areas, WSAs, primitive non-motorized designations, Wild and Scenic Rivers, and ACECs. Depicting existing restrictions will ensure that public comments are informed by the knowledge that additional routes will not be permitted in certain areas. Further, maps should indicate resources that could be affected by motorized use, such as wilderness characteristics and wildlife habitat. Public comments will then be informed by the potential resource conflicts and the best opportunities for designating areas for non-motorized recreation.

Route maps should also distinguish user-created routes from roads that were created and are maintained by the BLM to serve planned transportation needs. Also, user-created routes in areas that have motorized restrictions should only be shown as closed and/or for prioritizing restoration. To be added to the transportation system, user-created routes must go through NEPA analysis to ensure they are not damaging resources and comply with BLM regulations, such as the minimization criteria for ORV use discussed in these comments.

In addition, as part of designating routes, BLM should use consistent definitions of roads, primitive roads, and trails. IM 2006-173 (“Implementation of Roads and Trails Terminology Report”), sets out and defines these terms, and includes a definition of a road as:

A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

It is important that BLM use these terms to distinguish both the types of routes and the appropriate types of motorized use.

Recommendations: BLM should identify both existing restrictions on motorized access and other areas that can be damaged by motorized use on all maps used in travel planning. User-created routes should be distinguished from legitimate roads on travel planning maps, and, where they were created illegally, should be excluded from the baseline inventory.

d) Minimum route network for national monuments and national conservation areas
Units of the National Landscape Conservation System (National Conservation Lands) are managed pursuant to a different standard and, consequently, require a different approach to travel planning. The mission of the National Conservation Lands is to “conserve, protect, and restore these nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations.” Omnibus Public Land Management Act of 2009 Pub. L. 111-11, § 2002. To fulfill this mission, the National Landscape Conservation System 15-Year Strategy has a goal, Goal 1F, for managing facilities within Conservation System units that conserves, protects, and restores the values for which those lands were designated. Action item 2 under Goal 1F of the Strategy states that “[t]he BLM will only develop facilities, including roads, on NLCS lands where they are required for public health and safety, are necessary for the exercise of valid existing rights, minimize impacts to fragile resources, or further the purposes for which an area was designated.” See also, BLM Manual 6220 at 1.6(F)(3) (emphasis added). In addition, BLM Manual 6100 for the management for the National Landscape Conservation System states the following: “Roads, primitive roads, and trails within NLCS units will be located to minimize impacts to sensitive resources, enhance visitor recreation experiences, and conserve, protect, and restore the values for which NLCS units were designated.” BLM Manual 6100 at 1.6(M)(2). Thus, there is clear recognition in BLM policy that roads should be limited to the minimum network necessary for the management of the monument.

BLM is required under NEPA to consider a reasonable range of alternatives in developing environmental analyses for RMPs and TMPs. This mandate obligates the agency to “[r]igorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14(a). Since minimizing facilities and roads within units of the National Conservation Lands is a stated priority, travel plans for these lands should also consider a range of alternatives that would all take action to minimize the route network to those routes that are necessary for access while protecting the monument objects and resources.

The Handbook should direct consideration and designation of a system-wide “minimum route network” for national monuments and national conservation areas. A “minimum route network” is defined as *the smallest system of routes designed to provide for the enjoyment of the*

designated area without compromising the conservation, protection and enhancement of the resources that the area was established to protect.¹⁰

While a system of routes should be created to allow for visitors to access and enjoy areas of the monument, there is a large body of scientific research showing that roads generally have negative impacts on the integrity of ecosystems.¹¹ In a review of the science on the effects of roads on ecosystems, Trombulak and Frissell state that “[a]mong the most widespread forms of modification of the natural landscape during the past century has been the construction and maintenance of roads.” The federal public lands have experienced these impacts firsthand for over a century, with the scale of the problem exponentially increasing in modern times.¹² Thus, there is a special need for the designation of the minimum system of routes necessary for access but still allowing for the protection of resources in lands designated for conservation, such as national monuments.

The first step in identifying a minimum route network should be to perform a spatial analysis for the inventoried route network that evaluates route densities of the area and the impacts of alternatives on the conservation values for which the designated area was established. An excellent example of this effort can be seen in *Protecting Northern Arizona’s National Monuments: The Challenge of Transportation Management*. (available at: <http://wilderness.org/files/Protecting-Northern-AZ-Nati-Monuments.pdf>). This report documents route densities for five key species in the Grand Canyon-Parashant and Vermilion Cliffs National Monuments and makes recommendations for lessening the impact of routes in these monuments without compromising access opportunities.

The second step would be to apply criteria for designating a minimum route network to the planning area. This criteria appears in Goal 1F(2) of the 15-Year Strategy for BLM Conservation Lands and section 1.6(F)(3) of BLM Manual 6220, which state that BLM would only designate roads where:

- a) they are required for public health and safety,
- b) are necessary for the exercise of valid existing rights,
- c) minimize impacts to fragile resources, or
- d) further the purposes for which an area was designated.

After showing the routes that meet this criteria, BLM should then look for roads, primitive roads and trails that enhance visitor recreation experiences to the monument, including access to both motorized and non-motorized, quiet use experiences in conformance with BLM Manual 6100.¹³

¹⁰A similar approach was incorporated as Alternative B proposed in the Proposed RMP/Final EIS for the Ironwood Forest National Monument, which presented the “minimum routes necessary for the management of the IFNM, including administrative access needs.” Ironwood PRMP at J-168.

¹¹ See, Stephen C. Trombulak & Christopher A. Frissell, *Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities*, CONSERVATION BIOLOGY, Vol. 14, No. 1 (2000).

¹² See, DAVID G. HAVLICK, *NO DISTANT PLACE: ROADS AND MOTORIZED RECREATION ON AMERICA’S PUBLIC LANDS* (Island Press 2001).

¹³ BLM Manual 6100 at 1.6(M)(2) states the following: “Roads, primitive roads, and trails within NLCS units will be located to minimize impacts to sensitive resources, enhance visitor recreation experiences, and conserve, protect, and restore the values for which NLCS units were designated.”

Finally, BLM would use the results of its analysis to create a range of alternatives that could all designate a minimum route network.

Recommendations: BLM policy direction for units of the National Conservation Lands requires designation of roads only when required for public health and safety, are necessary for the exercise of valid existing rights, minimize impacts to fragile resources, or further the purposes for which an area was designated. This is, in short, the “minimum road network” necessary for protection of the values for which the unit was designated. The Handbook should direct BLM to both analyze a minimum road network alternative and choose it as the best option consistent with BLM policy and for the protection of the values of monument or national conservation areas.

e) Prioritizing areas for route designation in RMPs

Current guidance directs BLM to designate areas in RMPs and to strive to complete route designation as part of the plan; if this is not feasible, then BLM is directed to identify a preliminary route network, set out a process for future route designation and complete route designation within five years. Most RMPs defer travel planning, and we have come to support that approach where complex travel networks exist on the ground and comprehensive route designation for an entire field office is not feasible during land use planning. However, currently most RMPs do not follow the guidance for deferred travel planning, including completing a full route inventory to identify the existing network and incorporating a preliminary route network. Further, route designations are rarely completed within the five-year timeframe. In fact, the Draft HiLine RMP sets out a goal to complete certain areas within 5 years, others within 15-20 years and others without any timeframe at all. Instead of the “all or nothing” approach that is currently occurring, we recommend the BLM set out priorities for completing travel planning.

We propose that the Handbook propose a modified approach wherein:

- Areas or travel management zones are designated in the RMP along with general direction for travel management, including recreation opportunity spectrum classifications and road density goals.
- Travel management zones should form the basis for future travel management plans and should be of an appropriate size to allow for impact analysis and comprehensive route designation across a landscape while ensuring the travel planning process is manageable for the agency and the public. Most zones should include various recreation uses.
- BLM should complete baseline inventory of the existing network of routes as part of the RMP, including a map.
- A preliminary route network is identified and mapped as part of the RMP.
- Route designation should be incorporated into the RMP for key areas, including: ACECs, lands with wilderness characteristics, recreation management areas, other designated areas and existing or potential conflict areas.
- Even in the absence of comprehensive travel planning, the RMP should consider closing routes that are causing resource damage or user conflict, and designating routes as administrative use only that serve specific permitted uses.

- The remainder of the planning area should be prioritized and dates set for completion so that the designations can be completed within five years.¹⁴

Recommendations: In order to better address the realities of comprehensive travel planning, the BLM should incorporate the modified approach set out above into its Land Use Planning Handbook.

r) Non-motorized trail systems

As BLM has acknowledged in its current guidance, travel and recreation planning are closely related. Route and area designations are key tools for providing specific recreation experiences. The agency's 2011 Travel and Transportation Management (TTM) Manual generally recognizes that:

Whereas a comprehensive interdisciplinary approach to travel and transportation management incorporates the concerns and needs of multiple programs, the recreation program has a specific need to recognize and manage motorized recreational use of off-highway vehicles (OHVs) and non-motorized travel, such as foot, equestrian, and non-motorized mechanical travel. The planning process should consider and address the full range of various modes of travel on public lands, not only motorized access needs. An understanding of the regional supply and demand of recreational opportunities and access needs is important in designating a system of roads, primitive roads, trails, and areas for specific recreation and other uses. BLM Manual 1626, § .06(A)(1) (emphasis added).

While BLM is designating routes tied to motorized use, pursuant to the minimization criteria, the agency can and should also designate non-motorized trail systems.

¹⁴ Priorities for sub-regions to receive comprehensive travel management planning, which can also be useful for guiding implementation, were identified in the Proposed RMP issued by the Little Snake Field Office (available online at: <http://www.co.blm.gov/ltra/rmp/index.htm>) and we would encourage the Rock Springs Field Office to prioritize areas in this manner as well. Please see Appendix F from the Little Snake Proposed RMP (attached), which sets out criteria for prioritizing areas to receive comprehensive travel management planning, including:

- Special management areas
- **Areas identified as “limited to designated roads and trails”**
- Areas that meet fragile soil criteria
- User and resource conflicts
- Excessive complaints
- Wildlife/wild horse population trends
- Evidence of trail/road proliferation
- Areas with high road densities
- Impacts on cultural resources
- Unacceptable erosion
- Degradation of water quality
- Impacts on visual resources
- Loss of trail integrity
- Habitat fragmentation and damage
- Impacts on sensitive plants
- Need to provide a variety of user experiences

Recommendations: For areas that are intended to provide a semi-primitive or primitive recreation experience, the RMP should provide direction for completion of a non-motorized trail system and may also incorporate specific designations.

g) Temporary closures

i. *Incorporating temporary closures in RMPs and TMPs*

Since the Land Use Planning Handbook and Travel and Transportation Manual were issued, BLM has issued guidance on temporary closures. Specifically, IM 2013-035 provides guidance on incorporating temporary closures in the planning process. The IM states that all RMPs and TMPs shall include the following statement in accordance with 43 C.F.R. § 8341.2 with regard to OHV use:

“Where off-road vehicles are causing or will cause considerable adverse effects upon soil, vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the affected areas shall be immediately closed to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence.” IM 2013-035, Attachment 1

The IM goes on to state that the RMP and TMP should also describe the resources, uses, situations, and locations likely to be adversely affected by OHV use. Moreover, the IM provides that if BLM analyzes potential for temporary closures properly, then there will be no further need for additional NEPA analysis and the temporary closure can be issued with a DNA.

Recommendation: The above guidance from IM 2013-035 on incorporating analysis of potential for temporary closures in RMPs and TMPs should be incorporated into the Handbook.

ii. *BLM should provide clarifying guidance on the duration and scope of temporary closures consistent with its regulations*

IM 2010-035 also states, “Temporary closures or restrictions must generally be limited to 24 months or less in duration.” The IM also states that “[c]losures and restrictions that are longer than 24 months in duration generally must be accomplished through the land use planning/land use plan amendment process, which includes a NEPA analysis” and that “[p]ermanent closures must always be accomplished through the land use planning process.” We are unaware of any such policy and the IM does not provide any citation for these policies. Moreover, under 43 C.F.R. § 8341.2, once a temporary closure is implemented, “these lands shall not be opened to the type(s) of off-road vehicle to which it was closed unless the authorized officer determines that the adverse effects have been eliminated and measures implemented to prevent recurrence.” 43 C.F.R. § 8341.2(a).

The interim closure issued for the Sonoran Desert National Monument states that it will “remain in effect until off-highway vehicle (OHV) damage to the natural and cultural resources of SDNM

has been restored to the extent possible and when adequate measures have been implemented to prevent recurrence of such damage.” 73 Fed.Reg. 27844 (May 14, 2008). In 1999, the Missoula Field Office implemented interim closures to protect lands along the Blackfoot River until final supplementary rules to manage recreation could be implemented. The temporary closures and restrictions included prohibitions on operating motor vehicles off of designated roads or trails and on camping outside designated sites or areas. 64 Fed.Reg. 18632 (April 15, 1999). The restrictions remained in place until the rules were finalized in 2004. 69 Fed.Reg. 10743 (March 8, 2004).

IM 2013-035 seems to be disregarding the governing standards for resource protection. Further, while 43 C.F.R. § 8364.1 requires that the federal register notice provide a time for the closure, it does not include any restriction on the duration.

Recommendation: This section of IM 2013-035 should not be incorporated into the Handbook. BLM should be clear in the Handbook that there is no duration requirements through the regulations on how long an area should be temporarily closed under 43 C.F.R. § 8364.1 and there is specific regulatory language under 43 C.F.R. § 8341.2 that BLM shall not open an area to OHV use until “the adverse effects have been eliminated and measures implemented to prevent recurrence.”

h) R.S. 2477

Current BLM policies on R.S. 2477 are not reflected in the Land Use Planning Handbook. In its Transportation and Travel Manual (1626) and Handbook (8432), BLM states that travel planning is not intended to address the validity of any R.S. 2477 assertions and provides the following statement to be included in all RMPs and TMPs:

“A travel management plan is not intended to provide evidence bearing on or addressing the validity of any R.S. 2477 assertions. R.S. 2477 rights are determined through a process that is entirely independent of the BLM's planning process. Consequently, travel management planning should not take into consideration R.S. 2477 assertions or evidence. Travel management planning should be founded on an independently determined purpose and need that is based on resource uses and associated access to public lands and waters. At such time as a decision is made on R.S. 2477 assertions, the BLM will adjust its travel routes accordingly.”

This language should also be incorporated into the Land Use Planning Handbook. There are some RMPs that have failed to incorporate this language, possibly because this language has only been reflected in the Travel and Transportation Manual thus far. For example, The Draft HiLine RMP references BLM's ability to make “non-binding determinations” as to R.S. 2477 right-of-way assertions pursuant to guidance WO IM No. 2006-159. This guidance has been effectively revoked. On Feb. 20, 2009, BLM directed its staff not to process or review any R.S. 2477 claims. It should be made clear in the Handbook that BLM should be referencing this updated guidance and not relying on out-of-date terminology in WO IM No. 2006-159.

Recommendations: BLM should also incorporate the language for R.S. 2477 claims that was set out in BLM's Manual 1626 and Handbook 8432 rather than citing to WO IM No. 2006-159, which is no longer relevant.

2. Oil and Gas

Since the last update of the Land Use Planning Handbook, BLM's oil and gas leasing program has been reformed. A key element of this reform is the acknowledgment that:

The BLM recognizes that, in some cases, leasing of oil and gas resources may not be consistent with protection of other important resources and values, including units of the National Park System; national wildlife refuges; other specially designated areas; wildlife; and cultural, historic, and paleontological values. Under applicable laws and policies, there is no presumed preference for oil and gas development over other uses. In making its oil and gas leasing and development decisions, the BLM will consult and coordinate with other land and resource managers (Federal and non-Federal), as appropriate.

The Handbook should incorporate this language and also discuss the agency's discretion

regarding offering parcels for lease, which is an important part of evaluating the best use for different lands and ensuring that the most current inventories of public lands and their resources are guiding BLM leasing and development decisions. In previous versions of the Handbook and in accordance with NEPA regulations, the agency was directed to consider deferring leasing during land use planning efforts in order to avoid foreclosing management alternatives. This direction should be included in the Handbook going forward to make land use planning more meaningful.

Master leasing plans (MLP) are a new tool being used by the agency to complete more intensive planning for oil and gas leasing and development at a landscape level, which is more targeted than an entire planning area. The Handbook should emphasize incorporating MLPs into land use planning and also discuss how they can be completed as standalone amendments. Guidance on MLPs sets out four criteria for when an MLP must be prepared and then also notes that BLM may also determine to prepare an MLP as a discretionary matter. At the outset, the Handbook should emphasize that MLPs are a valuable tool and BLM should maximize their use where they can resolve conflicts around oil and gas leasing and development, including by exercising discretion. In addition, as an overall matter, the Handbook should emphasize that MLPs provide benefit for managing both leasing and development, in order to provide clarity as to considerations for exercising discretion in deciding to prepare MLPs.

Further, in the context of applying the four criteria that require preparation of an MLP, BLM has often construed them in an overly narrow manner, which should be clarified in the Handbook. For example, the requirement that a "substantial portion of the area to be analyzed in the MLP is not currently leased" should be clarified to indicate that "substantial" does not require more than fifty percent and rather means sufficient acreage is unleased such that management of leasing and development will benefit from an MLP. Also, the third criteria requires that the "oil and gas industry has expressed a specific interest in leasing, and there is a moderate or high potential for oil and gas confirmed by the discovery of oil and gas in the general area." We would recommend this criteria be clarified to indicate that if there is an interest expressed in leasing, this will

sufficient regardless of current data on potential. Industry evaluation of potential is best indicated in leasing and evolving data and technology mean that determinations of potential in current land use plans will often be superseded by current actions.

Recommendations: The Handbook should reiterate the oil and gas development is just one aspect of multiple use management and receives no presumed preference. The agency's discretion regarding leasing should be emphasized in addition to direction to consider deferring leasing during land use planning, especially when leases are proposed in areas that are being evaluated for special management in the planning process. The Handbook should also discuss the importance and recommended uses of MLPs as part of planning processes, including clarifying their use in managing both leasing and development.

3. Recreation and Visitor Services

a) Designation of Recreation Management Areas

In 2010, BLM issued new guidance (IM 2011-004) for recreation and visitor services planning in the land use planning process. The guidance changed recreation management area designation to a three-category system wherein lands in the planning area can be designated as special recreation management areas (SRMAs), managed as extensive recreation management areas (ERMAs), or classified as public lands not designated as recreation management areas.

Management focus for SRMAs is to “protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics,” whereas ERMAs are managed to “support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA.” In SRMAs, recreation is to be the dominant management focus, and in ERMAs management is “commensurate with the management of other resources and resource uses.”

BLM Field Offices have been implementing the new guidance in a variety of ways, with some interpreting the less intensive focus of ERMAs as meaning no specific management actions are necessary or appropriate in ERMAs. Whereas SRMAs are designated with attendant management prescriptions to protect recreation experiences, such as restrictions on energy development and protective VRM classifications, ERMAs are assigned broader goals for recreation experiences without specific actions to prevent other public lands uses from damaging those experiences.

We have recommended to BLM that whereas SRMAs are intended for more intensive management, ERMAs may be appropriate to designate for quiet-use, semi-primitive and primitive experiences and layer with other special designations that are compatible with quiet recreation, such as ACECs, a potential backcountry designation and lands with wilderness characteristics. However, both SRMAs and ERMAs require associated management prescriptions for the BLM to actively manage different types of recreation to the benefit of users while protecting the other resources of the public lands. The Land Use Planning Handbook should specify that ERMAs should be designated for primitive and semi-primitive recreation experiences (amongst other recreation settings) and should include robust management prescriptions to protect quiet recreation experiences such as limitations on energy development

and off-road vehicle use. This is not to exclude designation of SRMAs or zones within SRMAs for non-motorized recreation where a more intensive management approach is required.

ERMAs that are designated for primitive recreation experiences should also frequently be layered with other administrative designations that are intended to conserve public lands resources that enhance those types of experiences and are commensurate with management of primitive recreation, such as wilderness, backcountry areas and wildlife habitat. Because different designations serve different purposes, and management is often limited to protect only those values relevant to those particular designations, the fact that a proposed ERMA may overlap with an ACEC does not obviate the need for the ERMA.

Finally, the Handbook should suggest BLM completes visitor use monitoring to inform land use planning decisions pertaining to recreation. RMA designations in RMPs should reflect the findings of visitor use monitoring that shows what types of recreation are the most prevalent types of activities on public lands within the field office and adequately accommodate those users.

The Moab Field Office completed a National Visitor Use Monitoring Program (NVUM) as a pilot project for visitor use monitoring on BLM lands. The NVUM for the Moab Field Office was developed through an interagency agreement with the Forest Service to be useful, in part, for making decisions during the planning process. **BLM's website on the program explains the NVUM's relevance and applicability:**

Such visitor monitoring information enables BLM to incorporate statistically valid visitor use monitoring information into planning and management decisions as well as long-term monitoring assessment. The FS NVUM system provides BLM with accurate data with high confidence levels for reporting to Congress and constituents, thereby building credibility and establishing legal protection in decision-making.

BLM, Visitor Use Surveys & Research,
http://www.blm.gov/wo/st/en/prog/Recreation/national_recreation/visitor_use_surveys.html.

Recommendations: RMPs should adopt a range of SRMAs and ERMAs and management prescriptions which provide adequate opportunities for non-motorized or quiet recreation experiences and enhance the other values that ultimately contribute to the experiences of the area. The Handbook should recommend designating ERMAs with associated management prescriptions to promote and protect quiet recreation opportunities. BLM should layer designations where necessary to ensure the full suite of public lands resources and values are managed appropriately. Recreation planning should include soundscape analysis and active noise management to protect quiet recreation experiences. (Soundscape analysis is described in more detail in a separate section.)

b) Special Recreation Permits

The Land Use Planning Handbook should adopt unambiguous, protective criteria for issuance of special recreation permits (SRPs) in order to effectively manage the increase in commercial and competitive group activities that can have a significant impact on our public lands. The BLM

Handbook on Recreation Permit Administration states that field offices can and should develop guidelines for issuing SRPs, including thresholds for when permits are required for organized groups and events for specific types of recreation activities, land areas, or resource settings (H-2930-1 at 13). In practice, many RMPs include only general guidance for issuance of SRPs that does not allow for adequate impact analysis. Analysis of the impacts of permits on a cumulative basis is best accomplished in the RMP, since it will provide for a more comprehensive, informed analysis that can look at both cumulative and site-specific environmental consequences, as required by NEPA. Therefore, the Handbook should direct BLM to include more explicit guidelines for processing SRPs in RMPs.

The Price RMP, Appendix R-10, provides an excellent example for evaluating SRP applications and issuing such permits. It classifies SRPs into four distinct classes, ranging from least intensive to most intensive, based on specific factors such as type of equipment, size of area used, number of participants, etc. These factors are defined and then compared in a simple permit classification matrix consisting of Classes I through IV (with I being for smaller and less impacting events and IV being for larger, more impacting events). Each Class also has an example of the type of event that may fit into the category. After the Class is determined, the BLM can then look to see how permit types fit into Recreation Opportunity Spectrum Classifications and/or SRMAs and ERMAs. Various SRMAs can be broken into classes and it is easy to see what types of uses and events should be permitted for each area. Because the standards set out in the Price RMP are very specific (for example, surface disturbance of 5-40 acres ranks as “medium intensity”), **BLM can easily determine whether** and where to issue an SRP, and can better estimate cumulative impacts from such permits. The Handbook should provide the Price RMP as a model for classification of SRPs to define which uses may be appropriate or inappropriate in specific areas.

Furthermore, BLM issued guidance in 2011 clarifying the SRP manual (IM 2011-019). The guidance requires the agency and applicant to show that they have taken measures to sufficiently administer the permit and remedy damage that may occur from the event. This guidance should be incorporated into the Handbook.

Recommendations: The Handbook should direct BLM to set out clear standards for issuance of SRPs, to protect other uses and natural and cultural resources, using the Price RMP as a model. The Handbook should incorporate IM 2011-019 and specify BLM must ensure that the agency has sufficient resources available to administer the permit and that the applicant can remedy any resultant damage to the public lands before issuing SRPs.

4. Renewable Energy

The last update of the Land Use Planning Handbook did not specifically address renewable energy at all. Since that update, the BLM has completed programmatic EISs for wind, solar and geothermal energy and issued significant guidance on issuing rights-of-way and monitoring projects, as well as permitting substantial amounts of utility scale projects on public lands. **The agency’s approach to renewable energy is an important example of landscape level planning and a vital use of our public lands that should be specifically addressed in the handbook.**

Recommendations: In addition to specifically addressing and incorporating current guidance on renewable energy development on public lands, BLM should use landscape-level planning and the best available data to identify and designate:

- Renewable Energy Development Areas (REDAs): areas with excellent wind and solar resources that are in proximity to existing infrastructure and have limited conflicts with other resources and values. Development should be incentivized in REDAs, e.g. by prioritizing allocation of agency resources on processing applications in REDAs. **BLM Arizona’s Restoration Design Energy Project provides a good model.**
- Variance Areas: areas outside of REDAs where wind and solar development may be viable but potential conflicts make risks to project developers and potentially impacted resources and values. Project applicants in Variance Areas should be required to demonstrate that their purpose and need could not be met within a REDA and that their application is consistent with the **management goals and objectives of the RMP.** BLM’s Solar Programmatic Environmental Impact Statement provides a good model.
- Conservation Management Areas: areas with sensitive and important resources and values that are incompatible with wind and solar development. BLM should place administrative protections (e.g. ACEC designation) and/or allocate Conservation Management Areas as ROW exclusion or avoidance areas. The Desert Renewable Energy Conservation Plan under development by the BLM provides a model.

5. Utility Transmission

Energy corridors are an important tool for identifying the right places for uses such as pipelines and powerlines on public lands. The Land Use Planning Handbook does not currently address transmission or corridors. The BLM should encourage the designation of appropriately sited corridors and provide guidance for their incorporation into planning decisions.

Recommendations: BLM should use landscape-level planning and the best available data to identify and designate corridors for transmission lines and pipelines. Development should be incentivized in designated corridors, e.g. by prioritizing allocation of agency resources on processing applications in corridors. Project applicants proposing development outside of corridors should be required to demonstrate that their purpose and need could not be met within a corridor and that their application is consistent with the management goals and objectives of **the RMP.** The 2009 ROD for BLM’s West-wide Energy Corridors does not provide a good example, though the re-evaluation currently underway may produce a good example.

6. Climate Change

Secretarial Order (S.O.) 3289 (2009) unequivocally mandates all agencies within the Department of Interior to “analyze potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research and investigations, developing multi-year management plans, and making major decisions regarding potential use of resources under the Department’s purview.” (S.O. 3289, incorporating S.O. 3226). The BLM’s planning handbook has not been updated since S.O. 3289 was issued. BLM should provide guidance in its updated handbook for assessing impacts from the proposed actions that may directly, indirectly, or cumulatively result in exacerbating climate change.

BLM's duty to evaluating reasonably foreseeable significant adverse impacts includes "impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason." 40 C.F.R. § 1502.22(b). Such impacts are especially significant in the face of climate change.

The impacts of climate change should be a major factor in every alternative that is created since it is an undeniable reality that will drive all land use planning decisions. As provided in the Oregon/Washington BLM State Office guidance document IM OR-2010-012, "[r]esource management plans and other broad programmatic analyses are actions that would typically have a long enough duration that climate change could potentially alter the choice among alternatives." Thus, it is clear that BLM must consider planning for climate change within the context of the broader landscape during the development of RMPs.

BLM must also include a range of alternatives that includes a strategy for mitigating the impacts of climate change. CEQ regulations instruct agencies to consider alternatives to their proposed action that will have less of an environmental impact, specifically stating that "[f]ederal agencies shall to the fullest extent possible: . . . Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment." 40 C.F.R. § 1500.2(e) (emphasis added); see also, 40 C.F.R. §§ 1502.14, 1502.16.

Further, general statements that BLM will conduct monitoring are also not an appropriate form of mitigation. Simply monitoring for expected damage does not actually reduce or alleviate any impacts. Instead, a vigilant science-based monitoring system should be set out in the RMP in order to address unforeseeable shifts to the ecosystem. A detailed monitoring approach is also required under the BLM's planning regulations:

The proposed plan shall establish intervals and standards, as appropriate, for monitoring and evaluation of the plan. Such intervals and standards shall be based on the sensitivity of the resource to the decisions involved and shall provide for evaluation to determine whether mitigation measures are satisfactory, whether there has been significant change in the related plans of other Federal agencies, State or local governments, or Indian tribes, or whether there is new data of significance to the plan. The Field Manager shall be responsible for monitoring and evaluating the plan in accordance with the established intervals and standards and at other times as appropriate to determine whether there is sufficient cause to warrant amendment or revision of the plan. 43 C.F.R. § 1610.4-9.

Such vigilant monitoring is absolutely necessary in order to create an effective adaptive management framework in the face of climate change.

The following is our recommended approach to developing management prescriptions to allow the land and resources to adapt to the impacts of climate change while meeting the agency's legal obligations:

Recommendations: Under the pressures of global change, it must be acknowledged that many objects of conservation are at risk wherever they are found, and the traditional natural resource management paradigm of modifying ecosystems to increase yield must change to a new paradigm of managing wildland ecosystems to minimize loss – specifically loss of the ecosystem composition, structure, and function that yields the benefits we seek from wildlands. Natural resource management must change from a paradigm of maximum sustained yield to a paradigm of risk management.

Although there is no widely-accepted method of assessing and managing risk, we recommend breaking risk down into its component parts—vulnerability, exposure, and uncertainty—as a useful way to think about risk to biodiversity and productive potential. In the attached recommended approach to addressing climate change in land use planning (Attachment B), we recommend an approach for assessing risk in the planning area as well as an approach for management of that risk for BLM to comply with its legal obligations under laws and regulations.

C. SOCIAL SCIENCE CONSIDERATIONS (APPENDIX D) – CONSIDERATION OF NON-MARKET ENVIRONMENTAL VALUES

Through the recent release of guidance on nonmarket environmental values (see IM No. 2013-131, Change 1), the BLM has plainly increased its recognition of the importance of these values for inclusion in its land use planning and decision-making processes. The IM states that “nonmarket environmental values reflect the benefits individuals attribute to experiences of the environment, uses of natural resources, or the existence of particular ecological conditions that do not involve market transactions and therefore lack prices.” IM 2013-131. The IM acknowledges that economic analysis of resource management should “consider all relevant values, not merely those that are easy to quantify.” *Id.*

Currently, the BLM’s Land Use Planning Handbook contains only two brief references in Appendix D to nonmarket environmental values.¹⁵ Recognizing this lack of meaningful guidance for the consideration of such values, the IM seeks to provide direction on the topic by describing terms and methodologies and by stating a strong preference for the inclusion of certain types of qualitative and quantitative data in the resource planning and decision-making process. Specifically, the IM states:

1. At least a qualitative description of the most relevant nonmarket values should be included for the affected environment and the impacts of alternatives in NEPA analyses involving EISs, and for both RMPs and project-level decisions.
2. Quantitative analysis of nonmarket values in EIS-level NEPA analyses is “strongly encouraged” where one or more of the specified criteria related to size and scope of the planning or project apply.

¹⁵ Land Use Planning Handbook, H-1601-1, Appendix D at page 6, Table D-2 and page 10.

IM 2013-131, Attachment 1 at 1-1, 1-6 through -7. In order to meet these objectives, Attachment 1 of the IM notes that economic analysis should include both (a) impact analysis, and (b) benefit-cost analysis. *Id.* at 1-3.

1. Impact analysis

Natural amenities translate to economic wealth and health, as evidenced by a growing body of literature suggesting that the future diversification of rural economies is dependent on the ecological and amenity services provided by public lands in the west (Power 1996; Rasker, 1994; Haynes and Horne, 1997, Rasker et al., 2004). A recent study by Headwaters Economics looked **at the U.S. West's 286 non-metro counties** as a region, and found a meaningful relationship between the amount of protected public land and higher per capita income levels in 2010. The study found that three economic measures were positively associated with protected public lands: per capita income (2010), growth in per capita income (1990-2010), and growth in per capita investment income (1990-2010).¹⁶ The services offered by protected natural resources (e.g. watershed protection, wildlife habitat, recreation opportunities, and scenic vistas) improve the quality of life, which in turn attracts new business and capital to rural communities.

2. Benefit-cost analysis

In contrast to an impact analysis, a robust and complete benefit-cost analysis provides a “more holistic picture of each management scenario” by estimating both market and nonmarket benefits and costs to society of a proposed action over a larger spatial scale. IM 2013-131, Attachment 1 at 1-3. To achieve the “holistic picture,” total economic value, as described in Attachment 1 of the IM should be employed. Total economic value effectively addresses nonmarket values of a given environment by considering in its analysis direct and indirect uses of the resource as well as passive use benefits (reflecting nonmarket values), which include existence value, option value, and bequest value. *Id.* at 1-4.

Recommendations: In light of the new BLM guidance on nonmarket environmental values, the BLM should incorporate greater reference to IM 2013-131 in Appendix D of its Land Use Planning Handbook through the Planning 2.0 process. Specifically, the BLM should:

1. Expressly incorporate the minimum management actions described in IM-2013-131 into Appendix D of the Handbook. As previously stated, these are:
 - a. At the least, a qualitative description of the most relevant nonmarket values should be included for the affected environment and the impacts of alternatives in NEPA analyses involving EISs, and for both RMPs and project-level decisions.
 - b. Quantitative analysis of nonmarket values in EIS-level NEPA analyses is strongly encouraged where one or more of the specified criteria related to size and scope of the planning or project apply.

¹⁶ <http://headwaterseconomics.org/land/west-is-best-value-of-public-lands>.

2. For consistency with the increased emphasis placed on nonmarket environmental values expressed in IM 2013-131, revise Table D-2 in Appendix D of the Handbook to make “Non-market values of resources and activities” a “Priority 1” consideration.
3. Revise the paragraph entitled “Non-market value” at page 10 of Appendix D of the Handbook to include reference to the additional methodologies available for determining nonmarket values contained in the attachments to IM 2013-131; not simply the benefit transfer methodology as currently described in that paragraph.

III. MAKING PLANNING MORE EFFICIENT AND ADAPTIVE

We appreciate BLM’s desire to “create a more dynamic, durable, and efficient planning process” and “more effectively plan across landscapes.” We believe BLM can achieve these objectives through targeted revisions to the current BLM Land Use Planning Handbook, BLM Handbook H-1601-1, and without changes to its existing planning regulations, 43 CFR Part 1600.

Specifically, we believe an appreciation of the nuanced differences between plan maintenance, plan revision, and plan amendments as currently set forth in the Land Use Planning Handbook along with targeted revisions to Appendix C of the Handbook (Program-Specific and Resource-Specific Decision Guidance) can achieve BLM’s stated objectives for Planning 2.0. Our specific comments related hereto are discussed in full below.

Further, by achieving these objectives through revisions to the Handbook only, BLM will make the Planning 2.0 initiative itself more efficient. Going forward with revisions to the planning regulations will require BLM to develop an environmental impact statement (EIS) and unnecessarily extend the duration of the initiative when viable alternatives for achieving the same objectives exist. Thus, a narrow focus on the Handbook will achieve maximum effect with the minimum effort and expense.

Finally, regardless of achievable efficiencies in the land use planning process, thorough and considered planning will always require time. Land use plans address complex resource management and multiple use issues over a significant planning timeline. As result, time and attention in the development of these plans is an inherent component. In fact, shortcutting the planning process in the name of speed may actually cut against BLM’s durability and dynamism objectives for land use plans by potentially encouraging planning officials to neglect consideration of important management components. Plans that fail to properly consider all relevant components of a plan will certainly later be found lacking in some critical aspect, thereby necessitating a plan amendment or even a plan revision. Therefore, speed (cloaked as efficiency) may not really be efficient at all.

A. PLAN AMENDMENTS AND PLAN REVISIONS

While it is true that the BLM’s land use planning regulations at 43 C.F.R. §§ 1601-1610 generally require the same planning steps and public participation opportunities for a plan amendment as for a plan revision, there are significant differences between the two processes, as described more fully in the Handbook, and in terms of the agency’s obligations under the National Environmental Policy Act (NEPA), 42 U.S.C § 4321 *et seq.*

These distinctions result from the differing purposes the two processes are designed to achieve. **Plan revisions are necessary when “monitoring and evaluation findings, new data, new or revised policy, or changes in circumstances indicate that decisions for an *entire plan or a major portion of the plan* no longer serve as a useful guide for resource management.” Handbook at 46 (emphasis added); 43 C.F.R. § 1610.5-6. Plan amendments are appropriate when “monitoring and evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a *change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan.*” *Id.* § 1610.5-5 (emphasis added).**

An appreciation of the distinct purposes of the two processes combined with an appreciation of the planning differences between the two processes demonstrates that BLM already possesses much of the land use planning efficiencies it is seeking from Planning 2.0 through the appropriate application of plan amendments.

1. Differences in NEPA Documentation between Amendments and Revisions

a) In the Planning Regulations

Significantly, in terms of the obligation imposed on BLM, the agency’s planning regulations allow for different types of associated NEPA documentation between plan amendments and plan revisions under certain circumstances. As the Handbook states, the associated NEPA documentation for a plan amendment “depends on the scope of the planning effort and on the anticipated impacts” resulting from the amendment. Handbook at 16. In appropriate circumstances, a plan amendment may only require the preparation of an environmental assessment (EA) with a finding of no significant impact (FONSI). 43 C.F.R. § 1610.5-5(a). However, where the action will significantly affect the quality of the human environment an environmental impact statement (EIS) is required. *Id.* § 1610.5(b). In contrast to plan amendments, plan revisions must “comply with all the requirements of these [planning] regulations for preparing and approving an original resource management plan.” 43 C.F.R. § 1610.5-6. This section implicates § 1601.0-6, which requires the preparation of an EIS for all new resource management plans and thereby all plan revisions as well. The NEPA documentation distinction is clearly depicted in the Handbook in Table III-1 (Planning efforts and required NEPA analysis). Handbook at 16.

Taken together, BLM’s land use planning regulations adopt the proper approach to NEPA documentation by specifically tailoring the scope of the documentation to the scope of the planning effort and its anticipated impacts.

b) In the Land Use Planning Handbook

Because agency regulations are naturally high-level documents, they do not display the nuanced differences between plan amendments and revisions that are contained in the guidance documents, which are therefore the appropriate venues for these nuances. The Handbook, in sections VI (Determining if New Decisions are Required) and VII (Amending and Revising Decisions), more fully flesh out the distinctions for BLM’s land use planning NEPA

documentation obligations. This demonstrates that the plan amendment process is not wholly contingent on the planning regulations and makes meaningful the difference between plan amendments and revisions. These distinctions include:

- A reaffirmation that the amendment process is to be tailored to the potential for significant impacts. Handbook at 45.
- Activity-level or project-specific EISs that address significant new information or circumstances not considered in the EIS for the current land use plan should be prepared as supplements to the EIS for the RMP whenever possible. *Id.*
- In most cases, if a supplement to the RMP/EIS is necessary, the BLM should also consider whether or not a simultaneous plan amendment is necessary. *Id.*

Further, the Handbook notes that the use of a categorical exclusion may be appropriate when evaluating land use plans for their continued validity. Handbook at 35. By appropriately promulgating categorical exclusions under 40 C.F.R. § 1508.4, BLM can further reduce its NEPA obligations through the identification of categories of actions that do not individually or cumulatively have a significant effect on the human environment, as these actions do not require an EA or EIS.

2. Additional Distinctions between Amendments and Revisions

In addition to the NEPA documentation differences between plan amendments and revisions, the Handbook provides additional meaningful distinctions between these two processes, which promote the efficient use of plan amendments where appropriate. See generally Handbook, sections VI and VII. These include:

- Plans needing amendment may be grouped geographically or by type of decision in the same amendment process and, similarly, one amendment process may amend the same or related decisions in more than one land use plan. Handbook at 45.
- In reaching a decision to amend a land use plan, the BLM must not only consider the resource, but also other workload priorities, budgetary constraints, and staff capabilities. *Id.*
- In situations where available budgets allow and staff capabilities are restricted, consider contracting for all of portions of the plan amendments NEPA analysis, including baseline data acquisition. *Id.*
- An applicant may request that BLM amend the land use plan to allow an otherwise non-conforming proposal. If the Field Manager determines that the request is warranted, a plan amendment is initiated. If not warranted, the Field Manager submits to the State Director a recommendation to deny, along with appropriate supporting documentation. *Id.* at 46.
- The State Director may terminate an ongoing plan amendment at any point if the Field Manager provides documentation that the amendment is no longer necessary or appropriate. *Id.*

Taken together, these Handbook provisions (specific to plan amendments) provide efficiency in the plan amendment process. By grouping decisions geographically or by decision type, BLM

can achieve economies of scale by avoiding having to conduct repetitive, redundant analyses by addressing related issues in a single, considered analysis. The other plan amendment-specific provisions provide BLM officials with a degree of discretion not present in plan revisions. The **planning regulations for revisions state RMPs “shall be revised as necessary,”** 43 C.F.R. § 1610.5-6, whereas **planning regulations for amendments state RMPs “may be changed through amendment,”** *id.* § 1610.5-5. This difference in language, mandatory versus permissive, respectively, is carried forward and detailed further in the Handbook, as demonstrated by the provisions above. Used appropriately, the differences provide BLM with the adequate tools to efficiently address its land use planning obligations and to keep plans current through plan amendments.

B. BALANCING DYNAMIC PLANNING WITH DURABLE PLANS

In developing its land use plans, BLM must strike the proper balance between durability and dynamism in order for the planning process to be as efficient as possible. The current plan amendment process, as demonstrated in the preceding sections, shows that BLM already possesses the appropriate tools for achieving the objectives of Planning 2.0. Plan amendments provide an appropriately tailored process for adjusting the components of resource management plans. Despite this inherent flexibility to respond to dynamic conditions through plan amendments, **BLM’s land use plans must still strive to make meaningful and lasting decisions to direct the management of geographic areas.** A degree of certainty in resource management is important for all interest groups as they plan the future of their activities related to BLM lands. See Phil Taylor, *Agency Seeks Input on How to Modernize Land-use Planning*, E&E REPORTER (May 5, 2014) (oil and gas industry official stating industry likes to know what is on the regulatory horizon). Because of this, while plan amendments are an important tool for addressing changed circumstances, BLM should not rely on the amendment process to degrade the quality of the planning contained in the initial land use plan. No party would benefit from such an approach, neither conservation interests, industry interests, nor the BLM itself.

Completing robust, comprehensive resource inventories during land use planning minimizes the amount of new or updated inventory work that must be completed in an amendment. FLPMA requires BLM to maintain a current inventory of public lands resources and utilize that inventory information in decision-making processes. Committing to this requirement in a dynamic resource management planning process reduces the burden of resource staff to conduct exhaustive resource inventories for amendments or other project-level planning. **Balancing a dynamic planning process with durable land use plans is the most efficient way to minimize BLM’s land use planning obligations.**

C. IMPORTANCE OF MAINTAINING PUBLIC PARTICIPATION IN THE LAND PLANNING PROCESS

Any effort to increase the speed of the planning process that reduces or minimizes public participation will decrease the overall efficiency of planning process. The planning process is a vital mechanism by which BLM can obtain public support for its land use plans. By providing for public involvement and participation at multiple steps during the planning process, BLM is made aware of potential issues or concerns with the land use plan before a final decision is made.

This allows BLM to work with concerned parties early on in order to alleviate those concerns during the planning process itself and to build working relationships with those parties.

This also allows public participants to see their information and recommendations incorporated into land use plans; giving them a sense of investment and ownership in the plan and ultimately in the management of their public lands. An alternative approach that reduces meaningful public participation during the planning process would push conflicts to the end of the planning process. When conflicts arise in this scenario, a lack of existing trust arises from the absence of a past working relationship. Without a working relationship, conflicts are bound to be more contentious as interested parties struggle to affect the final land use plan in the waning stages of the planning process. This is bound to lead to hard feelings, less durable land use plans, and, potentially, more challenges to plans.

Additionally, providing meaningful opportunities for public involvement in the planning process not only increases the efficiency of the planning process, but it is also necessary for BLM to fulfill its statutory obligations and obligations under the agency's own planning regulations and internal guidance. See Federal Land Management Policy Act, 43 U.S.C. §§ 1702(d) and 1739(e); Planning and Resource Management regulations, 43 C.F.R. §§ 1601-1610; CEQ regulations, 40 C.F.R. §§ 1500-1508; and, Land Use Planning Handbook, BLM Handbook H-1601-1.

The following are recommendations for maintaining public participation in a meaningful way during planning that should be incorporated into the Land Use Planning Handbook:

1. Pre-scoping public involvement

As displayed in Appendix F of the Land Use Planning Handbook, there are many decisions that are made prior to the official scoping notice being issued. This includes an attempt to anticipate planning issues and management concerns, setting preliminary planning criteria, evaluating data and inventory needs and preparing a public participation plan. BLM could benefit greatly by involving the public in some of these decisions from the very beginning of planning. For example, BLM could make data calls to the public and institutions to help with collection of data where or inventory information where there are gaps. BLM could also better anticipate the concerns or management issues that may come up during scoping and will be in a better position to address those issues throughout the process.

Involving the public during pre-scoping planning also comports with the CEQ regulations implementing NEPA which states that “[a]gencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts.” BLM should include a section in the Handbook revisions about specifically and actively engaging the public prior to scoping in the planning process in order to better meet the goals of planning and create a more efficient planning process throughout.

2. Preliminary Alternatives

Many issues and inefficiencies can be resolved by more transparency and opportunity for public participation as soon as possible. For instance, the Arizona Strip BLM Office provided preliminary management alternatives, giving the public a chance to submit comments and giving the BLM valuable insight into their management approaches. The Las Cruces Field Office also held workshops and solicited public comments on preliminary alternatives for the Tri-County RMP. Most recently, the Moab BLM released preliminary alternatives and provided opportunities for public involvement as part of the Moab MLP process. We encourage the BLM to provide for public input into the management situation analysis and identification of planning issues, and on a preliminary range of alternatives prior to preparing draft RMPs. This allows for BLM to refine its approach based on input at this level of the planning process based on public input.

D. SPECIFIC RECOMMENDATIONS BY EXAMPLE FOR MAKING PLANNING MORE EFFICIENT

1. Set indicators and thresholds for when an RMP needs adjustment

Just as recommended in the section above titled “A Landscape Approach to Planning for BLM-Managed Lands,” BLM should set indicators and thresholds for change in RMPs that describe and analyze when an RMP should be adjusted. This will not only create more dynamic and adaptable management plans, but also help create more efficiency in future adjustments to management plans since the agency should be allowed to tier to the analysis already completed.

The Carrizo Plain National Monument RMP includes a Conservation Target Table (Appendix C), which serves as the foundation of the adaptive management strategy to be implemented in the monument. The Table identifies conservation targets that are to be monitored, providing for BLM to determine the success of the management actions and constraints in meeting the specific conservation target objectives and the overall management goals, and ultimately using that information to inform future management actions.

In order to be useful in determining when an RMP might need to be amended, we would recommend BLM improve the Conservation Target Table by being more specific as to what actions will be taken when objectives are not being met, completing an inventory of baseline data in order to determine appropriate management actions and restoration efforts, and including a commitment to implementation and strategies for enforcement of the standards set out in the table to achieve management objectives. Nevertheless, this concept provides a good example for setting management targets and thresholds to make RMPs more adaptable.

Another example of a comprehensive monitoring approach can be found in the Jack Morrow Hills Coordinated Activity Plan, Appendix 2 - “Implementation, Monitoring, and Evaluation Process” (Wyoming). The management strategy discusses how the various surface use activities and their interactions with other planning area resources will be monitored, and how data collected in the planning area will be used to measure progress toward the goals adopted for the planning area, evaluate the effectiveness of specific practices or policies, and support decision changes.

The strategy includes objectives for individual resources; resource management indicators and possible measurements, including detailed indicator and measurement tables; and a flowchart management process that shows how monitoring could lead to management changes. The management process ensures that indicator data is appropriately used to inform management decisions, and helps BLM determine when a plan amendment would be necessary.

2. The range of alternatives in the RMP should be broad enough to cover reasonable scenarios of change in the future so a certain amount of tiering can occur.

The Pinedale RMP incorporates an approach to support fairly significant changes in management without requiring an amendment to the RMP by analyzing the options for changes and then setting out criteria for when they may apply.

The Pinedale RMP created 3 types of areas for oil and gas leasing: intensively developed fields, traditional leasing areas and unavailable areas.

In Intensively Developed Fields, lands are available for lease and are managed for intensive oil and gas leasing, exploration, development, and production. Exceptions to stipulations are also available to accommodate year-round drilling. In addition, accelerated reclamation will be implemented to reestablish habitats.

In Traditional Leasing Areas, some lands and mineral estate are available for oil and gas leasing and exploration, but in concert with maintaining the viability of non-oil and gas resource values and land uses, including designing operations to mitigate impacts on wildlife and incorporating mitigation measures.

The Pinedale RMP incorporates flexibility in management by providing that Traditional Leasing Areas can be converted to Intensively Developed Fields when bottom-hole well density exceeds one well per 160 acres and a surface density of four well pads per 640-acre section and that this conversion will be analyzed based on: (1) a geology and reservoir analysis determination that additional well density is needed to efficiently and adequately produce the gas or oil resource; (2) that surface resources can be satisfactorily mitigated; and (3) that a project-specific environmental documentation is prepared to analyze impacts and to determine operating methods, mitigation, and BMPs to be used in the efficient and comprehensive development of the field.

An amendment to the RMP is not required to make this conversion if the areas are adjacent to the current Intensively Developed Fields.

3. Set suggested timelines for different types of amendments

BLM should recognize that not all amendments are created equal—different types of amendments require varying levels of time to complete. BLM should set suggested guidelines for completing RMP amendments by each type of amendment. Below are our recommended timelines based on examples of actual amendments:

1) 6 to 12 months for a project-level amendment

The Blanca Wetlands in southern Colorado's San Luis Valley was designated an ACEC

specifically for its recreation and wetland values, including playa and marsh habitats containing large populations of water birds, amphibians, macroinvertebrates, and 18 threatened, endangered and sensitive species. The Blanca Wetlands ACEC was designated at 9,714 acres in the 1991 San Luis Valley RMP. BLM recently completed an environmental assessment (EA) to analyze the potential impacts of enlarging the Blanca Wetlands ACEC. The EA evaluated several alternatives, including two alternatives to vastly increase the size of the ACEC and a no action alternative. The proposed boundary would enlarge the ACEC from 9,714 acres to 122,762 acres, and this boundary was adopted in the Decision Record.

Scoping for the RMP Amendment began October 11, 2011. The Draft RMP Amendment and EA were released on November 20, 2013, for a 60-day public comment period. The FONSI was signed February 14, 2014. BLM found that the expansion would address the Resource Condition Objective Decision under Wildlife and Fish Habitat Management (1-12) of the San Luis Valley RMP, which states "Provide special management to improve the present acres of wetlands in the Mishak Lakes and Dry Lakes areas to the historical acres of wetlands," and thus would be an appropriate amendment to the RMP.

2) 18 to 24 months for a multiple issue amendment

The Farmington (New Mexico) Field Office is preparing an amendment to the current RMP to address a new shale play, in terms of updating the reasonable foreseeable development scenario and impacts on affected resources, including on adjacent field offices and national forest and tribal lands. In addition to addressing management of the previously unexpected oil and gas development, the BLM is also looking at other changes since the RMP was completed including: adding rights-of-way corridors and withdrawing others areas based on how local communities are developing, inventorying and managing lands with wilderness characteristics, and maintaining or restoring landscapes through vegetation management to address increased oil and gas development.

This approach will give the BLM a chance to not only update management for a new oil and gas development scenario but also to update management issues affected by surrounding communities and new guidance on identifying and managing wilderness quality lands. The BLM is proactively raising all these issues as part of its scoping and outreach efforts and projects that the entire process will be completed in approximately 24 months.

3) 2 to 4 years for a programmatic amendment that amends multiple plans

The Solar Programmatic EIS (PEIS) was a huge undertaking. This PEIS amended around 90 RMPs to address solar development on public lands. After multiple comment period extensions, various public agencies involved and several public meetings throughout the process, the entire process only took around four years from scoping until the ROD was published. We recommend setting a suggested timeline for other such programmatic EISs based on this and other models.

4) 3 to 5 years for an RMP revision

The RMP for the Grand Staircase-Escalante National Monument (GSENM) is a prime example of BLM being able to complete a comprehensive RMP revision within around 3 years. As BLM's first national monument RMP, the GSENM plan was new territory, highly controversial and involved an almost 2 million-acre landscape. It is also one of the best conservation management plans that BLM has ever issued.

CONCLUSION

We truly appreciate the BLM's efforts to reform its land use planning process to better respond to modern concerns, such as climate change, at a landscape scale. We look forward to engaging throughout this process. Please feel free to contact us with any questions you may have.

Sincerely,

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Conservation Colorado
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Friends of the Sonoran Desert National Monument
Grand Canyon Wildlands Council
Great Old Broads for Wilderness
Klamath-Siskiyou Wildlands Center
Montana Wilderness Association
Oregon Natural Desert Association
San Juan Citizens Alliance
Southern Utah Wilderness Alliance

REFERENCES

Belote, Travis, and Greg Aplet, Anne Carlson, Pete McKinley. "Wilderness and Conservation Strategy in the Anthropocene." *The Pinchot Letter* (Spring 2014).

Bryce, S.A., J.R. Strittholt, B.C. Ward, and D.M. Bachelet. 2012. Colorado Plateau Rapid Ecoregional Assessment Report. Prepared for the U.S. Department of the Interior, Bureau of Land Management, Denver, Colorado.

Clement, J.P. et al. 2014. A strategy for improving the mitigation policies and practices of the Department of the Interior. A report to the Secretary of the Interior from the Energy and Climate Change Task Force, Washington, D.C., 25 p.

Havlick, David G. *No Distant Place: Roads and Motorized Recreation on America's Public Lands*. Island Press (2001).

Mace, Britton L., et al., *Aesthetic, Affective, and Cognitive Effects of Noise on Natural Landscape Assessment*, *Society & Natural Resources*, 12: 225-242, 1999.

Ouren, Douglas S., et al., USGS, *Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies, and Internet Resources* (2007).

Trombulak, Stephen C. and Christopher A. Frissell, *Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities*, *Conservation Biology*, Vol. 14, No. 1 (2000).

Attachment A: Examples of Night Sky Management in BLM Land Use Plans

Arizona Strip Field Office: Grand Canyon-Parashant and Vermilion Cliffs National Monuments

- Permanent outdoor lighting in VRM Class I areas will not be allowed.
- Impacts to dark night skies will be prevented or reduced through the application of specific mitigation measures identified in activity level planning and NEPA review. These measures may include directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, and using motion sensors.
- Any facilities authorized will use the best technology available to minimize light emissions.

Arizona Strip RMP at 65; GCPNM RMP at 67; VCNM RMP at 47-48.

Lower Sonoran Field Office: Sonoran Desert National Monument

- Permanent outdoor lighting will not be allowed in VRM Class I areas.
- Development on public lands will be required to use dark-sky-friendly technologies in VRM Class I through IV to provide opportunities for stargazers and amateur astronomers and to maintain conditions favorable to nighttime military operations. Measures may include, but will not be limited to directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, using motion sensors, or using flight proximity detectors.

See Lower Sonoran RMP at 2-36 – 2 -39; SDNM RMP at 2-36.

Hassayampa Field Office: Bradshaw-Harquahala RMP and Agua Fria National Monument

- If possible, avoid utilizing strobes or other lights that will affect the quality of night skies.
- To the extent possible, maintain night skies free of light pollution. Work with surrounding communities and other agencies to minimize the impact of lighting.

Bradshaw-Harquahala RMP at 56; AFNM RMP at 52.

Tres Rios Field Office: Canyons of the Ancients National Monument

- **Visual Resources:** “Seek to prevent light pollution within the Monument. Propose no actions within the Monument that could contribute to light pollution. Work closely with the surrounding communities in order to minimize light pollution.”

RMP at 71.

Kanab Field Office: Grand Staircase-Escalante National Monument

- The BLM will seek to prevent light pollution within the Monument. No actions will be proposed within the Monument that will contribute to light pollution. The BLM will also work closely with the surrounding communities to minimize light pollution.

GSENM RMP at 43.

Bakersfield Field Office: Carrizo Plain National Monument

Objective: Minimize light pollution to retain the area's night sky qualities.

- Action: Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution.
- Action: Work with adjoining communities (California Valley) to minimize light sources that impact the Monument.

CPNM RMP at 11-52.

Attachment B: Recommended Risk Assessment and Management Approach for Addressing Climate Change in BLM Planning

In order to comply with its legal obligations, the BLM should adopt the following approaches to both risk assessment and risk management in connection with climate change as part of this planning process.¹⁷

I. RISK ASSESSMENT: A RECOMMENDED APPROACH

We strongly recommend that the agency use the following “risk assessment” strategy when evaluating impacts to the planning area under NEPA and relevant guidance.

Efforts to manage risk begin with a risk assessment, which characterizes risk in terms of vulnerability, exposure, and uncertainty, or, as Bartell (1998) has written, an inquiry into “What can go wrong?” and “How likely is it to happen?” To these questions, Bartell adds a third, “So what if it does?” as a gauge to determine if action is needed to address the risk. Bartell’s rendering is intended to frame the topic of formal, quantitative risk assessment, but the framework applies to less formal assessment of vulnerability, exposure, and uncertainty, as well.

Assessing Vulnerability

The vulnerability of ecosystems and the species and physical elements they comprise depends on their inherent qualities and their ability to change or adapt to address new climatic conditions. A system may be considered vulnerable if it is sensitive to the effects of climate change and has limited ability to adjust to those effects. For example, the rocky intertidal ecosystem may be highly sensitive to the effect of rising sea level (and the inundation of the intertidal zone) but less vulnerable if its species are capable of colonizing new habitat created by the rising seas (i.e., high sensitivity, high adaptive capacity). Conversely, a mountain stream community that is dependent on cold summer water from a melting glacier may be very vulnerable once the glacier has melted away, despite the ability of its constituent species to move great distances (i.e., high sensitivity, low adaptive capacity).

Vulnerability of component species can be affected by the tolerance of individual organisms to the direct effects of climate change, the ability of populations to adapt to those conditions through the expression of genetic variability, and the ability to adjust behaviorally to changes in the ecosystem, such as prey shifts. For example, dandelions (*Taraxacum officinale*), which occupy a broad range of climatic conditions despite possessing essentially no genetic variability in the species, would not seem to be inherently sensitive to climate, whereas pikas (*Ochotona princeps*), which live only in the narrow alpine zone of western mountains, may be highly sensitive (Holtcamp 2010). Some species that are able to move easily may be able to adapt well to climate change even if they are inherently sensitive, provided that they can find the conditions

¹⁷ This approach is a truncated version from a larger research paper developed by The Wilderness Society during the scoping period for the Forest planning revision in the Sierra Nevada entitled “Managing the Risk of Climate Change to Wildlands of the Sierra Nevada” (2010). This broader paper illustrates the concepts we describe in this document and can be found at: <http://wilderness.org/content/managing-risk-climate-change-wildlands-sierra-nevada>

they need to live, and others may be able to remain in place, if the population can produce offspring that are adapted to the new conditions. Pollen records indicate that some species have been able to survive dramatic changes in climate in a given place, even though the individuals making up the current population may themselves be quite sensitive. A vulnerability assessment would examine the species and physical elements of existing wildland ecosystems and determine which elements are sensitive, which have the ability to adapt, and what the likely consequences would be of anticipated changes in climate.

Because ecosystems are so complex, it is impossible to evaluate the vulnerabilities of every population, species, community, or other element of the system in question. Instead, risk assessment must focus on particular, high-priority elements or “key vulnerabilities.” In its 4th Assessment Report, the IPCC (Schneider et al. 2007) suggested the following criteria for identifying key vulnerabilities:

- magnitude of impacts,
- timing of impacts,
- persistence and irreversibility of impacts,
- likelihood of impacts and vulnerabilities,
- potential for adaptation,
- distributional aspects of impacts and vulnerabilities,
- importance of the system(s) at risk.

In other words, key vulnerabilities are likely to occur where the effects of climate change are large and intense, imminent, long-lasting, highly probable, and likely to limit the distribution of highly valued systems or system elements.

The IPCC uses their criteria to select key vulnerabilities across a broad array of systems: infrastructure, health, markets, agriculture, migration and conflict, as well as biological and geophysical systems. Focusing their thinking only on wildland systems, Running and Mills (2009) suggest that the most vulnerable elements of ecosystems are those that are 1) rare; 2) long-lived (with fewer generations in which to evolve); 3) isolated; 4) dependent on special habitats (especially those directly affected by climate, such as deep snow and ephemeral wetlands); and 5) susceptible to the kinds of disturbances likely to result from climate change (fire, floods, extreme drought). In addition to these “highly vulnerable” species, they recommend focusing on a) species with “a high public profile;” b) “data-rich” species; and c) “strongly interacting” species (keystone and dominant species). Species with a high profile are those that are appreciated for their strong contribution to ecosystems services, providing utilitarian, recreational, and aesthetic value. “Data rich” species provide the information necessary to devise potential conservation strategies, and “strongly interacting” species, by definition, control ecosystem function. Running and Mills apply their criteria specifically to species, but similar considerations may apply to features, such as glaciers, rare soils, riparian vegetation, and old growth forests. A vulnerability assessment should explicitly examine species and other ecosystem elements that meet these criteria and explore the factors that make them vulnerable.

Recommendation: The BLM should evaluate the planning area for key vulnerabilities according to the criteria above, and the nature of the climate threat to selected ecosystem elements should be fully examined and presented as part of the plan revision process in order to comply with its

legal obligations under NEPA and other relevant laws and regulations. Such an assessment should include careful consideration of species and habitats of conservation concern.

Assessing Exposure

The assessment of exposure to climate change requires both the examination of the probability and timing of future climate change and the likely changes to which ecosystem elements may be vulnerable. Changes in average temperature and precipitation are important first-order effects to which many species are sensitive, but there are many other effects that constitute exposure. As mentioned, melting glaciers may cause an increase in summer stream temperature. Increased droughts may stress plants and animals, and early onset of spring is already increasing exposure to fire activity (Westerling et al. 2006). More subtle changes are also expected. Plants may be exposed to pollinator shortages, and species range shifts may turn native species into invasive species. A risk assessment should examine the probability of exposure to these and other likely effects.

Assessing exposure probability involves combining information about likely climate change and its effects. Possible climate change can be assessed using predictive models that can be run under a variety of future scenarios. The results of these climate models can then be linked to other models to explore effects on future vegetation, fire regimes, hydrology, etc. (Lenihan et al. 2006). Where models agree with each other and produce similar results under multiple scenarios, the results can be viewed with a high degree of confidence. Where models produce a range of behaviors, prediction is less robust. In general, as the spatial resolution of models increases through the process of “statistical downscaling,” agreement, and hence confidence, decreases. Millar et al. (2007) note, “We might feel confident of broad-scale future environmental changes (such as global mean temperature increases), but we cannot routinely predict even the direction of change at local and regional scales (such as increasing or decreasing precipitation).” Nevertheless, models can be used to explore possibilities, “game different scenarios, and gain qualitative insight on the range and direction of possible future changes without committing to them as forecasts” (Millar et al. 2007).

In addition to examining the probability of various changes in climate, an assessment of exposure should examine the consequences of those changes and where they are likely to occur in space and time. For example, sea-level rise is a highly likely and potentially devastating consequence of climate change but one that is limited in extent to coastlines. Increased fire activity is also to be expected, but exposure is likely to be of greater concern near homes than away from them. An exposure assessment should examine where the threat of increased fire activity is likely to be most acute, including how that threat will change with growth of the “wildland-urban interface.” Potential future effects are many, and precise quantification of probabilities may be beyond the limits of existing tools and budgets. In these cases, future possibilities can be explored through “scenario planning,” in which groups of analysts or stakeholders consider a broad range of possible consequences of climate change (Welling 2008).

Recommendation: A risk assessment conducted as part of the plan revision should identify the direct and indirect modes of exposure to climate change and attempt to quantify them based on the best available science as required by NEPA and other laws and regulations.

Assessing Uncertainty

Because assessing the risks associated with climate change involves predicting future conditions, it is no surprise that it is fraught with uncertainty. Limitations in predictive ability derive not only from uncertainty about future conditions but from limitations of our understanding of current and historical conditions and the factors that drive ecosystem behavior. Table 1 lists only a few of the many sources of uncertainty that plague the assessment of risk from climate change. Each of these sources contributes to risk, and the better they are understood, the more complete the assessment of risk.

The sources in Table 1 are not an exhaustive list but only illustrate the range of unanswered questions. As vulnerabilities and exposure are assessed, many more uncertainties will be revealed. It is critically important that these uncertainties be explicitly documented and incorporated into the risk assessment so that strategies can be developed to reduce uncertainty in the plan.

Table 1. Sources of uncertainty in understanding future climate change and its effects	
Data limitations	<ul style="list-style-type: none"> ◆ Poor records of past climate surfaces ◆ Poor records of species occurrences
Limitations in ecological knowledge	<ul style="list-style-type: none"> ◆ Habitat/range models (“climate envelopes”) ◆ Limited understanding of species response to climate change ◆ Mortality rates and thresholds of mortality and recruitment ◆ Dispersal ◆ Species interactions ◆ Behavior of novel ecosystems ◆ Effects of interacting stressors
Model limitations and variability	<ul style="list-style-type: none"> ◆ Limited understanding of the climate system ◆ Intermodel variation in model output ◆ Intramodel variation in model output ◆ Downscaling coarse resolution global output to generate higher resolution future climate (especially in topographically diverse terrain)
Vagaries of human behavior	<ul style="list-style-type: none"> ◆ Future emissions scenarios ◆ Institutional resources ◆ Public support ◆ Planning horizon ◆ Shifting decision processes and loci

Under such an indeterminate future, assessing vulnerability and exposure will be especially difficult, placing added importance on the identification and reduction of uncertainty in land management plans.

Recommendation: Pursuant to NEPA, BLM should identify and document known sources of uncertainty and data needs and initiate action to fill those gaps at the earliest possible point in the RMP revision process. Where data gaps remain, the plan should include strategies to reduce uncertainties.

II. MANAGING THE RISK OF CLIMATE CHANGE: A RECOMMENDED APPROACH

We strongly recommend that the agency use the following “risk management” strategy in conjunction with the “risk assessment” strategy laid out above when developing management prescriptions in the face of climate change.

Adaptation is the management of risk to reduce the adverse effects of climate change on ecosystem services received from wildlands. Actions that reduce the vulnerability to, exposure to, and uncertainty of climate change impacts contribute to adaptation. Each of these aspects of risk can be managed to reduce the negative consequences of climate change to wildlands.

Unfortunately, which techniques will be most effective remains to be determined. Learning will require an experimental approach, tailored as appropriate to the specific lands on which they are applied. Silviculture and other intensive management actions will not be appropriate in lands designated to protect wilderness character, but they may be tested on less-restrictive parts of the landscape. The important thing is that these methods are approached experimentally, with monitoring to facilitate rapid learning (Lawler et al. 2010). Finally, the diversity of administrative designations present in most landscapes can themselves provide a framework for experimentation that can accelerate discovery of approaches to climate change adaptation.

Reducing Vulnerability

Depending on which ecosystem elements are identified as “key vulnerabilities” in the risk assessment, a variety of options are available to decrease vulnerability by reducing the sensitivity to climate change or by enhancing adaptive capacity. One of the simplest and most direct ways to reduce sensitivity is to address the stressors in addition to climate change that make species and ecosystems vulnerable to climate change. Reducing these anthropogenic stressors has been called the “low-hanging fruit” of climate change adaptation (Joyce 2009) and includes increasing the size and number of protected reserves, restoring altered disturbance regimes, halting and repairing the loss and fragmentation of habitat, managing invasive species, cleaning up air and water pollution, and addressing the legacy of past management. According to Galatowitsch et al. (2009), “Key resilience actions include providing buffers for small reserves, expanding reserves that lack adequate environmental heterogeneity, prioritizing protection of likely climate refuges, and managing forests for multi-species and multi-aged stands.”

In addition to reducing susceptibility, actions can be taken to enhance the capacity of species and ecosystem elements to remain viable in the face of climate change. Enhancing adaptive capacity

consists of actions to facilitate or improve the ability of species (usually) to respond favorably to climate change. The following are several examples of strategies to enhance adaptive capacity derived from the burgeoning literature of “adaptation options” (Noss 2001, Millar et al. 2007, Joyce et al. 2008, Biringier 2003, CNRA 2009, Glick et al. 2009, Running and Mills 2009).

- ◆ *Promote connected landscapes.* Restoring and maintaining habitat connectivity provides species with the “room to roam” they need to respond to a changing climate. Without connected habitat, species may not be able to disperse to new locations exhibiting a favorable climate. Providing corridors and habitat connectivity facilitates the innate capacity to disperse in response to climate change.
- ◆ *Facilitate migration.* Where movement in response to climate change is blocked by habitat fragmentation or where species lack the dispersal ability to “keep up with” a changing climate, species can be physically moved across barriers. Of course, such decisions must be weighed extremely carefully to avoid the well-known consequences of the arrival of invasive species into novel habitats. McLachlan et al. (2007) offer guidelines for consideration of assisted migration.
- ◆ *Provide opportunities for rapid evolution.* The ability of species to adapt to new climates is enhanced where new genotypes are frequently exposed to new conditions. Restoration of disturbance regimes, such as fire, that provide for frequent opportunities for expression of genetic variability can accelerate the process of adaptation.
- ◆ *Maintain genetic diversity.* Running and Mills (2009) note, “Contemporary adaptive evolution is facilitated by a medium level of gene flow,” suggesting that adaptation may be aided better in the short run by moving genes, rather than species. Maintaining habitat and dispersal connectivity among subpopulations will ensure continued opportunities for interbreeding and cross-pollination and help maintain adaptive capacity in populations. Also, guidelines for replanting following timber harvest currently require seedlings to be derived from local seed sources. Expanding the range from which seedlings are derived could help introduce new, better-adapted genotypes into the population.
- ◆ *Promote species diversity.* At the community or ecosystem level, adaptation and the maintenance of ecosystem services is well served by maintaining a rich diversity of species. Different species possess different thresholds of response to climate change. The loss of an individual species due to climate change will have a less dramatic effect on an ecosystem if other species are present that can fill at least part of that species’ niche.
- ◆ *Manage for “asynchrony”.* Populations are more vulnerable when all the individuals are in the same demographic stage. The current mountain pine beetle epidemic exemplifies the consequences of a synchronous population, in this case due to the establishment of a single cohort of lodgepole pine throughout the West following widespread mining and fires in the late 19th century. Restoring disturbance regimes can help maintain a heterogeneous landscape with multiple age classes and help reduce vulnerability to climate change.
- ◆ *Enhance seed banks and ex situ conservation.* Owing to the unpredictability of the consequences of climate change, it is not too early to consider enhancing and expanding seed banks and other “off site” conservation efforts. Climate change may lead to localized extinctions, especially of isolated populations, and, in these cases, enhancing adaptive capacity will depend on the artificial reintroduction of stock maintained elsewhere.

- ◆ *Allow establishment of “neo-native” ecosystems.* The species that exist today have generally been around far longer than the ecosystems they currently compose, often in locales outside of their current range where the climate was historically suitable. As the climate changes, species can be expected to reoccupy their former range where suitable. Also, where species are to be introduced for purposes other than biodiversity conservation (e.g., timber plantations, pastures), review of the paleoecological record may provide insights **into where species may thrive in their historically “native” range under an altered climate.** Ecosystems so established may be considered “neo-native” in that they would consist of native species in their historical range, though in combinations that may not currently exist.

Recommendation: BLM has a legal duty to prevent permanent impairment and unnecessary or undue degradation to the resources, and to manage the resources for the long-term needs of future generations. This obligation requires the agency to reduce the vulnerability of the ecosystem to the very real threats posed by climate change. BLM can comply with this duty by adopting several or all of the strategies listed above, depending on the ecological composition and land tenure of the area.

Reducing Exposure

As with vulnerability, the climate adaptation literature indicates several options to manage risk by reducing exposure. Most important, but least directly affected by management, is mitigation of greenhouse gas emissions themselves. **More under managers’ control is the exposure to the effects, both direct and indirect, of climate change.** Last, managers can identify and protect those places that are least likely to be affected by climate change, so called “climate refugia.”

Mitigation. While the vast majority of emission reduction must be accomplished in the energy sector, there are several actions that wildland managers can take to prevent unnecessary release of greenhouse gases to the atmosphere. One of the easiest sources to control is the conversion of old growth to young forest. It is well established that when older forest is harvested and regenerated to younger forest, a net release of carbon dioxide results from the decomposition of coarse and fine debris and soil organic matter that occurs in the warm post-harvest environment (Harmon et al. 1990).

Reducing exposure to the effects of climate change. While it is clear that forest management can affect exposure through its influence on greenhouse gas emissions, it is also clear that climate change has become inevitable, and risk management must focus on reducing exposure to its effects. One of the most likely of these effects is drought, due to more rapid melting of snowpack and increased evapotranspiration — even if precipitation does not change (National Research Council 2008). Increased drought will result in lower levels of summer streamflow and warmer water temperatures, with potentially devastating effects on aquatic ecosystems and impacts on the ability of ecosystems to provide water for human use. In addition to drought, extreme flood events are likely to increase as a result of rain-on-snow events where they have not occurred historically. To address these effects, actions will need to be taken to build up the buffering capacity of watersheds and restore riparian ecosystems degraded by grazing, water diversion, and channeling. The U.S. Climate Change Science Program offers a number of adaptation options for

managers of Wild and Scenic Rivers that can be applied as well wherever riparian ecosystems are exposed to the effects of climate change (See, Palmer et al. 2008).

Among the emerging strategies to buffer the effects of climate change is to restore the water retaining capacity of river systems. Opperman et al. (2009) argue for actively reconnecting rivers to their floodplains. Similarly, Running and Mills (2009) suggest in some cases it may be helpful to construct “pico-dams” in headwater streams, tiny impoundments intended to retain runoff and maintain late-season flows. Such a strategy may be implemented through the restoration of wet meadows that were drained to facilitate livestock grazing and other uses. In any case, actions such as fish stocking or impoundment should be done to sustain ecosystem integrity and functionality, not simply to enhance sport fishing or manage water supply. Closing and rehabilitating roads can also restore subsurface flow and slow the delivery of runoff to channels.

Climate Refugia. In some cases, it may be possible to avoid exposure to many of the effects of climate change by identifying and protecting those places where climate is unlikely to change. Noss (2001) notes that refugia from past unfavorable climates harbored much of the genetic and species diversity from which extant populations and communities derive and are important objects of conservation for the diversity they still harbor. Similarly, we can expect some places to be less prone to change in the future, and these places will be important to protect for their potential to harbor diversity in the face of regional climate change. For example, Noss cites the case of talus slopes in Iowa that occur in cold-air drainages below ice-filled caves that now support dozens of vascular plant species that are disjunct from boreal forests to the north and west and at least eight landsnail taxa that were previously thought to have gone extinct at the end of the Pleistocene. As downscaled climate models continue to improve, it may be possible to use them to identify places that will be less exposed to climate change and can be protected for their conservation value (Loarie et al. 2009), though much work remains to determine the appropriate size, configuration, etc., for such refugia.

Recommendation: BLM has a legal duty to prevent permanent impairment and unnecessary or undue degradation to the resources, and to manage the resources for the long-term needs of future generations. This obligation requires the agency to reduce exposure of the ecosystem to the very real threats posed by climate change. BLM can comply with this duty by adopting several or all of the options listed above, depending on the ecological composition and land tenure of the area.

Reducing Uncertainty

Uncertainty appears as an obstacle to climate change adaptation in virtually every treatment of the subject; reducing uncertainty may therefore be considered critical to progress in managing risk from climate change. Much uncertainty derives from insufficient knowledge of current conditions and management effects and may be reduced simply through increased emphasis on *monitoring*. Reducing uncertainty about the nature of ecological and social systems and their future behavior requires investment in *research*. Learning can be greatly accelerated by the process of *adaptive management* that combines aspects of both research and monitoring to reduce uncertainty. Where knowledge of the future is especially high and control over the consequences of climate change is low, *scenario planning* may be used to prepare for possible outcomes, thus reducing uncertainty and anxiety over how to respond.

Monitoring. A major impediment to the reduction of uncertainty regarding future impacts of climate change is simply a lack of knowledge of current baseline conditions and the ability to detect change in the future. The U.S. Climate Change Science Program (Kareiva et al. 2008) identifies establishing baseline conditions and monitoring as key elements of impact assessment necessary to support adaptation. In their review of the climate change adaptation literature, Glick et al. (2009) identify increased monitoring as one of five general principles of adaptation. Monitoring is needed not only to detect the effects of climate change but to assess the success of adaptation actions.

Research. Many of the uncertainties associated with climate change can only be addressed through formal research, and research will continue to be essential to climate change adaptation. Accomplishment of much of this research will require cooperation with the agencies managing the land. Reduction of future uncertainty can be greatly accelerated if the managing agencies work closely with scientists to facilitate, advise, and assist in climate change research. If it has not done so already, BLM should invite broad participation from DOI's Landscape Conservation Cooperatives and Regional Science Centers throughout the RMP amendment.

Adaptive management. When aspects of monitoring and research are combined into an approach to management that is explicitly intended to accelerate learning, it is called "adaptive management." According to Innes et al. (2009), "adaptive management can be viewed as a systematic process for continually improving management policies and practices by monitoring and then learning from the outcomes of operational programmes. Within the context of climate change, ... adaptive forest management is one tool that could enable managers to adjust the structure and the consequent functioning of the forest ecosystem to resist harmful impacts of climate change, and to utilize the opportunities created by climate change." (p.137). Typically, adaptive management follows a continuous cycle of planning, implementation, monitoring and evaluation (DeLuca et al. in press).

Adaptive management is sometimes described as either "passive", when management is modified simply as a result of observing the consequences of past action, or "active", when management actions are designed explicitly as an experiment to test competing hypotheses (Kareiva et al. 2008). Whatever the case, monitoring is essential to the process of evaluation and modification. Experience has also shown that adaptive management functions best when it involves the public in the identification of the hypotheses to be tested, in the design of the monitoring strategy, and in the implementation of the monitoring program (Bliss et al. 2001, Innes et al 2009). So important is stakeholder involvement to the development of the "social license" necessary for management action that "the entire concept has been renamed adaptive collaborative management or adaptive co-management" (Innes et al. 2009). In the end, BLM must apply the lessons learned from monitoring and research to amend their decision path as necessary.

Scenario planning. When uncertainty is high and the "controllability" of the outcome is low, there may be little that managers can do to design management strategies "to resist harmful impacts of climate change" as referred to above (Innes et al. 2009). In these cases, uncertainty, or at least anxiety over the uncertainty of climate change, can be reduced by scenario planning.

Scenario planning is (usually) a qualitative process “that involves exploration and articulation of a wide set of possible or alternative futures” (Baron et al. 2008). Scenarios are plausible stories or narratives describing what might happen under an uncertain future. Their development can be aided by quantitative data or models, but the idea is to explore a range of possible futures, rather than try to predict a single “most likely” case. When developed in the context of broad stakeholder participation, they can increase understanding of key uncertainties, facilitate the incorporation of alternative perspectives into planning, and improve the capacity for adaptive management (Welling 2008).

Recommendation: Reducing uncertainty of baseline conditions and the impacts of management in the face of climate change should be a major priority of any risk management strategy set forth by the agency to reduce the risk posed by climate change. BLM should build in robust research, monitoring, adaptive management, and scenario planning into the land use plan in order to address this challenging aspect of risk management.

References

- Baron, J.S., C.D. Allen, E. Fleishman, L. Gunderson, D. McKenzie, L. Meyerson, J. Oropeza and N. Stephenson. National Parks. Pages 85-120 in S. Herrod Julius and J. M. West (eds.), Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources. Final Report, Synthesis and Assessment Product 4.4. U.S. Climate Change Science Program, U.S. Environmental Protection Agency, Washington, DC.
- Bartell, S.M. 1998. Ecology, environmental impact statements, and ecological risk assessment: a brief historical perspective. *Human and Ecological Risk Assessment* 4:843-851.
- Biringer, J. 2003. Forest ecosystems threatened by climate change: promoting long-term forest resilience. Pages 43-71 in Hansen, L.J., J.L. Biringer and J.R. Hoffman (eds.), **Buying time: a user’s manual for building resistance and resilience to climate change in natural systems.** World Wildlife Fund, Washington, DC. <http://assets.panda.org/downloads/buyingtime.pdf> (visited November 26, 2009).
- Bliss, J., G. Aplet, C. Hartzell, P. Harwood, P. Jahnige, D. Kittredge, S. Lewandowski, and M.L. Soscia. 2001. Community-based ecosystem monitoring. *Journal of Sustainable Forestry* 12:143-167.
- Boyd, J.W., and H.S. Banzhaf. 2005. Ecosystem services and government accountability: the need for a new way of judging nature’s value. *Resources Magazine*. Summer:16-19.
- Braat, L.a.B., P. ten, Bakkes, J., Bolt, K., Braeuer, I., ten Brink, B., Chiabai, A., Ding, H., Gerdes, H., Jeuken, M., Kettunen, M., Kirchhoites, U., Klok, C., Markandya, A., Nunes, P., Oorschot, M. Van, Peralta-Bezerra, N., Rayment, M., Travisi, C., Walpole, M. 2008. *The Cost of Policy Inaction: The case of not meeting the 2010 biodiversity target.* Brussels: European Commission.

CNRA. 2009. 2009 California Climate Adaptation Strategy Discussion Draft: A Report to the Governor of the State of California in Response to Executive Order S-13-2008 (Public Review Draft). California Natural Resources Agency, Sacramento, CA.

DeLuca, T.H., G.H. Aplet, B. Wilmer, and J. Burchfield. The Unknown Trajectory of Forest Restoration: A Call for Ecosystem Monitoring. *Journal of Forestry* (in press).

Esposito, V., S.R. Phillips, R. Boumans, A. Moulert, and J. Boggs. 2009. Climate change and ecosystem services: the contribution of and impacts on federal public lands in the United States. Presented at Ninth World Wilderness Congress, Merida, Mexico, November 6-13.

Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, A.A. Velichko, 2007: Ecosystems, their properties, goods, and services. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Pages 211-272 in Parry, M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.), *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge.

Galatowitsch, S., L. Frelich, and L. Phillips-Mao. 2009. Regional climate change adaptation strategies for biodiversity conservation in a midcontinental region of North America. *Biological Conservation* 142:2012-2022.

Glick, P., A. Staudt and B. Stein. 2009. A new era for conservation: review of climate change adaptation literature. National Wildlife Federation, Washington, DC.

Harmon, M.E., W.K. Ferrell, and J.F. Franklin. 1990. Effects on carbon storage of conversion of old-growth forests to young forests. *Science* 247:699:702.

Holtcamp, W. 2010. Silence of the pikas. *Bioscience* 60:8-12.

Holton, G.A. 2004. Defining risk. *Financial Analysts Journal* 60(6):19-25.

Innes, J., L.A. Joyce, S. Kellomäki, L. Louman, A. Ogden, J. Parrotta and I. Thompson. 2009. Management for adaptation. Pages 135-185 in R. Seppälä, A. Buck and P. Katila (eds.), *Adaptation of forests and people to climate change – a global assessment report*. IUFRO World Series Volume 22. International Union of Forest Research Organizations (IUFRO), Vienna, Austria.

IPCC. 2007. *Climate Change 2007: Synthesis Report, Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Pachauri, R.K. and Reisinger, A. (Eds.). Geneva, Switzerland.

(http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm)

IUCN. 2008. Guidelines for applying protected area management categories: final draft of revised guidelines. IUCN, Gland, Switzerland.

Joyce, L.A., G.M. Biate, J.S. Littell, S.G. McNulty, C.I. Millar, S.C. Moser, R.P. Neilson, K.A. O'Halloran, D.L. Peterson. **National Forests. Pages 19-84** in S. Herrod Julius and J. M. West (eds.), *Preliminary Review of Adaptation Options for Climate-Sensitive Ecosystems and Resources. Final Report, Synthesis and Assessment Product 4.4.* U.S. Climate Change Science Program, U.S. Environmental Protection Agency, Washington, DC.

Joyce, L. 2009. Forests. In *Adaptation 2009: Safeguarding Fish, Wildlife and Natural Systems in the Face of Climate Change. Conference Summary Report.* National Council for Science and the Environment, Washington, DC.

Kareiva, P., C. Enquist, A. Johnson, S.H. Julius, J. Lawler, B. Petersen, L. Pitelka, R. Shaw, and J.M. West. 2008. Synthesis and conclusions. Pages 9-1 to 9-66 in Julius, S.H., J.M. West (eds.), *Preliminary review of adaptation options for climate-sensitive ecosystems and resources. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research.* U.S. Environmental Protection Agency, Washington, DC.

Lawler, J.J., T.H. Tear, C Pyke, M.R. Shaw, P. Gonzalez, P. Kareiva, L. Hansen, L. Hannah, K. Klausmeyer, A. Aldous, C. Bienz, and S. Pearsall. 2010. Resource management in a changing and uncertain climate. *Frontiers in Ecology and the Environment* 8(1):35-43.

Lenihan, J.M., D. Bachelet, R. Drapek and R.P. Neilson. 2006. The response of vegetation distribution, ecosystem productivity, and fire in California to future climate scenarios simulated by the MC1 dynamic vegetation model. California Climate Change Center CEC-500-2005-191-SF.

Loarie, S.R., P.B. Duffy, H. Hamilton, G.P. Asner, C.B. Field, and D.D. Ackerly. 2009. The velocity of climate change. *Nature* 462:1052-1055.

McLachlan, J.S., J.J. Hellman and M.W. Schwartz. 2007. A framework for debate of assisted migration in an era of climate change. *Conservation Biology* 21:297-302.

Millar, C.I., N.L. Stephenson and S.L. Stephens. 2007. Climate change and forests of the future: managing in the face of uncertainty. *Ecological Applications* 17:2145-2151.

National Research Council. 2008. *Ecological impacts of climate change: free executive summary.* National Research Council, Committee on Ecological Impacts of Climate Change. National Academy of Sciences. (available at: http://www.nap.edu/catalog.php?record_id=12491)

Noss, R.F. 2001. Beyond Kyoto: Forest management in a time of rapid climate change. *Conservation Biology* 15:578-590.

Opperman, J.J., G.E. Galloway, J. Fargione, J.F. Mount, B.D. Richter, S. Secchi. Sustainable floodplains through large-scale reconnection to rivers. *Science* 326:1487-1488.

Palmer, M.A., D. Lettenmeier, N.L. Poff, S. Postel, B. Richter and R. Warner. 2008. Wild and Scenic Rivers. Pages 177-214 in Julius, S.H., J.M. West (eds.), *Preliminary Review of*

Adaptation Options for Climate-Sensitive Ecosystems and Resources. Final Report, Synthesis and Assessment Product 4.4. U.S. Climate Change Science Program, U.S. Environmental Protection Agency, Washington, DC.

Parry, M.L., O.F. Canziani, J.P. Palutikof and co-authors. 2007. Technical Summary Climate Change 2007: Impacts, Adaptation and Vulnerability. Pages 23-78 in Parry, M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.), Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, UK.

Running, S.W. and L.S. Mills. 2009. Terrestrial Ecosystem Adaptation. Resources for the Future, Washington, DC.

Schneider, S.H., S. Semenov, A. Patwardhan, I. Burton, C.H.D. Magadza, M. Oppenheimer, A.B. Pittock, A. Rahman, J.B. Smith, A. Suarez and F. Yamin. 2007. Assessing key vulnerabilities and the risk from climate change. Chapter 19 in Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 779-810.

Welling, L. 2008. "Climate Change Scenario Planning: A Tool for Managing Resources in an Era of Uncertainty." National Park Service. (available at:

http://www.fs.fed.us/psw/cirmount/meetings/mtncim/2008/talks/pdf/Welling_Talk2008.pdf)

Westerling, A.L., H.G. Hidalgo, D.R. Craven, and T.W. Swetnam. 2006. Warming and earlier spring increase Western U.S. forest wildfire activity. Science 313: 940-943.