100,376

May 23, 2003

Jack Morrow Hills CAP Team Leader
Bureau of Land Management
280 Highway 191 North
Rock Springs, Wyoming 82901

Dear Team Leader:

The following comments are submitted on behalf of the National Wildlife Federation (NWF), the Wyoming Wildlife Federation (WWF), and the Natural Resources Defense Council (NRDC) for consideration during the preparation of the final Jack Morrow Hills Coordinated Activity Plan (JMHCAP) and associated environmental impact statement (EIS). NWF, WWF, and NRDC support adoption of the Wildlife and Wildlands Alternative (WWA) as the final JMHCAP.[1] (A copy of the WWA is attached to these comments.) The final EIS should denote the WWA as the preferred management for the Jack Morrow Hills.

The Jack Morrow Hills Study Area contains one of the most impressive combinations of historical, natural and scenic values in the American West. The area contains seven Wilderness Study Areas, the largest desert elk herd in the world, the largest migratory game herd in the lower 48 states, one of the last strongholds of the greater sage grouse in the Rocky Mountains, the largest active sand dune system in North America, numerous Native American holy places, and historic sites such as the South Pass Landscape and the Emigrant Trails.

Over 350 wildlife species inhabit the Jack Morrow Hills including ferruginous hawks, golden eagles, mountain lions, black bears and coyotes. Many species of concern are found in the area including burrowing owls, mountain plover, pygmy rabbits, flannel mouth suckers, eastern short-horned lizards, and Great Basin Gopher Snakes.

The Jack Morrow Hills Study Area is home to a large number of rare and imperiled plants and plant communities. At least fourteen rare, imperiled and plant species "of concern" have been identified in the study area, including the Nelson's milkvetch, the meadow pussytoes, the large-fruited bladderpod, Payson's beardtongue, and alkali wild rye. The area also contains the only known occurrence of the basin big sagebrush/lemon scurfpea association in the world.

Citizen-led efforts to protect the Red Desert date back to 1898 when Lander sportsman Dr. Frank Dunham and other Wyoming hunters tried to designate much of the desert a Winter Game Preserve. This first conservation proposal included a large swath of land through the Greater Green River Basin all the way up to Yellowstone National Park, encompassing the migratory corridors used by elk, antelope, and deer to travel back and forth between the desert and the Greater Yellowstone Ecosystem. In 1935, Wyoming Governor Leslie Miller unsuccessfully attempted to preserve part of the desert as part of a larger nationwide "Western Trails National

[1]This is also known as the Citizens' Alternative or the Citizens' Wildlife and Wildlands Alternative.

Park" which would have protected land adjacent to the Emigrant Trails. In 1968, local rancher and wildlife advocate Tom Bell courageously attempted to advance a congressional proposal to designate part of the desert as a North American Antelope Range.

Most recently, in December 2000, then-Secretary Bruce Babbitt directed the Bureau of Land Management to find a way pursuant to the agency's land use planning process to ensure that that the wildlife and wildlands of the Jack Morrow Hills are preserved. As he stated, "the presence of finite mineral resources should not deprive future generations of the natural and aesthetic wonders" of the Jack Morrow Hills. Memorandum to the Director of the Bureau of Land Management from the Secretary of the Interior (December 22, 2000).

The Federal Land Policy Management Act (FLMPA) and related regulations require the Bureau of Land Management (BLM) to manage the public lands and their resources pursuant to a comprehensive land use plan. All future actions on the Jack Morrow Hills must conform to the terms and conditions established in the final JMHCAP. Given the importance of this planning document, BLM must ensure careful adherence to the legal requirements of both FLPMA and the National Environmental Policy Act (NEPA). In addition to strict compliance with the letter of these laws, we encourage BLM to honor their spirit as well. One of the underlying goals of both NEPA and FLPMA is to achieve environmentally sound management of the Nation's lands and natural resources.

Despite the fact that BLM already has produced a supplemental draft EIS, there are still significant gaps in the agency's evaluation of the potential impacts posed by the activities authorized under the proposed land use plan. BLM itself admits that it prefers an adaptive management strategy for the Jack Morrow Hills, at least in part, because the agency lacks sufficient information to make a reasoned choice with respect to oil and gas development in the planning area. NEPA, however, demands that federal agencies gather the data necessary to make that choice. Moreover, while BLM may lack data on the specific location and intensity of development the oil and gas industry would pursue in the Jack Morrow Hills, there is no dearth of information on the wildlife, recreational, and cultural resources that are at risk. Given the unique quality of the public lands in the Jack Morrow Hills, we believe the final JMHCAP should preclude the issuance of new oil and gas leases and identify options for re-acquiring leases already issued in the area. BLM should take this action in order to ensure the continued vitality of big game populations and other wildlife resources, protect cultural resources, and preserve pristine lands as Wilderness on the Jack Morrow Hills.

I. THE FINAL ENVIRONMENTAL IMPACT STATEMENT MUST ENSURE BOTH CONSIDERATION AND PREVENTION OF HARMFUL ENVIRONMENTAL OUTCOMES

BLM must bear in mind that the "primary purpose" of an EIS is to "insure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the Federal

Government." 40 C.F.R. § 1502.1. The policies and goals of NEPA include:

> Encouraging a "productive and enjoyable harmony between man and his environment,"
> Promoting "efforts which will prevent or eliminate damage to the environment and biosphere,"
> Using "all practicable means and measures . . .to create and maintain conditions under which man and nature can exist in productive harmony . . .,"
> Fulfilling "the responsibilities of each generation as trustee of the environment for succeeding generations,"
> Assuring "all Americans safe, healthful, productive and esthetically and culturally pleasing surroundings,"
> Allowing beneficial use of the environment "without degradation . . . or other undesirable or unintended consequences,"
> Preserving "important historic, cultural and natural aspects of our national heritage . . .,"
> Achieving a "balance between population and resource use . . .," and
> Enhancing "the quality of renewable resources" and maximizing recycling of depletable resources.

42 U.S.C. §§ 4321-4331; *see also* BLM Handbook H-1790-1.V. B.2.a(3). Thus, the issues that BLM must identify for analysis in its EIS include the above goals and policies, and we ask BLM to "insure" that these considerations are "infused" into the land management decisions considered in the EIS and authorized by the final JMHCAP.

BLM's Land Use Planning Handbook requires BLM to identify desired outcomes or desired future conditions resulting from implementation of a land use plan. BLM Handbook H-1601-1.II.B.1. For example, BLM should determine the desired outcome from oil and gas development and how such development will impact the desired future condition of wildlife habitat, recreation, air and water quality, and energy reserves. Mechanisms available for resolving conflicts between oil and gas development and other resource values should be identified in the EIS and adopted in the JMHCAP. The requirement for BLM to prevent unnecessary or undue degradation of the public lands should propel the choice of these mechanisms. Closure of lands to some uses, such as oil and gas development or logging or grazing, is specifically acknowledged as a means to achieve desired outcomes for other resource values. BLM Handbook H-1601-1.II.B.2.

Moreover, some statutes, such as the Clean Water Act (CWA), the Clean Air Act (CAA), and the Endangered Species Act (ESA), require that where there are conflicts between what may be desirable commodity development and the obligations imposed by such laws, development must recede. The JMHCAP should acknowledge this and make provisions for meeting these legal requirements.

It is rarely possible to obtain perfect information. BLM should not allow this to pre-empt informed decision-making. The agency should gather the best information possible in all but the narrow range of exceptions permitted by the Council on Environmental Quality's (CEQ's) regulations. *See* 40 C.F.R. § 1502.22. If BLM concludes that information is not essential to a reasoned consideration of alternatives, or the cost of obtaining the information is exorbitant, or the means for acquiring the information are unknown, BLM must nevertheless present "credible

scientific evidence" on reasonably foreseeable significant adverse impacts (including low likelihood but catastrophic impacts) so that the impacts can be assessed based on approaches that are "generally accepted in the scientific community." *See* 40 C.F.R. § 1502.22(b); *see also* 40 C.F.R. § 1502.24 (requiring professional and scientific integrity in an EIS).

Monitoring of land use plan implementation and the impacts resulting from plan implementation are crucial. A number of legal requirements apply to plan monitoring, and BLM must meet these obligations. *See, e.g.*, 43 C.F.R. §§ 1610.4-9, 1610.5-3; BLM Handbook H-1601-1.IV-VII. Moreover, the JMHCAP itself should make provision for the effective enforcement of its provisions. The standards and requirements developed in a land use plan are mandatory and must be implemented whether or not site-specific projects are pursued. *See Southern Utah Wilderness Alliance v. Norton*, 301 F.3d 1217 (10th Cir. 2002).

II. "IN MANAGING THE PUBLIC LANDS THE SECRETARY SHALL, BY REGULATION OR OTHERWISE, TAKE ANY ACTION NECESSARY TO PREVENT UNNECESSARY OR UNDUE DEGRADATION OF THE LANDS"

This provision from FLPMA is a mandatory requirement applicable to all resource uses and decisions affecting BLM lands. 43 U.S.C. § 1732(b). Consequently, it must serve as a foundation for all analyses in the EIS and all activities undertaken pursuant to the JMHCAP.

"Unnecessary or undue degradation" should not be defined by default. For example, BLM should reject the suggestion that because an oil and gas lease conveys the right to "use so much of the leased lands as is necessary to explore for, drill for . . . and dispose of all of the leased resource . . ." essentially anything an oil and gas lessee proposes to do to develop a lease is permissible. In both its regulations and its standard lease terms, BLM claims to have retained substantial discretion to regulate oil and gas development despite issuance of a lease. *See, e.g.*, 43 C.F.R. § 3101.1-2. What is either unnecessary or undue must be defined on the basis of today's technology not the industry standard of twenty or ten or even five years ago. Finally, BLM must look at the significance of the resources placed at risk in any determination about whether their loss is acceptable under this standard.

III. BLM MUST ENSURE COMPLIANCE WITH THE LAND USE PLANNING REQUIREMENTS OF THE FEDERAL LAND POLICY AND MANAGEMENT ACT

Under FLPMA, land use plans for public lands are to "use and observe" multiple use and sustained yield principles, give priority to designation and protection of areas of critical environmental concern, and provide for compliance with pollution control laws. 43 U.S.C. § 1712(c). *See* 43 U.S.C. §1711(a); BLM Handbook H-1601-1.

The Requirement To Manage For Multiple Use And Sustained Yield Has Substantive Components

The definition of multiple use in FLPMA is lengthy. Key provisions include the following: (1) public lands and their resource values must be managed so that they "best meet the present and

future needs of the American people;" (2) some land be used "for less than all of the resources;" and (3) all resources must be managed "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 greatest unit output." 43 U.S.C. § 1702(c). Sustained yield as defined in FLPMA can be achieved either by "high-level annual" or "regular periodic" output of resources, so long as this is accomplished in a way that can be maintained in perpetuity and is consistent with the definition of multiple use. 43 U.S.C. § 1702(h).

Pursuant to FLPMA, the purpose of this planning process must be to produce a land use plan that "best" meets the present and future needs of the American people. What is best now, however, may not meet future needs. Since future needs may be unknown, the only way to "best" ensure that future needs can be met is to develop and select management actions that have a significant margin of safety and flexibility. Therefore, the final land use plan for the Jack Morrow Hills should emphasize resource conservation in order to preserve future use and users. [2]

FLPMA explicitly provides that BLM need not accommodate all resource uses on all lands.[3] BLM must consider the relative value of the resources involved. There are no replacements or substitutes for some resources on the public lands, such as crucial wildlife habitats, cultural and paleontological resources, clean air, clean water, and wilderness. As such, they have a greater relative value than resources that can be provided by other means or in other locations. The final JMHCAP must give special emphasis to preserving rare resources.

Since sustained yield can be achieved by providing for regular periodic outputs of renewable resources, BLM must consider this measure of sustained yield rather than just high-level annual measures. Occasional (periodic) outputs of some resources may be far more sustainable than attempts to produce the resource annually, especially at a "high-level." For example, drought may render livestock grazing unacceptable some years.

In addition to the requirement to manage for multiple use and sustained yield, Congress declared that the public lands are to be "managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values . . ." as well as to "preserve and protect certain public lands in their natural condition" and provide "food and habitat for fish and wildlife." 43 U.S.C. §1701(a)(8) (emphasis added). Alternatives that do not meet these criteria should be rejected without further consideration.[4]

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[2] It is untenable that BLM still insists that it cannot manage the public lands so as to exclude some commodity uses. The SDEIS states that to do so would "not meet the objectives of BLM's multiple use mandate." SDEIS at 2-4. This is not the true. Moreover, it flies in the face of the Solicitor's opinion that required BLM to supplement its previous DEIS on the Jack Morrow Hills. Memorandum to the Secretary of the Interior from the Solicitor (December 22, 2000).

[3] This provision has special significance with respect to oil and gas development. Too often, as was true of the former planning documents for this area, all lands are made available to such development.

[4] We note that the SDEIS asserts that the Preferred Alternative "provides for controls on leasing and levels of drilling activity to prevent irreversible adverse impacts to sensitive resources in the planning area." SDEIS at A13-24. Any

BLM Must Ensure Compliance with the Clean Water Act and Clean Air Act

The Clean Water Act

FLPMA requires that land use planning and the resulting plan provide compliance with "pollution control laws" such as the Clean Water Act (CWA). 43 U.S.C. § 1712(c)(8). To do so, BLM must ensure that all streams on its lands comply with federal and state water quality standards. Yet, the SDEIS contains little information on the current condition of surface waters within the planning area. For example, according to the SDEIS, only Pacific, Jack Morrow, and Killpecker Creeks have been "sampled" for total dissolved solids (TDS) and "other constituents." SDEIS at 3-5. There is no information on the Sweetwater River except that its "suggested use" is domestic. SDEIS at 3-5.

Without additional information, it is impossible to tell whether the surface waters within the planning area currently comply with federal and state water quality standards. Moreover, BLM cannot determine whether the additional activities it intends to authorize pursuant to the JMHCAP will result in violations of CWA. For example, according to the SDEIS, "no information is available to date supporting water quality standards for any of the [livestock grazing] allotments" on the planning area. Yet, livestock contribute to fecal coliform pollution in surface waters. Moreover, overgrazing in riparian areas may result in significant deterioration in streamside vegetation. This loss of riparian vegetation leads to increased erosion and sedimentation in adjacent surface waters.

According to the SDEIS, 79% of riparian areas and 87% of wetland areas in the planning area are not in Proper Functioning Condition (PFC). SDEIS at 3-3. Moreover, half of the riparian areas and all of the wetland areas functioning at risk "exhibit a downward trend and show signs of becoming increasingly unstable." SDEIS at 3-3. Given these facts, it seems likely that many of the adjacent surface waters may already exceed state water quality standards for TDS as well as turbidity or other non-numeric standards. Yet, the JMHCAP adopts no restrictions on livestock grazing in riparian or wetland areas.

Most of the planning area is subject to the Colorado River Salinity Compact, a basinwide approach for controlling salinity in the waters that naturally drain into the Colorado River. Because nonpoint sources are a significant contributor to salinity, *see* SDEIS at 3-5, the SDEIS should include an assessment of the efficacy of current mitigation measures, including so-called Best Management Practices (BMPs), to ensure that salinity levels in the Colorado River are not

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Alternative that fails to do so should have been dismissed without any further consideration. The question, of course, is whether the Preferred Alternative actually does provide sufficient controls on oil and gas development and other surface-disturbing activities in order to preserve the irreplaceable resources of the Jack Morrow Hills.

We are concerned that the range of alternatives for energy development presented in the SDEIS is very narrow. When nondiscretionary closures, such as wilderness study areas, are subtracted, the total number of acres closed to mineral leasing varies by only 26,000 acres between Alternative 1 and the Preferred Alternative.

adversely impacted by activities authorized under the JMHCAP.[5] Adoption of a Total Maximum Daily Load (TMDL) for TDS for streams within the Colorado River watershed would be an important tool for achieving salinity control.

Similarly, the JMHCAP should make provision for implementing BLM's Riparian-Wetland Initiative, particularly the objective of restoring 75% of riparian areas to PFC.

The Clean Air Act

The final land use plan adopted by BLM must ensure that state and federal air quality standards are achieved. BLM should adopt a pro-active approach to air quality issues by using the land use planning process and the EIS to gather baseline air quality data and fully analyze the cumulative impact of any actions that may be authorized under the JMHCAP, as well as past, present, and reasonably foreseeable future actions on all lands within the airshed. Instead, the SDEIS appears to rely on air quality data that is outdated given the substantial increase in oil and gas activity within the applicable airshed in recent years.[6] SDEIS at 3-56 (The latest data from the Pinedale CASTnet station is from 1999.). The JMHCAP should establish an effective monitoring program and adopt measures adequate to curb the release of pollutants if monitoring reveals that standards have been exceeded.

CAA requires the prevention of any significant deterioration of air quality in some areas, particularly in Class I airsheds applicable to National Parks and wilderness areas. The JMHCAP should adopt measures to ensure the air quality of all proposed wilderness within the planning area is preserved.

BLM must acknowledge that oil, gas, and coalbed methane (CBM) development on federal, state and private lands is a significant contributor to haze. Oil and gas development contributes to this and other forms of air pollution in several ways. Oil and gas activities produce large surface disturbances (pads and roads) and increase vehicle traffic which contribute to particulate pollution. Oil and gas development also contributes to NO_x, SO_2, and volatile organic compound (VOCs) pollution through activities like flaring, drilling, processing plants, wellhead compressors and compressor stations. In 2000, the Environmental Protection Agency (EPA)

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[5] A mere listing of mitigation measures is inadequate. *Northwest Indian Protective Cemetery v. Peterson*, 795 F.2d 688, 697 (9th Cir. 1986), *reversed on other grounds sub nom Lyng v. Northwest Indian Protective Cemetery*, 485 U.S. 439 (1988). As the court noted, "[a] mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." *Id.* (*citing Adler v. Lewis*, 675 F.2d 1085, 1096 (9th Cir. 1982)).

The SDEIS seems to have drawn much of its mitigation measures from previous planning documents or other sources without any analysis of the efficacy of those measures. *See, e.g.*, Appendix 5 and Appendix 6. For example, there is no discussion of whether the standard seasonal restrictions are adequate to protect crucial big game habitats on the Jack Morrow Hills. There is no evaluation of whether the buffers used in the past have improved the viability of sage grouse leks and nesting areas.

[6] The obligation to seek out information is matched by a complementary obligation to insure that all information used meets standards of scientific rigor. CEQ regulations provide that "[a]]gencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." 40 C.F.R. § 1502.23.

prepared a report on the oil and gas extraction industry.[7] Data in the report show this industry ranks as follows in terms of creating air pollutants among the 29 industrial sectors reviewed by EPA:

Pollutant	Ranking (out of 29)
CO	9th
NO_2	3rd
PM_{10}	14th
Particulates	22nd
SO_2	2nd
VOC	5th

These data emphasize the importance of regulating air pollution from oil and gas development activities in the JMHCAP area.[8]

IV. THE ENVIRONMENTAL IMPACT STATEMENT MUST ADDRESS THE FULL RANGE OF RESOURCE ISSUES AND THE RESOURCE MANAGEMENT PLAN MUST ADOPT NEEDED PROTECTIONS FOR THOSE RESOURCES[9]

Energy Development[10]

Energy development is, in many ways, an environmentally harmful activity. Wildlife habitat is fragmented, scenic vistas marred and obstructed, air quality degraded, vegetation crushed and altered, and water sources drained and polluted. Natural areas, in essence, are converted into industrial zones.[11] For these reasons, energy development on the public lands, in general, must be strictly regulated. Energy fuel development on the Jack Morrow Hills itself cannot be conducted without severe losses of essential wildlife habitat as well as other cultural and natural resources. For these reasons, the JMHCAP must include a prohibition on new mineral leasing and BLM must begin a concerted effort to buy out or exchange existing leases.

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[7] Profile of the Oil and Gas Extraction Industry, EPA Office of Compliance, Sector Notebook Project, October 2000.

[8] BLM has the obligation under FLPMA and additional authority pursuant to the terms of its standard leases to impose conditions on oil and gas development to preserve air quality.

[9] BLM's Land Use Planning Handbook provides guidance on many of the resource needs, issues, and protections addressed below. BLM should fully comply with its provisions. *See* BLM Handbook H-1601-1, Appendix C.

[10] Many of the recommendations in this section are in conformance with the report "Land Use Planning and Oil and Gas Leasing on Onshore Federal Lands." National Academy of Sciences, 1989. We request that BLM consider and respond to this report as the agency develops the JMHCAP.

[11] The concerns expressed in this section with regard to oil, gas, and coal development also generally apply to other leasable minerals, including but not limited to tar sands, oil shales, phosphate, and gilsonite. The EIS should make similar analyses relative to these minerals.

In those instances where BLM cannot re-acquire leased mineral rights[12], BLM should invoke the use of lease suspensions to ensure that oil and gas development does not outpace the agency's ability to ensure reclamation of wildlife habitats impacted by such development. All new development of an operator's existing leases should be conditioned upon completion of effective reclamation. Operations on individual leases should be strictly controlled to avoid impacts to crucial big game habitats; sage grouse breeding, nesting, and wintering areas; mountain plover nesting areas; cultural resources; Native American sites and landscapes of religious or cultural significance as well as other resources.

Without these efforts, BLM cannot meet its obligations under FLPMA to ensure that the public lands are managed to achieve sustained yield, to prevent undue or unnecessary degradation, and in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values . . ." as well as to "preserve and protect certain public lands in their natural condition" and provide "food and habitat for fish and wildlife." 43 U.S.C. §1701(a)(8) (emphasis added).

Oil and Gas Leasing and Land Use Planning Issues

The lands administered by BLM hold many special natural values such as: wildlife habitat, rare plants, scenic vistas, archeological resources, wildlands recreation, historic sites, and areas important to Native Americans. In a few magic places on these public lands, several of these values come together in a relatively small area. The Jack Morrow Hills is one such place.

The Jack Morrow Hills planning area contains important habitat for elk, mule deer, and pronghorn. The area provides crucial habitat for all three big game species as well as calving areas for both elk and mule deer. Maintaining these habitats and the migration routes between them is paramount to sustaining viable big game herds on the Jack Morrow Hills. SDEIS at 3-15 to 3-16. To do so, BLM needs to move away from its traditional approach to mineral development on the public lands. The agency needs to recognize that some lands and resources cannot thrive along side drill pads and roads and pipelines and power lines. For example, the crucial big game habitats on the Jack Morrow Hills need some small respite from these development activities. Otherwise, the construction of roads and other infrastructure associated with mineral development will reduce winter range, winter relief areas, and calving grounds to industrial zones. The animals will be driven off these lands and their numbers will wane.

The Jack Morrow Hills planning area provides habitat for many species that already are disappearing from our western landscapes. Both the sage grouse and the mountain plover have experienced precipitous declines in this country. Known factors in the declines of these birds include the roads and other infrastructure associated with oil and gas development. Mountain plovers are extremely sensitive to human disturbances of almost any kind near their nests. Habitat fragmentation, the introduction of exotic weeds, and artificial perching habitat for predatory birds all result from oil and gas development and all contribute to the loss of sage grouse. Fortunately, the Jack Morrow Hills are still home to significant populations of both

[12] According to the SDEIS, it would cost $5 million to buy back existing leases on the Jack Morrow Hills, a small price to pay given the exceptional resources that are at risk.

species. The future health of those populations, however, is dependent on making the right decisions today to preserve and protect their nesting, breeding, and wintering habitats. It is, perhaps, too late to forestall listing for the mountain plover. The sage grouse may yet avoid that fate if the agency takes the right actions now.

For these reasons, the final land use plan for the Jack Morrow Hills should prohibit future oil or gas leasing. BLM itself acknowledges that under the current policy of making the entire area open to leasing, adverse impacts to wildlife will ensue:

> Increased oil and gas activity, especially in areas with reduced well spacing . . ., would preclude use of some of these areas by wildlife species, especially deer and elk. This could diminish the ability to maintain current population objectives for big game species.
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> ****
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> Given the specificity of Greater Sage-Grouse nesting requirements, including mature sagebrush, it would require in excess of 20 years to restore destroyed nesting habitat to predisturbance conditions.

SDEIS at 4-64.

To avoid these impacts, some lands should be closed permanently to oil and gas development or protected with no surface occupancy (NSO) stipulations prohibiting any adverse impacts to surface resources. These lands include:

- Areas of Critical Environmental Concern (ACECs).
- Crucial big game habitats.
- Lands within two miles of sage grouse leks and lands within nesting or wintering areas.[13]
- Lands within ¼ mile of mountain plover nesting areas.[14]
- Lands within 500 feet of surface water and riparian areas.
- Lands within one to two miles of active raptor nests.
- Larger prairie dog colonies and those associated with other vulnerable species such as black-footed ferrets, mountain plovers, burrowing owls, ferruginous hawks, and swift fox.

[13] The Preferred Alternative in the SDEIS proposes only a ¼ -mile buffer for sage grouse leks. This buffer is inadequate. *See* Comments of Clait E. Braun on the Great Divide Resource Management Plan (February 14, 2003) (attached to these comments). The SDEIS itself acknowledges that nearly half of the sage grouse nesting habitat lies more than two miles beyond the radius of the strutting grounds. SDEIS at 3-18. Twenty percent occurs more than four miles from leks. SDEIS at 3-18. Moreover, "[m]ost successful nests are located beyond two miles." SDEIS at 3-19. The Wyoming Game and Fish Department (WGFD) has recognized that existing measures to protect sage grouse have been ineffective. WGFD Comments on Draft Management Situation Analysis for the Great Divide Resource Area at 5. At the very least, BLM should await the completion of the Wyoming Greater Sage-Grouse Conservation Plan before finalizing the EIS for the Jack Morrow Hills. *See* SDEIS at 3-18.

[14] This must include not only active nest sites but areas that have been used for three out of the last five years. *See* Comments of Stephen J. Dinsmore on the Great Divide Resource Management Plan (February 3, 2003) (attached to these comments). The SDEIS proposes a buffer zone of only 200 meters for plover nesting areas. SDEIS at A6-12. A buffer this size is inadequate to protect mountain plovers. *Id.*

- Lands where biological soil crusts still constitute a major component (>50%) of total ground cover.[15]
- Lands within ½ mile of sites eligible for listing on the National Register of Historic Places.
- Lands within five miles of the Historic Trails and the Continental Divide Scenic Trail unless otherwise not visible from the Trails.
- Lands within the viewshed of Native American cultural and religious sites.
- Lands within the 100-year floodplain.

In the Jack Morrow Hills, this represents almost the entire land base. Moreover, because so much of the planning area currently is under lease, BLM should use this planning process as an opportunity to examine whether the agency should suspend, buy back, or exchange out some of those leases in order to ensure that other resource values are not lost to oil and gas development and a more balanced approach to such development can be achieved. The final JMHCAP should explicitly prohibit the issuance of new leases and new oil and gas development should be proscribed whenever the reasonably foreseeable development scenario (RFD) has been exceeded, especially if development is the result of changes in technology or unforeseen shifts in the market.[16] The coalbed methane activities already proposed on the planning area amply demonstrate the need for these steps.

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[15] *See* Comments of Jack S. States on the Rawlins [Great Divide] Resource Management Plan (attached to these comments).

[16] In the EIS discussion of socio-economic impacts of these and other restrictions, BLM should focus its analysis on realistic estimates of economically recoverable resources, not just "technically recoverable" resources. The recently released study done pursuant to the Energy Policy and Conservation Act (EPCA) failed to do this. If oil and gas is not economical to extract, there will be no adverse impacts on supply from stipulations designed to protect wildlife, archeological sites, recreation sites and other public assets. BLM should use well-supported high and low range estimates of gas and oil prices in any analysis of the amounts of oil and gas affected by stipulations. We believe these stipulations and other protections are fully warranted despite any effect they may have on energy supply and the BLM should acknowledge this.

The EPCA study had other shortcomings as well. While criticizing the use of economically recoverable resources due to variability and change in economic conditions, the study proceeded under a number of other assumptions that are also variable: the technology for extracting oil and gas is constantly changing, applicable lease stipulations change with time, and estimates of oil and gas resources are constantly changing. Thus, variability and change, standing alone, provide no basis for not considering resource availability from an economic perspective. Furthermore, the EPCA study presented the total amount of oil and gas present on all lands in several basins, yet only analyzed the amount of oil and gas on federal lands subject to various "restrictions," thus inflating the proportion of oil and gas that is purportedly off limits. The study assumed that old leases without stipulations potentially limiting access effectively do have currently-applicable stipulations because conditions of approval act as a "proxy" for the "missing" stipulations. Despite these limitations, all of which inflate the amount of oil and gas purportedly subject to "restrictions," the EPCA study clearly showed that the vast majority of Federal oil and gas resources are available for development. Even where limitations apply, the study showed that most drilling can still occur from 6-9 months during the year. The EPCA study can be used as a starting point but due to its shortcomings it should not be used for decision-making without supplemental information.

The Reasonably Foreseeable Development Scenario is Flawed

The SDEIS projects that the maximum number of conventional oil and gas wells drilled in the Jack Morrow Hills will be 264. BLM arrives at this number by assuming a "maximum average exploration well density" of one well for every four sections in the planning area. SDEIS at A13-23. There is, however, no explanation provided for how the agency arrived at this "average" other than a laundry list of possible considerations.[17] SDEIS at A13-23 (BLM derived this average based upon "number of potential accumulation types, geologic complexity of the area, and the prevalence of oil and gas occurrences in the planning area."). This maximum average exploration well density results in 156 exploration wells.

Based upon past success rates for exploration in the Green River Basin, BLM then suggests that only 23 of those 156 exploration wells will result in discoveries. SDEIS at A13-23. BLM's projected success rate for these exploration activities is approximately 15 percent. Yet, previous oil and gas drilling in the Jack Morrow Hills has had a significantly higher rate of completion: 42 percent. SDEIS at A13- 10. Moreover, the SDEIS states that "[f]ield development drilling success rates in the Green River Basin have been enhanced" through the use of better exploration technology. SDEIS at A13-16. The RFD fails to account for these advances in technology.

BLM then multiplies those 23 discovery wells by three to arrive at the number of development wells: 70. BLM then arbitrarily projects an additional 38 development wells in existing producing areas. SDEIS at A13-23. One hundred fifty-six exploration wells plus 108 development wells equals 264 wells.[18]

Using other predictive schemes, however, BLM arrived at significantly higher numbers of wells. For example, the "Resource Method Estimate" approach calculates that recovery of the natural gas resource (not including coalbed methane) would require 891 producing wells on the Jack Morrow Hills. SDEIS at A13-13. The "Checkerboard Method" estimates that 897 to 1,077 wells would be needed to develop the available resources in the planning area. SDEIS at A13-13. The Wyoming State Geological Survey report projects that reserves development would "require drilling of 322 conventional oil and gas wells . . .." SDEIS at A13-14. BLM itself admits that its estimate "would result in discovery and placement into production" of only 15 percent of the available conventional oil and gas resource in the planning area.[19] SDEIS at A13-23 to A13-24. Numerous commentors on the RFD in the original DEIS, including industry, disagreed with BLM's numbers, noting that they were too low. SDEIS at A13-15 to A13-16.

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[17] An average well density of one well per four sections is at odds with other statements in the SDEIS. For example, BLM states elsewhere in the SDEIS that well spacing will be one well per section, or 640 acres. However, well spacing in the Nitchie Gulch project is one well per 160 acres. SDEIS at 4-121.

[18] At the conclusion of this analysis, the SDEIS states that "[a]dditional text will be added here providing additional rationale for the exploration and development rate for this alternative." SDEIS at A13-24. This "additional information" should have been included in the SDEIS and made available for public review and comment.

[19] Yet, there is no explanation in the RFD for why this small fraction of available reserves is all that will be developed. Increasing demand for both oil and natural gas as well as soaring prices for both are good indicators that industry will have substantial incentive to produce as much of these energy fuels as possible.

Given the disparity between BLM's estimate and the numbers generated by other methodologies, it is readily apparent the agency needs to re-evaluate the environmental impacts associated with conventional oil and gas development on the Jack Morrow Hills.

While the RFD for conventional oil and gas development on the Jack Morrow Hills is flawed, the RFD for coalbed methane is practically nonexistent. BLM simply assumes that that there will be no CBM development in the Jack Morrow Hills during the twenty-year life of the plan and no exploration beyond two Plans of Development (PODs) totaling 50 wells.[20] SDEIS at A13-27.

Given the extent of the coalbed methane resource on the planning area, this assumption seems drastically misplaced. The Wyoming State Geological Survey estimates that "reserves development would require drilling of . . . 543 coalbed methane wells in the study area."[21] SDEIS at A13-14. In commenting on the previous DEIS, the United States Environmental Protection Agency (USEPA) objected that "'the impacts should evaluate a much more intense development scenario' for coalbed methane development." SDESI at A13-16. USEPA noted that, in the core area alone, "the number of coalbed methane wells could be in the range of 800 wells." BLM ignored these comments and produced a supplement to the original DEIS that again fails to address the true impacts of coalbed methane development on the Jack Morrow Hills.

Coalbed Methane Issues

As the Interior Board of Land Appeals ruled, CBM development is significantly different from conventional oil and gas activities. For example, CBM fields often have a much higher density of wells than occurs in conventional gas fields. Because of this, adverse impacts such as habitat fragmentation, loss of habitat, air and water pollution, and damage to visual resources are magnified. In addition, coalbed methane development is also distinguished by large quantities of produced water, with impacts that include aquifer drawdown, water quality problems, questions of disposal, and effects on aquatic species and vegetation.

The JMHCAP must ensure that the unique impacts of CBM development are examined prior to leasing and other CBM activities. Such analyses cannot simply parrot evaluations completed for conventional oil and gas development.[22] Yet, the SDEIS contains little or no information on the unique impacts of CBM development. For example, the SDEIS states only that "hydrological investigations would be conducted prior to coalbed methane development to determine whether any connection exists between surface waters and the aquifer that would be dewatered." SDEIS at 4-13. The SDEIS gives no indication of just when those "investigations" would be completed.

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[20] The SDEIS provides no prediction as to the locations of these PODs.

[21] BLM admits that it made no effort to incorporate this information into its RFD for coalbed methane. SDEIS at A13-28.

[22] *See Wyoming Outdoor Council*, 156 IBLA 347 (2002).

They should be prepared now, before additional lands in the Jack Morrow Hills are made available for oil and gas leasing. Once such leases have been issued, it may be too late to redress the impacts associated with dewatered aquifers.[23] At the very least, all leases issued in the Jack Morrow Hills should contain an explicit provision barring CBM exploration or production until these studies are completed and appropriate mitigation measures, including permanent prohibitions where necessary, are in place.[24]

CBM development has severe impacts on water quality. The JMHCAP should prohibit discharge of water extracted from coalbeds onto the ground or into surface waters.[25] This is particularly true of saline or sodic "produced" water. Salinity is already a problem for streams in the Jack Morrow Hills. SDEIS at 3-5. Produced water is often contaminated with heavy metals. Selenium is of particular concern because of its impacts on aquatic and avian species. The SDEIS, however, contains little information on current water quality and no information on the impact of CBM-produced water on surface waters in the planning area.[26] The SDEIS states only that "[e]xpected water production rates associated with coalbed methane cannot be predicted for the planning area." SDEIS at 4-122. There is no information on what the quality of the produced water might be. SDEIS at 3-7.

When produced water is stored in reservoirs or pits, heavy metals can become concentrated. The JMHCAP and SDEIS must address the problem of produced water storage pits/reservoirs leading to concentrated chemical solutions that harm wildlife.[27] Compliance with the Migratory Bird Treaty Act, for example, may require that such storage facilities be covered.[28]

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[23] The Biological Opinion issued by the United States Fish and Wildlife Service (USFWS) states that "[t]he depletion analysis for coalbed methane development only considers withdrawals for well drilling and completion. Dewatering for coalbed methane production will be evaluated during the site-specific analysis required for the Application for Permit to Drill process." SDEIS at A3-13 to A3-14. It is foolish on the agency's part to believe it can defer this analysis, unlike the others, until the APD stage. The leases themselves convey the right to "use so much of the leased lands as is necessary to explore for, drill for . . . and dispose of all of the leased resource . . ." *See Conner v. Burford*, 848 F.2d 1441 (9th Cir. 1988). Dewatering the coal seam is a necessary corollary to production of CBM. If the agency determines at the APD stage that dewatering the coal seams in the Jack Morrow Hills will pose a threat to endangered fish in the Colorado River, its options for securing protection of those fishes will be limited.

[24] Given the paucity of information contained in this SDEIS on coalbed methane impacts, no new leases should be issued and no coalbed methane exploration or production should be authorized on existing leases until a separate EIS on CBM is completed.

[25] The SDEIS contains no actual data on groundwater quality. SDEIS at 3-7.

[26] If produced waters are or become a "discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged," they must be treated as point source discharges of pollutants and a National Pollution Discharge Elimination System (NPDES) permit must be required. 33 U.S.C. §§ 1362(14), 1342.

[27] "Waterfowl use every form of available open water in the planning area." SDEIS at 3-18.

[28] Appendix 6-Standards Practices, Best Management Practices, and Guidelines for Surface Disturbing Activities states that reserve "pits" may be fenced or netted. SDEIS at A6-10. The SDEIS does not address the issue of large containment reservoirs often associated with coalbed methane production. Netting of these facilities may be neither feasible nor effective.

CBM development can have drastic impacts on aquatic species. If water from CBM production is discharged, directly or indirectly, into streams, the impacts of augmented flows and increased concentrations of salts (ions) and dissolved solids on the ecological characteristics of the streams (perennial or intermittent) should be analyzed. Such analyses must account for the full range of variations in stream flow, effluent (produced water) concentrations, and sensitivities of different species at different life-stages. Impacts from altering stream thermal conditions and the timing of flows must be analyzed. Effects of discharged produced water on adjacent riparian areas and the effects of increased turbidity and sedimentation should be considered. The analysis should consider lethal and sub-lethal effects on biota. None of these impacts are addressed in the SDEIS. The JMHCAP should adopt measures adequate to prevent or mitigate these impacts.

In addition to the impacts associated with the discharge of produced water, BLM must address the environmental effects of dewatering the coal seam. CBM development can lower water tables and have serious impacts on the accessibility of water for domestic and agricultural uses. It can increase the likelihood of difficult-to-control coal seam fires. Seepage of methane and its effects on vegetation, water (including domestic water and aquifers), and public safety must be considered. BLM must ensure these impacts are adequately evaluated pursuant to NEPA before leases are issued, while adverse impacts can still be mitigated or prohibited. The SDEIS fails to do so, stating only that "[t]he cumulative impact on ground water aquifers from coalbed methane development cannot be determined because of lack of information."[29] SDEIS at 4-15.

Full Field Development and Application for Permit to Drill Issues

For lands already under lease, the JMHCAP should require staged development with monitoring adequate to ensure that predicted impacts to environmental resources have not been exceeded and that mitigation measures are sufficient.[30] In addition, the JMHCAP should impose reasonable measures to minimize adverse impacts to other resources. For example, seasonal restrictions should be imposed for the protection of important wildlife habitats, including crucial winter range and calving areas.[31]

Clustered development of these leases should be required to minimize new roads and pipelines, as well as the number of drill pads. Directional drilling should be used. All new drill pads should

[29] BLM fails to look at the information that is available. For example, there are four coalbed methane wells currently operating in the Jack Morrow Hills. There are coalbed methane projects directly south and east of the planning area. Surely data from these operations could be gleaned that would shed some light on the potential impacts of coalbed methane production in the Jack Morrow Hills.

[30] As noted above, the JMHCAP should address whether these leases should be suspended or re-acquired by BLM.

[31] In response to protests filed by NWF challenging proposed CBM development on the Atlantic Rim, BLM maintained that the agency has authority to impose seasonal restrictions to protect winter range at the exploration and production phase. According to BLM, this is true even though the underlying leases contain no timing stipulations. We urge BLM to use this authority to ensure that adequate measures are in place to preserve significant resources on lands already under lease in the Jack Morrow Hills area. However, the agency must be sanguine about its ability to impose new conditions on lands already under lease. Such conditions must be "consistent with lease terms." 43 C.F.R. § 3101.1-2.

be constructed from existing improved gravel roads where possible. If there is no such road within reach of directional drilling from the site, previously constructed but unmaintained routes may be upgraded temporarily to access the site. In the absence of any improved or unimproved route within a reasonable distance of the proposed site, limited road construction may be approved. However, new road construction will be restricted to the minimum distance necessary to access the site. All newly constructed or upgraded routes will be closed and rehabilitated immediately following termination of oil and gas activity. Pitless drilling methods using closed-loop circulation of drilling muds should be employed for all new wells unless a less environmentally harmful drilling technique is available.

The JMHCAP must address the issue of granting exemptions and exceptions to lease stipulations at the APD stage. In our view, such stipulations should be waived only in the most extraordinary circumstances. The mere convenience of the lessee or operator should never be adequate justification. For example one common rationale for permitting exemptions or exceptions to timing stipulations intended to protect crucial winter range or calving areas is that the animals are not yet present. *See* SDEIS at A4-2. However, drilling during a restricted period may prevent animals that would have moved onto the site from doing so. It may disturb and stress animals that are in areas adjacent to or nearby the area being drilled. It concentrates animals in areas that are not being drilled, resulting in overuse of otherwise undisturbed areas. All of these factors weigh against the easy waiver of lease stipulations.

Toxic and Hazardous Wastes and Chemicals

Hydraulic fracturing and drilling fluids contain a wide array of chemicals, many of which are toxic. Spills of these chemicals should be avoided. The final land use plan must ensure compliance with the Clean Water Act, Safe Drinking Water Act, Toxic Substances Control Act, Resource Conservation and Recovery Act, and the Comprehensive Environmental Response Compensation Liability Act relative to the use of these and other hazardous substances. The JMHCAP should provide specific guidance regarding the standards oil and gas operators must abide by to meet the requirements of these laws and provide for monitoring and enforcement by BLM. While federal pollution and toxic and hazardous waste laws may provide some exemptions for the oil and gas industry, BLM has an obligation, under NEPA and FLPMA to require accurate inventories and monitoring of these chemicals, as well as spill prevention, cleanup, and mitigation plans. *See, e.g.*, 43 U.S.C. 1732(b); 43 C.F.R. §§ 3162.4-1(a), 3162.5-1(c)-(d); Onshore Oil and Gas Order No. 1, III.G.4.b.(7); *see also* Executive Order No. 13,016 (delegating authority to land management agencies to enforce CERCLA on lands they manage); BLM Manual MS-1703 (Hazardous Materials Management).

Rights-of Way

Section 505 of FLPMA requires BLM to minimize all adverse impacts to environmental resources when it grants private rights-of-way across the public lands for power lines, pipelines or other infrastructure associated with oil and gas development.

The issue of the impact of power lines on birds and bats, for example, should be addressed. Violations of the Migratory Bird Treaty Act, the Bald Eagle Protection Act, and ESA must be avoided. In addition to the obvious physical barrier they pose to flying species, power lines

change the "structure" of other habitats, which may create favorable conditions for some species but be unfavorable for others. For example, there is evidence that ferruginous hawks are placed in a competitive disadvantage to other raptors when power lines create perches in otherwise open habitat. Likewise, sage grouse and prairie dogs are threatened if raptors are provided hunting perches in their habitat. For these reasons, the JMHCAP should require that existing rights-of-way, with similar types of structures, be utilized to the maximum extent possible.

Mitigation

The mere promise of so-called Habitat Management Plans (HMPs) does not constitute mitigation for the impacts of surface-disturbing activities. BLM often fails even to prepare HMPs much less implement them. The possibility of an HMP or even the fact of one without adequate funding and resources and a binding commitment to complete its provisions should never be counted as mitigation.

Reclamation

All plans of operations should include a reclamation plan that describes in detail the methods that will be used to ensure complete and timely restoration of all lands impacted by oil and gas activities to their prior natural condition. Reclamation should be conducted concurrently with other operations.

Shrub communities, including sagebrush, require significant time to recover from disturbance. These plant communities on the Jack Morrow Hills are extremely important for numerous species of wildlife. BLM should stage oil and gas development in order to ensure that sufficient high quality shrub communities remain available to wildlife in the planning areas. Special reclamation standards should be adopted for shrublands and sagebrush.

In addition, BLM must ensure that bonds are adequate to cover actual reclamation costs so neither taxpayers nor landowners are left to foot the bill. The JMHCAP should identify those lands within the planning area or specific resource values, such as sagebrush, that may require additional bonding. *See, e.g.*, 30 U.S.C. § 226(f); 43 C.F.R. §§ 3104.1(a), 3104.5, 3106.6-2.

Monitoring and Enforcement

The EIS should include a realistic assessment and analysis of the costs to the agency of monitoring and enforcing lease stipulations, conditions of approval for APDs, as well as reclamation standards. If BLM lacks resources sufficient to ensure compliance with applicable requirements, the agency should defer additional development.[32] *See, e.g.*, 43 U.S.C. 1732(b).

[32] This is particularly true if the agency adopts a so-called "adaptive management strategy." The efficacy of such strategies is completely dependent upon comprehensive and intensive monitoring.

Wilderness and Wilderness Study Areas

Since releasing the SDEIS, there has been a major change in the agency's policy toward designation of new wilderness and the protection of existing Wilderness Study Areas (WSAs). Pursuant to the settlement reached in *State of Utah v. Norton*, we understand the Secretary of the Interior no longer intends for BLM to exercise its authority pursuant to the land use planning provisions of FLPMA to conduct inventories of the public lands in order to identify lands with wilderness characteristics and to preserve those lands as WSAs. Moreover, existing WSAs created pursuant to Section 202 of FLPMA may lose their protected status.

We believe the Secretary's decision is wrong as a matter of law and will be overturned.[33] For purposes of this planning process, however, BLM must complete a supplemental NEPA document addressing the impact of the Secretary's decision on public lands in the Jack Morrow Hills.[34] The Secretary has said that she intends to protect public lands with wilderness characteristics. She has yet to release new regulations or guidance on how that goal will be achieved in the absence of WSA status or the current Wilderness Handbook. The supplemental NEPA document for the JMHCAP should address the availability and efficacy of alternative mechanisms for preserving wilderness values on the Jack Morrow Hills.[35] The JMHCAP should establish standards to ensure that the wilderness qualities of such areas are not impaired or degraded. *Southern Utah Wilderness Alliance v. Norton*, 301 F.3d 1217 (10th Cir. 2002). We believe the citizen-proposed areas described in the Wildlife and Wildlands Alternative deserve to be preserved in their current untrammeled state. BLM must address how that goal can be achieved in this planning process in light of the new policy on WSAs.

Wildlife Resources and Management

BLM has a duty to protect the diversity of all native wildlife on public lands.[36] With this duty in mind, we ask that the CAP for the Jack Morrow Hills adopt the following measures to ensure

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[33] We believe the agency has a continuing duty to identify and protect eligible wilderness lands. BLM should evaluate all lands that are roadless and larger than 5,000 acres (or capable of being administered as wilderness), regardless of ownership status, as well as lands submitted under citizens' wilderness petitions and/or which have been determined by BLM to possess wilderness characteristics. *See* 43 U.S.C. §§ 1711(a), 1712.

[34] For example, the Whitehorse Creek WSA was inventoried prior to 1991 and included in BLM's Wyoming Statewide Wilderness Study Report issued in September 1991. However, the Report indicates that the Whitehorse Creek WSA was "studied under Section 202 of the Federal Land Policy and Management Act . . .." BLM, Wyoming Statewide Wilderness Study Report Wilderness Study Area Specific Recommendations (September 1991) at 323. What is the current status of this WSA?

[35] Alternative 2 in the SDEIS proposes WSA status for 8,800 acres in the pinnacles area of the Jack Morrow Hills. Is that Alternative no longer reasonable given the settlement in Utah? If not, what other mechanisms are available to BLM to preserve these lands?

[36] FLPMA requires public land management to protect ecological and other values, and also requires that they be managed for multiple use and sustained yield. 43 U.S.C. §§ 1701(a)(7)-(8). NEPA requires BLM to fulfill its trustee obligation for future generations, assure productive surroundings, avoid environmental degradation, preserve important natural aspects of our national heritage, and enhance the quality of renewable resources. 42 U.S.C. §§ 4331(b)(1)-(6). CWA establishes the objective of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. 33 U.S.C. § 1251. ESA establishes the purpose of conserving the ecosystems upon

that wildlife diversity is protected. It is widely recognized that riparian areas in the west are crucial centers of biological diversity. They should be restored to proper functioning condition. The JMHCAP must also ensure that other special habitats are protected and enhanced. Wildlife require adequate habitat for feeding, reproducing, and hiding or resting. The JMHCAP must ensure that such habitats are provided for all species at all critical life stages. Wintering areas, colonial or other concentrated avian nesting areas, spawning beds, and traditional birthing areas are examples of the special habitats the JMHCAP should protect and enhance.

Moreover, BLM must carefully evaluate the problem of habitat fragmentation and the need for maintaining the connectivity or linkage of habitats. Habitat fragmentation is strongly associated with the road building that accompanies most, if not all, traditional management activities. By altering the physical environment, roads and highways modify animal behavior. Many species shift home ranges, change movement patterns and even reproductive and feeding behaviors to avoid roads. Perhaps the most pervasive, yet insidious, impact of roads is providing easy access to natural areas and encouraging further development. Additional information on the impacts of roads on wildlife can be found at http://www.defenders.org/habitat/highways/new/ecology.html, incorporated into these comments by this reference. It is clear that the JMHCAP must limit habitat fragmentation resulting from road building, protect current roadless areas, and close unneeded or ecologically destructive roads.

The necessary corollary to preventing habitat fragmentation is maintaining migration corridors and other ecological linkages. It is more effective to preserve existing corridors/linkages than to attempt to create new ones. It is, therefore, crucial that BLM identify all existing migration and other movement corridors. The land use plan must ensure that management actions authorized by BLM preserve the ecological integrity of these corridors and linkages. Big game migration routes have been widely documented, but riparian areas, mountain ranges and ridges, and other areas serve as important linkages among habitats (and even eco-regions) that must be preserved. The Jack Morrow Hills Study Area provides an important migration corridor for both big game and predators between the greater Yellowstone ecosystem and lands in the central Rocky Mountains. These corridors should be kept free of fences and other structures that impede that movement.

It is critical to note that protecting biological diversity can only be dealt with appropriately at the planning level. Habitat fragmentation, connectivity and other factors affecting biological diversity are inherently landscape-level considerations. The project level is simply too small a scale for adequate exploration of impacts to the health of large ecosystems. For this reason, the JMHCAP itself should establish specific, binding limits on road densities and other habitat disturbance that cannot be exceeded in the planning area. This is the only way to ensure biological diversity is preserved, and that ecosystem attributes are not "nickel and dimed" to death by individually small but cumulatively significant site-specific projects.

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which threatened and endangered species depend. 16 U.S.C. § 1531(b). BLM's livestock grazing standards and guidelines establish measures of ecological health applicable not only to livestock grazing, but to resource management generally. *See* 43 C.F.R. subpt. 4180. Read together, these and other legal standards establish that BLM must ensure the ecosystems it manages are fully protected so as to enhance biological diversity.

Riparian Areas

Only about 1% of the lands managed by the BLM is wetlands yet these are some of the most ecologically important landscapes within the public lands. Some 70 percent of all Wyoming's wildlife either reside within riparian areas or utilize them as an important component of their habitat. It is critical, therefore, that the BLM's Riparian-Wetlands Initiative (RWI) be fully implemented in the JMHCAP.

Riparian areas and wetlands provide rare oases of lush vegetation and water in an arid environment. They also improve water quality by filtering sediment and other pollutants, stem erosion, improve groundwater reserves, reduce the risk of flash flooding, and provide shelter for wildlife. They are also often the location of important cultural sites. *See* RWI at 7-8; BLM Handbook H-1737.08-09.

Because of the critical importance of these areas, two Executive Orders require their protection. Executive Order 11988 (1977) requires federal agencies to avoid adverse impacts associated with the occupancy of floodplains. Executive Order 11990 (1977) requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands. All federally-approved activities must include all practical measures to minimize adverse impacts to wetlands and riparian areas.[37] "Improving the functioning condition of these areas is the focus of BLM's riparian-wetland restoration goal." RWI at 11.

According to the SDEIS, however, the vast majority of riparian areas and wetlands on the Jack Morrow Hills are not in proper functioning condition. Based on the critical importance of these areas, we urge BLM to use this planning process to adopt specific, measurable riparian and wetland area protections. These measure include:

- Actions that will be undertaken by the agency so that riparian areas that are not in properly functioning condition can be restored and those that are in properly functioning condition will be maintained.
- Exclusion of ORVs from riparian areas and wetlands except on designated routes.
- Effective enforcement of livestock grazing standards and guidelines and Fundamentals of Rangeland Health.
- A prohibition on oil and gas development in riparian areas.
- BLM should avoid whenever possible the issuance of new rights-of-way in riparian and wetlands areas, or in areas where such use would adversely impact riparian areas.
- Identification of lands for acquisition in riparian or wetlands areas that are ecologically, hydrologically or geologically linked to BLM wetlands and crucial to their functioning.

[37] BLM's stated policy is to "maintain, restore, or improve riparian-wetland ecosystems to achieve a healthy and proper functioning condition that assures biological diversity, productivity, and sustainability. . ." BLM Handbook H-1737.06. Land use plans must "recognize the importance of riparian-wetland values, and initiate management to maintain restore, improve or expand them." *Id.* at 1737.06.B.4.

Big Game

The BLM lands within the Jack Morrow Hills contain important habitat for pronghorn, elk, moose, and mule deer. The planning area provides "crucial habitat" for all four species. Those activities and structures which prevent animals from reaching crucial habitat, which damage or eliminate crucial habitats, or which cause animals to avoid such habitat can severely impact the health and size of these herds.[38] BLM itself has acknowledged that maintaining connectivity between important habitats (crucial winter ranges, severe winter relief areas, calving/fawning habitats, migration corridors, topographic relief areas, mountain shrub communities, forest type habitats) within the planning area is paramount to sustaining viable big game herds and other wildlife. Fragmentation of these crucial habitats will not sustain big game population objectives. DEIS at 235; SDEIS at 3-15 ("Maintaining the integrity of the area is considered paramount to sustaining viable big game herds and other wildlife populations."). The DEIS also noted that the elk in the Steamboat Mountain area previously were migratory but, "due to the large amount of human disturbance and activities associated with oil and gas development," these migrations are no longer observed. DEIS at 236. Thomas et al. (1979) reported that elk habitat effectiveness declined 54% when improved road densities were 2.0 road miles/square mile in open habitats. "We anticipate the decline would be much greater in the unforested habitat in the Jack Morrow Hills, due to less cover, topographic relief, and consequent higher visibility of disturbance factors than are found in forests . . .." Comments of the Wyoming Game and Fish Department (WGFD) on the DEIS (September 14, 2000). Both mule deer and pronghorn populations in Wyoming are in decline.

For these reasons, crucial big game habitat within the Jack Morrow Hills should receive the following protections:

- Withdrawal from the operation of the General Mining Law.
- No new leases or oil and gas development should be authorized.
- For those lands already under lease, BLM should adopt conditions of approval for new development that include NSO on lands where two or more crucial big game habitats overlap and seasonal use restrictions that are enforceable during all stages of oil and gas activity, from exploration to production and through completion of reclamation. New measures, including staged development, should be adopted to ensure that there is "no net loss" of crucial big game habitats.
- Designation as unsuitable for coal production.
- Migration corridors should be kept free of fences and other impediments to movement. The JMHCAP should implement the Wyoming Game and Fish Department standards and guidelines for fencing and adopt a schedule for removal of fencing that is not in compliance with these provisions.

[38] Of course, widespread impacts to other noncrucial habitats can also negatively affect big game.

We note with despair that the cumulative impacts analysis in the SDEIS contains no reference to the efforts of the Cumulative Impacts Task Force or the Green River Advisory Committee to design a framework for the assessment of impacts on big game habitats in the region. Moreover, the cumulative impacts analysis contained in the SDEIS is both superficial and misleading. For example, the SDEIS seems to recognize that the big game populations on the Jack Morrow Hills are part of larger herd units (Steamboat Elk, Steamboat Mule Deer, South Wind River Mule Deer, Sublette Pronghorn, Red Desert Pronghorn, and Lander Moose) and that these herds migrate. Still, the SDEIS contains little or no information on current population trends among these herds and no data on the types of activities occurring on the lands they occupy that might impact their numbers. The Red Desert Pronghorn Herd had declined to 89% of WGFD's population objective in 2001. More recent data indicates that it is at only 79% of this objective. Vegetation management, mineral production, and livestock grazing outside of the Jack Morrow Hills but within the respective herd unit will impact the pronghorn in the planning area. BLM must consider and evaluate the cumulative impacts of these and other activities across the affected herd units in order to assess the cumulative impacts to big game populations on the Jack Morrow Hills.[39]

The cumulative impact analysis inappropriately focuses on elk. The desert elk herd is unique, but pronghorn and mule deer are an important wildlife resource on the Jack Morrow Hills. Mule deer are declining across much of their range. The SDEIS admits that the population in the planning area already is below WGFD objectives. BLM should review and disclose population trends for mule deer over the past ten years. The SDEIS should then analyze the impacts of various activities that may affect herds in the planning area. Those activities are not limited to the Jack Morrow Hills.

Pronghorn populations have declined nationwide from an estimated 1,000,000 animals in 1964 to 649,000 animals in 1997. During the same period, Wyoming's pronghorn population fell from 670,000 to 300,000. This trend is significant.[40] Yet, the SDEIS contains no information on the vitality of the pronghorn herds on the Jack Morrow Hills. The Sublette Pronghorn Herd migrates over great distances. It is being affected by energy development and other human disturbances throughout its range. The SDEIS contains no discussion of these impacts. The range of the Red Desert Pronghorn Herd is under assault from both conventional oil and gas and coalbed methane projects. The SDEIS does not address these impacts. It is simply misleading of BLM to suggest that the only threats faced by these animals come from 314 new oil and gas wells on the Jack Morrow Hills. Thousands of new oil and gas wells and thousands of miles of new roads are being proposed on the public lands they roam.[41]

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[39] Cumulative analysis at this scale will also reveal opportunities for off-site mitigation through habitat improvement.

[40] Yoakum, J.D. and B.W. O'Gara. 2000. Pronghorn. pp. 559-577 in Ecology and Management of Large Mammals in North America. S. Demarais and P.R. Krausman eds. Prentice Hall. Upper Saddle River, NJ. 778pp.

[41] The SDEIS frequently discusses the ability of wild ungulates to withdraw from habitats affected by energy development and occupy alternative habitats. BLM should reveal the locations of these "alternatives" and describe their ability to meet the habitat requirements of ungulates driven from preferred habitats. Alternative habitats likely are already used to some degree by wildlife and will be unable to supply the needs of additional animals for any extended period of time. BLM should presume increased conflicts with existing uses on these alternative habitats.

There is a lack of acknowledgement within the SDEIS of the rise in poaching that will result from the increased access and human presence authorized in the planning area.[42]

We are concerned that the SDEIS misconstrues the importance of the current drought in its discussion of potential impacts on big game populations. Drought, severe winter weather, and other stochastic factors are part of the natural backdrop against which the impacts of human disturbance are played out. The SDEIS seems entirely too concerned about ensuring that energy development in the Jack Morrow Hills will not be "blamed" for what are really the impacts of drought or a severe winter. This is the wrong approach. Instead of attempting to insulate energy development from the impacts of stochastic events, BLM must treat these factors as cumulative. Since BLM cannot control the weather, it must instead reduce human disturbances sufficiently to ensure that the next drought, severe winter, late spring, or insect infestation will not decimate wildlife. BLM must set aside "reserves" against these natural disasters. Stochastic events, such as the current drought, increase the need for reduced oil and gas activity, seasonal stipulations on surface-disturbing activities, habitat rehabilitation, area closures, and other efforts to preserve habitat for wildlife.

Mountain Plover and Sage Grouse

The mountain plover and sage grouse have experienced drastic reductions in numbers across many parts of their native ranges. Globally significant numbers of both of these imperiled birds are currently found within the Jack Morrow Hills Study Area.

Mountain Plover: The mountain plover is one of the rarest of North America's birds. Declines in mountain plover populations nationwide have been so severe that the United States Fish and Wildlife Service (USFWS) has proposed to add it to the endangered species list. Although Wyoming was previously considered to be on the periphery of the range of mountain plover, Wyoming is now "the core" of the remaining range of this rare bird. In the last few years, researchers have found several "concentration areas" of plovers within the boundaries of the Jack Morrow Hills. This core area, however, is now under tremendous development pressure, particularly from oil and gas extraction.

Oil and gas development, as well as other human disturbances, in nesting areas is a direct threat to mountain plover population viability. For example, USFWS concluded that the proposed Seminoe Road Coalbed Methane project "is likely to adversely affect the proposed mountain plover," stating that wellfields are likely to become an "ecological trap," attracting feeding plovers to roadways where they become susceptible to vehicle-related mortality. Alternatively,

[42] Poaching will reduce herd numbers. It will also have impacts on the wildlife enforcement resources of WGFD. BLM should address this issue.

increased vehicle traffic could drive plovers away from preferred nesting areas. For these reasons, mountain plover nesting habitat in the planning area should receive the following protections:

- Withdrawal from operation of the General Mining Law.
- Closure to coal extraction activities.
- NSO stipulations on oil and gas development.
- Closure to all mechanical vegetation treatments.
- ORV use on designated routes only.

Northern Sage Grouse: Sage grouse have declined precipitously rangewide and are now under consideration for listing under the Endangered Species Act. Declines have been estimated at over 50% in occupied area, and up to 80% decline in bird abundance, with complete extirpation in several states. In Wyoming, populations have declined significantly since the 1950s. Even so, Wyoming is the global stronghold for sage grouse and has the largest population in the world. The Jack Morrow Hills Area holds extremely important habitat for sage grouse.

To ensure the viability of sage grouse populations, it is important to provide protection and restoration for breeding, nesting, brood rearing, and winter habitats. To ensure that these habitats are protected, the JMHCAP should adopt the following measures:

- NSO stipulations within two miles of leks and lands within nesting or wintering areas.
- No other form of mineral extraction should be authorized within breeding, nesting, or wintering areas.
- Breeding, nesting, and winter habitats for these birds should be identified and removed from any vegetation treatments.

Prairie Dogs, Mountain Plovers, Burrowing Owls, Swift Fox, and Black-footed Ferrets

The Jack Morrow Hills Area provides habitat for white-tailed prairie dogs. In July 2002 a petition to list white-tailed prairie dogs as threatened under the ESA was jointly filed by the Center for Native Ecosystems, Biodiversity Conservation Alliance, Southern Utah Wilderness Alliance, American Lands Alliance, and Forest Guardians. For that reason alone, the SDEIS should address the status of prairie dog colonies on the Jack Morrow Hills. Moreover, both prairie dogs and their habitat are highly important to numerous other species, such as the swift fox, mountain plover, burrowing owl, ferruginous hawk, and our nation's most endangered mammal, the black-footed ferret.

Under the Black-footed Ferret Recovery Plan, USFWS has called for the establishment of ten or more separate, self-sustaining, black-footed ferret populations. At present, there does not appear to be enough large prairie dog complexes (5,000-10,000 acres) to achieve this goal. During the last decade, black-footed ferrets have been reintroduced at a number of sites but with only mixed success. Plague has wiped out several black-tailed prairie dog communities where ferrets have been reintroduced, with the result being that those reintroduced ferret populations have also been decimated. Other reintroduction sites have been marginal in terms of the size of the prairie dog complex where the ferrets were released. Only at the Buffalo Gap National Grasslands in South

Dakota does it appear that there are sufficient numbers of prairie dogs to sustain a self-perpetuating, viable population of black-footed ferrets. The success at this site can be attributed to the absence, so far, of plague in South Dakota. With this exception, there is no current reintroduction site where a population of ferrets has been re-established that is likely to be viable and self-sustaining over the long term without increasing the number of prairie dogs and prairie dog colonies at reintroduction sites. Re-established ferret populations at Shirley Basin in Wyoming, at the Charles M. Russell National Wildlife Refuge and at Ft. Belknap Indian Reservation in Montana, at Aubrey Valley in Arizona, on BLM lands in northwestern Colorado, and at Coyote Basin in Utah, are all tenuous to varying degrees.

In addition to ferrets, which are obligate predators on prairie dogs, a number of other short-grass prairie wildlife species appear to be closely associated with prairie dogs and depend on their colonies. These associated species include those that use prairie dogs for food and those that use prairie dog burrows for shelter. Although none of these dependent species are currently listed as threatened or endangered (none are as exclusively dependent on prairie dogs as black-footed ferrets), they are all in decline. By clipping vegetation and creating areas free of vegetation, prairie dogs create the ecological conditions required by mountain plovers for nest sites. There are strong indications that prairie dogs, as well as ground squirrels, are the primary prey of the ferruginous hawk. Burrowing owls utilize the burrows of prairie dogs for cover and nesting habitat. They appear to prefer active prairie dog colonies to burrows in decimated colonies. In addition to preying on prairie dogs in some areas, swift fox appear to require a high density of burrows for escape cover and for shelter.[43] Continued decline of prairie dogs is very likely to accelerate the decline of these prairie dog associates to the point where they, too, will warrant listing, along with the black-footed ferret. Yet, according to the SDEIS, "[f]ew formal surveys and inventories of prairie dogs have been conducted in the planning area." That information is vital to BLM's obligation under NEPA to take the requisite "hard look" at the cumulative impacts of activities that may be authorized pursuant to the JMHCAP.

NWF and WWF believe the following protections should be provided for prairie dog colonies[44] on the Jack Morrow Hills:

- Larger prairie dog colonies and those associated with other vulnerable species such as black-footed ferrets, mountain plovers, burrowing owls, ferruginous hawks, and swift fox should receive NSO stipulations and protection from other surface-disturbing activities.

[43] While the USFWS has recently determined that swift fox are not warranted for listing under the ESA, the population remains much reduced from its former abundance.

[44] A copy of NWF's white paper on the status of the white-tailed and Gunnison's prairie dogs is attached to these comments.

Cultural and Paleontological Resources[45]

Cultural and paleontological resources are irreplaceable. Once marred or destroyed, they are forever lost to future generations. Such fragility demands the utmost care and caution. The JMHCAP, therefore, should adopt a very conservative approach to managing these resources. Cultural and paleontological resources should be preserved in place so that their full scientific and cultural values can be evaluated and maintained. All permits, leases, contracts, rights-of-way or other agreements allowing private uses should require consultation and inventories prior to any surface disturbance to determine whether such resources are or may be present.

Requiring private users to conduct inventories prior to conducting surface-disturbing activities, however, is not adequate protection for cultural and paleontological resources. FLPMA requires the agency itself to "prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values." 43 U.S.C. §1711(a). Surveys for cultural resources are mandated by ARPA. *See* 16 U.S.C. 470ii (requiring the Secretary of the Interior to develop plans for surveying lands to determine the nature and extent of archaeological resources and to prepare a schedule for surveying lands that are likely to contain the most valuable archaeological resources); Executive Order 11593, Protection and Enhancement of the Cultural Environment (requiring federal agencies to nominate to the Secretary of the Interior all sites that appear to qualify for listing on the National Register of Historic Places). NHPA mandates that the BLM establish a preservation program to identify, evaluate, and protect historic properties and to nominate qualifying properties to the National Register of Historic Places. *See* 16 U.S.C. § 470h-2. BLM should conduct its own inventories of the planning area in order to identify sites of cultural and paleontological resources. Sites of known cultural or paleontological resources, within the Jack Morrow Hills should be designated and protected as ACECs.

BLM's own guidance on cultural resources states that the need for any additional information should be evaluated and procedures for obtaining that information must be established at the outset of the planning process. *See* BLM Manual MS-8100.08.A.1.b.(2). In other words, not only must BLM examine the effects of other uses on cultural resources during preparation of the final JMHCAP, it must evaluate whether or not the agency itself possesses sufficient information to assess the potential for such conflicts. If the agency lacks adequate information to make informed decisions, it must collect the necessary data according to a schedule established at the outset of the planning process. Yet, the SDEIS admits that only a "limited formal cultural resources inventory has been conducted in the planning area." SDEIS at 3-23. Scarcely two percent of potential localities in the region have been identified. SDEIS at 3-27. "No attempt has been made to identify specific sites that may be of concern to traditional Native American peoples." SDEIS at 3-26. Without such information, BLM is incapable of making reasoned decisions about the impact of the activities authorized under the JMHCAP on cultural resources within the planning area.

[45] BLM's management of cultural resources is governed by a host of laws, orders, and regulations. These include, but are not limited to, FLPMA itself, the Antiquities Act of 1906, the National Historic Preservation Act (NHPA), Executive Order 11593, the Archaeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act.

In addition, BLM is required to consult with the tribes under FLPMA, NEPA, American Indian Religious Freedom Act, NAGPRA, and Executive Order 13007, in order to learn of their concerns and places of traditional religious or cultural importance to the tribes within the planning area. BLM Manual MS-8120.51.A ; *see also* BLM Handbook H-8160-1 (Procedural Guidance for Native American Consultation); BLM Manual MS-8160 (Native American Consultation). Still, according to the SDEIS, no formal consultation with the tribes has been undertaken. SDEIS at 3-26.

BLM Manual MS-8120.32.A makes clear that BLM has the authority to prevent the loss of cultural resources through a variety of measures. These protective measures may include "withdrawal, closure to public access and ORVs, and special designations . . .." The regulated areas must be of sufficient size to ensure protection of the resources at risk; designation of just the site itself may be inadequate to provide for effective management. BLM should consider closing culturally sensitive areas to mineral leasing and entry, grazing, and designating such lands as ACECs to protect these fragile resources. The JMHCAP should limit ORV use to routes that do not pass near culturally sensitive areas. Moreover, all ORV routes designated in the JMHCAP should be surveyed for cultural resources to ensure the protection of those resources.

The National Landscape Conservation System

The JMHCAP should also provide for protection of components of the National Landscape Conservation System (NLCS). These areas should be managed to ensure the values that led to their special management status are given first priority and incompatible uses are prohibited. The planning area contains the following lands that are part of the NLCS: WSAs and segments of several Historic Trails as well as the Continental Divide National Scenic Trail. These lands deserve special protections. In particular, lands within the viewshed of these trails should be protected from oil and gas development and other industrial activities that would mar the purposes for which these trails were set aside.

The JMHCAP should identify and recommend potential additions to the NLCS. Likewise, the final land use plan should ensure BLM's Grasslands Initiatives,[46] as applicable, are fully implemented.

[46] Great Basin Restoration Initiative, Sagebrush Ecosystem Conservation Initiative, and Prairie Conservation Initiative.

Livestock Grazing[47]

Livestock grazing has had profound adverse impacts on wildlife and the public lands. *See* 43 U.S.C. §§ 1901(a)(1) (determining that "vast segments" of the public rangelands are in unsatisfactory condition), 1751(b)(1) (finding that much federal rangeland "is deteriorating in quality"). Recognizing this, BLM adopted standards and guidelines for grazing administration in 1995 that were designed to restore and protect range health and degraded range conditions. *See* 43 C.F.R. Subpt. 4180. The JMHCAP should provide a clear and binding schedule for ensuring that the three steps the grazing rules establish for determining if grazing needs to be modified are accomplished in a timely manner.[48] For allotments that have already been assessed, provision should be made in the JMHCAP for future assessments and determinations—the standards and guidelines are intended to be an ongoing, prominent factor in grazing management, and the Fundamentals of Rangeland Health are continuing requirements.[49]

We note, with some confusion, that the SDEIS claims that all grazing allotments on the Jack Morrow Hills "meet the standards for healthy rangelands," SDEIS at 3-8, despite BLM's admission that "no information is available to date supporting state water quality standards for any of the allotments." SDEIS at 3-8. Since compliance with state water quality standards is Standard #5 of the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming, it is unclear just how that standard can be met without any supporting data. Moreover, Standard #2 of Wyoming's standards and guidelines for healthy rangelands requires that:

> [r]iparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.

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[47] BLM's standards and guidelines and the Fundamentals of Rangeland Health addressed in this section have potential applicability and utility for properly managing all resource uses in the Area. For example, many standards and guidelines and the Fundamentals of Rangeland Health would be appropriate as stipulations to oil and gas leases to ensure against unnecessary or undue degradation. Consequently, as part of this planning effort, the BLM should consider what changes if any are needed to extend the standards and guidelines and Fundamentals of Rangeland Health to all other programs, and the JMHCAP should provide for their adoption as requirements to guide all future management activities and decisions. The standards and guidelines, and the Fundamentals of Rangeland Health provide a convenient means to meet many of the requirements highlighted in these comments.

[48] The three steps are: 1) assess rangeland health; 2) determine if grazing is a significant factor causing unhealthy rangelands; and 3) take appropriate actions to eliminate or modify grazing by the start of the next grazing season.

[49] It is also worth noting that pursuant to the Public Rangelands Improvement Act (PRIA), "the goal" of rangeland management "shall be to improve the range condition of the public rangelands . . . ." 43 U.S.C. § 1903(b) (emphasis added).

Since the vast majority of riparian areas and wetlands on the planning are not in proper functioning condition, it is difficult to imagine how all of the allotments on the Jack Morrow Hills are in compliance with Standard #2.[50]

The JMHCAP should adopt mandatory measures to address the impacts of grazing in riparian areas. BLM's Riparian-Wetlands Initiative acknowledged the importance of ensuring that livestock grazing is compatible with riparian habitat protection, and set an ambitious goal for the agency to achieve. It is now years past the deadline set in the Initiative. BLM has no excuse for failing now to ensure the Initiative's goals are finally achieved. This may require reducing or eliminating livestock grazing in some riparian areas.[51]

Requirements related to the Clean Water Act were mentioned above, but they bear repetition in the context of livestock grazing. BLM should ensure there is sufficient water quality monitoring relative to the impacts of livestock grazing and take concrete steps to guarantee that livestock grazing does not adversely impact water quality or impair designated beneficial uses of these waters. BLM must collect all data necessary to evaluate and achieve compliance with water quality standards, including, in particular, standards related to TDS, ammonia, nitrogen, fecal coliform bacteria, and turbidity.

We ask that BLM specifically address compliance with the "Comb Wash Decision" in the final EIS and the land use plan itself. *National Wildlife Federation v. BLM,* 140 IBLA 85 (1997). This decision not only affirmed the longstanding rule that NEPA requires the BLM to analyze the site-specific impacts of grazing, it must also engage in "reasoned decision-making" on the question of whether to allocate lands and associated resources to this particular use. The final EIS should include the required analysis of site-specific impacts of grazing and the required discussion of the balancing of values that will ensure that grazing best meets the present and future needs of the American people. As noted above, this balancing is required so as to meet the requirement that public lands are managed on the basis of multiple use and sustained yield. *See* 43 U.S.C. §§ 1702(c), 1732(a). The Comb Wash Decision held that this balancing is mandatory, and the plan should reflect both that this balancing was carried out and what its results were, on a site-specific basis.

BLM should determine the suitability of lands within the planning area for livestock grazing and the JMHCAP should require adjustments accordingly. There is no doubt BLM has this

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50 We also find this conclusion incredible given the recent determinations in the Green River Resource Management Plan (GRRMP) that at least four of the fifteen allotments on the Jack Morrow Hills are category "I" (Fourth of July, Pacific Creek, Steamboat Mountain, and Sands). GRRMP Appendix 9-1.

51 Upland areas, too, may require special livestock management in order to ensure the restoration of fragile areas and cryptobiotic soils or to protect remnant high condition/seral stage vegetation. BLM should not rely on water developments as a way to transfer grazing pressure from riparian areas to other (usually upland) areas. This approach often does not solve problems; it just moves them from ecosystems with a relatively high ability to recover due to the availability of water (riparian areas) to ecosystems with little or no ability to recover from excessive livestock grazing (uplands).

responsibility and authority.[52] *See* 43 U.S.C. §§ 315 (grazing districts must be chiefly valuable for grazing), 315a (BLM can do "any and all things" necessary to manage grazing), 1701(a)(8) (public lands to be managed to protect environmental values), 1702(c) (multiple use management allows for areas to be deemed unsuitable for certain uses and requires consideration of relative resource values), 1712(a)-(c) (land use plans to be based on multiple use), 1712(d) (land use classifications can be modified or terminated), 1712(e) (allowing for elimination of principle or major uses), 1732(c) (revocation of permits authorized), 1752 (allowing discontinuation of grazing permits and a determination in land use plans of whether lands "remain available for domestic grazing"), 1903(b) (allowing for discontinuation of grazing pursuant to land use planning decisions). *See also Public Lands Council v. Babbitt*, 529 U.S. 728 (2000) (holding that allocation of forage in a land use plan pursuant to 43 C.F.R. § 4100.0-5 does not, on its face, violate the Taylor Grazing Act). Livestock grazing, like all land uses, should only occur in areas where it has been carefully determined, pursuant to the land use planning process, to be a suitable use of the land. The suitability determination should be made in the JMHCAP at two levels: (1) for the area as a whole and (2) for site-specific areas.

BLM itself notes that most allotments on the Jack Morrow Hills contain some lands "unsuitable for livestock grazing and areas suitable only for certain classes of livestock." SDEIS at 3-7. Still, the SDEIS contains no description of lands that are or should be unsuitable and no discussion of how or when such determinations will be made.[53]

We note with despair that the range of alternatives for livestock management addressed in the SDEIS is woefully inadequate. With the exception of Alternative 1[54], all of the alternatives, including Alternative 2, assume that use of AUMs in the planning area will be similar to historic levels. *See, e.g.*, SDEIS at 4-39. Apparently, nothing BLM does to improve wildlife habitat, restore riparian areas and wetlands, and ensure compliance with statewide standards and guidelines[55] will have any impact whatsoever on the numbers of livestock loosed on the Jack Morrow Hills. The EIS should at least take the requisite "hard look" at what the impact of reducing AUMs might be on the riparian areas and other fragile resources demonstrably at risk.

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[52] Particularly with respect to those lands currently under lease for oil and gas development, BLM should assess the potential conflicts between grazing and oil and gas production. Moreover, the agency should acknowledge that lease issuance may have constituted a *de facto* determination that such lands are no longer chiefly valuable for grazing and should be removed from grazing districts within the planning area.

[53] The SDEIS seems to suggest that determinations about the suitability of lands for livestock grazing will be deferred pending the completion or revision of allotment management plans (AMPs). SDEIS at 3-8. The document contains no schedule for preparation of AMPs or "other activity plans intended to serve as the functional equivalent of [AMPs]. SDEIS at 2-11, 2-22.

[54] Alternative 1 assumes that livestock AUMs would increase to the level of permitted use. Without some demonstration that the lands on the Jack Morrow Hills have ever been grazed at that level, this is not a reasonable alternative for livestock management in this planning area.

[55] Even under Alternative 2, "[m]odified turnout dates would be the primary methods for meeting the standards." SDEIS at 2-44.

Off-Road Vehicles

Off Road Vehicle (ORV) use is addressed by Executive Orders 11644 (1972) and 11989 (1977), and by regulations at 43 C.F.R. § 8340 *et seq*. Section 8342.1 provides that:

> (a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air or other resources of the public lands, and to prevent impairment of wilderness suitability;
> (b) Areas and trails shall be located to minimize harassment of wildlife or significant disruptions of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats;
> (c) Areas and trails shall 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;
> (d) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic or other values for which such areas are established.

Based on this language, as well as the enormous potential for damage posed by the use of ORVs, we urge BLM to require the following:

- The JMHCAP should prohibit ORV use unless routes are specifically marked and designated as available for that use (i.e., BLM should adopt a "closed unless posted open" policy).
- Trails designated as open should be clearly marked so that all users will be aware of where ORV use is, and is not, allowed (this will also assist in effective law enforcement).
- The JMHCAP should implement effective, frequent monitoring of ORV impacts, and set clear benchmarks which, if exceeded, trigger closure of an area to ORVs. If monitoring and enforcement cannot be effectively accomplished due to lack of personnel or resources, the JMHCAP should decrease use commensurately.
- Riparian areas and wetlands are of critical importance to the biological functioning of the planning area, and are exceedingly rare. ORVs, except on designated trails, are not appropriate in these fragile ecosystems.

The current Green River RMP promises completion of travel management plans for the Resource Area, but thus far BLM has failed to fulfill this pledge. In the interim, ORV use has been permitted on "existing" trails. This practice is unacceptable. We fear that another ten years will go by without BLM meeting its obligation under the Executive Orders and regulations to ensure that ORV "[a]reas and trails shall be located to minimize damage to soil, watershed, vegetation, air or other resources of the public lands."[56]

[56] Moreover, the "existing trails" policy results in an enforcement nightmare for the agency. ORVs constantly create new tracks and these new tracks instantly become "existing trails."

During this planning process, BLM should evaluate the road system in the planning area and determine the minimum system of routes necessary. Based on that analysis, BLM should close redundant routes; roads with no destination or purpose; illegal, "ghost," or "wildcat" routes; and roads in sensitive areas. The JMHCAP should make these closures immediately effective, provide for the reclamation of closed routes, and ensure sufficient funding for reclamation, monitoring, and enforcement. These provisions are consistent with and required by the Clean Water Act Plan, the Riparian-Wetlands Initiative, the Executive Orders, and other law.

Invasive Species, Noxious Weeds, and Management of Native Vegetation

The JMHCAP must ensure compliance with Executive Order 13112 on invasive species. Section 2 of the Executive Order requires BLM to identify actions that may affect the status of invasive species and to then:

> [u]se relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them . . . .

Moreover, the Executive Order requires BLM to:

> not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

In short, BLM must consider whether it is more effective and efficient, ecologically and economically, to avoid certain ground-distributing activities in order to ensure compliance with the provisions of the Executive Order.

To prevent the spread of invasive species and preserve native species and plant communities, the JMHCAP should:

- Reduce the road construction associated with oil and gas development and other surface disturbance to the minimum practicable footprint.
- Reduce grazing pressures where overuse is promoting the spread of invasive species.

- Require that any fill material used on the planning area be free of non-native seeds or other noxious weed material.
- Reduce ORV access in areas where the spread of invasion species poses a significant threat to other resources.[57]

If treatment is necessary, chaining, and other mechanical methods of vegetation manipulation should be prohibited in ACECs, winter habitats for sage grouse, crucial big game habitats, lands proposed for wilderness designation, and all other lands for which NSO stipulations are required. Aerial chemical applications should be very limited and strictly monitored. Native plants should be used in all restoration and revegetation projects.

Locatable Minerals

BLM interprets the General Mining Law of 1872 to provide few opportunities for the agency to exercise its management discretion. Because of this, sensitive lands must be withdrawn from the operation of the Law. These lands include all ACECs, all crucial big game habitats, sage grouse breeding, nesting and wintering areas, mountain plover nesting areas, lands proposed for wilderness designation, and all other lands requiring NSO stipulations for leased minerals. In the Jack Morrow Hills, withdrawal of the entire planning area is appropriate.[58]

Visual Resource Management

Visual resource management (VRM) classes must be assigned to all public lands as part of the Record of Decision for land use plans. We submit that all areas proposed for wilderness designation, whether citizen-proposed or otherwise, must be designated as VRM I "to preserve the existing character of the landscape." *See* BLM Instruction Memorandum 2000-096. Areas within the viewshed of National Trails and WSRs should also be designated as VRM I.

Management actions authorized under the JMHCAP should reflect these VRM classifications. For example, withdrawal from the operation of the General Mining Law and/or NSO stipulations may be required to assure compliance in VRM I areas and some VRM 2 areas.

Recreation Management

The recreation resource on public lands is becoming increasingly rare and valuable. More and more people want to recreate on the shrinking amount of public land that remains unindustrialized. Many visitors to the public lands want to experience solitude, clean air, clean water, and vast undeveloped landscapes. They want to witness native plants and wildlife in their natural habitat. The JMHCAP should accommodate these resource values.

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[57] According to the SDEIS, "[m]otorized vehicles transporting seeds in tire treads are a significant source of new infestations of weed species." SDEIS at 3-14.

[58] Moreover, as the DEIS noted, the planning area has only limited potential for this kind of mineral development and very little current mining activity. DEIS at 217-218. In this case, "it seems an entirely reasonable option to withdraw all or most of the planning area from mineral development." Memorandum to the Secretary of the Interior from the Solicitor (December 22, 2000).

Increasing pressure from commodity uses and recreationists exposes the need to include more lands within ROS classes that protect the land's undeveloped, wild character. These designations preserve the availability of public lands for diverse recreation activities, the desire for which cannot be met adequately elsewhere: camping, picnicking, hiking, climbing, enjoying scenery, wildlife or natural features viewing, nature study, photography, spelunking, hunting (big game, small game, upland birds, waterfowl), ski touring and snowshoeing, swimming, fishing, canoeing, sailing, and non-motorized river running.

At a minimum, all lands proposed for wilderness designation within the planning area should be managed as ROS class primitive.

The JMHCAP should determine which lands are currently accessible by motor vehicle, horse, or foot for public recreation, and which lands are rendered unavailable for public recreation due to private lands that hold no access easements. The JMHCAP should address the problem of inaccessibility of public lands for public recreation, including acquisition of easements and appropriate land exchanges.[59]

Fire and Fire Policy

The EIS should address issues related to fires and fire policy. The JMHCAP should:

- Provide that fire suppression efforts and related vegetation management efforts (like thinning) are focused on the "wildland urban interface." Remote areas should not be subject to mechanical vegetation management activities.
- Establish an ecologically based fire restoration program so that fire can play its natural, and necessary, role in the planning area.
- Prohibit any mechanical treatments (e.g., thinning) of vegetation in lands proposed for wilderness designation.
- Prohibit road building as a means to accomplish any vegetation treatments in furtherance of the fire policy. If "non-permanent" roads are allowed, there should be strict assurances such roads will be temporary.
- Be consistent with the Western Governors Association's 10-year Comprehensive Wildfire Strategy prepared in 2001.
- Provide that riparian areas are restored so that they can serve as natural firebreaks.

Land exchanges and other similar methods for preventing encroachment of homes and other structures within remote public lands should be addressed.

Socioeconomics

The SDEIS contains little information on the revenues generated by hunters in the planning area. However, data collected from the Wyoming Game and Fish Department indicates that there are

[59] Where public access to public lands is illegally denied by private users, BLM must ensure that the public's ability to use and enjoy these lands is enforced.

substantial returns to both the local communities and the State of Wyoming from preserving wildlife habitat on the Jack Morrow Hills. *See* attached table on estimated hunter expenditures.

V. THE SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT IS INCOMPLETE

Although NEPA does not require BLM to achieve complete certainty regarding the environmental impact of a proposed project, the Act does require all federal agencies to make every reasonable effort to obtain the requisite information to make an informed and environmentally sound decision. 42 U.S.C. § 4332(2)(C). CEQ's regulations implementing NEPA expressly mandate that "[i]f . . . incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 C.F.R. § 1502.22(a) (emphasis added). The agency is excused from gathering information only if "the overall costs of obtaining it are exorbitant or the means to obtain it are not known."[60] In that case, the regulations require disclosure of the missing information, its relevance, a description of existing information, and the agency's evaluation of that existing information. 40 C.F.R. § 1502.22(b).

Still, the SDEIS for the JMHCAP is missing several relevant pieces of information without explanation. For example, there is little data on surface water quality, none on ground water quality, and none on the hydrological connection between surface and ground water. This information is important to any discussion of the environmental impacts of oil and gas development, both conventional and coalbed methane. The SDEIS admits that the information is lacking but contains no discussion of how difficult it might be to obtain the data. However, since the SDEIS promises future studies to gather this information, *see, e.g.,* SDEIS at 4-13, it appears that the data can be readily obtained. The failure to do so now, therefore, is improper.

The SDEIS refers to several studies that are underway such as the Wyoming study on desert elk and the Wyoming conservation plan for sage grouse but provides no explanation for why this data cannot be included in the final EIS and inform the agency's decision as to the JMHCAP.

The SDEIS admits that BLM lacks information on non-game species. There have been few inventories of prairie dog colonies despite the fact that they provide crucial habitat for several endangered and declining species. Air quality data is outdated. Only two percent of cultural resources have been inventoried. No information has been gathered from the tribes on Native American holy places. All of this information is relevant to BLM's management of the unique

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[60] The courts have held that the obligation to obtain missing information is an affirmative one:

> NEPA does, unquestionably, impose on agencies an affirmative obligation to seek out information concerning the environmental consequences of proposed federal actions. Indeed, this is one of NEPA's most important functions. As this court has held, "the basic thrust of an agency's responsibilities under NEPA is to predict the environmental consequences of proposed action before the action is taken and those effects fully known."

Alaska v. Andrus, 580 F.2d 465, 473 (D.C. Cir. 1978), *vacated in part as moot*, 439 U.S. 922 (1978) (*quoting Scientists' Institute for Public Information v. AEC (SIPI)*, 481 F.2d 1079, 1092 (D.C. Cir. 1973)).

resources on the Jack Morrow Hills. Failure to obtain information relevant to the environmental consequences of a proposed action, absent "exorbitant" cost and disclosure under 40 C.F.R. § 1502.22(b), results in a failure to satisfy NEPA; if an agency's conclusions are "not supported by study or supporting documentation, [they] are insufficient to satisfy the agency's NEPA obligations." *Siskiyou Regional Educ. Project v. Rose*, 87 F.Supp.2d 1074, 1099 (D. Or. 1999).

VI. THE PROPOSED ADAPTIVE MANAGEMENT STRATEGY IS UNWORKABLE

BLM's Preferred Alternative for management of these lands provides little real protection for the wildlife and wildlands of the Jack Morrow Hills. Instead, the agency proposes to conduct a landscape-level experiment on how much development wildlife can tolerate in these crucial habitats. Under the Preferred Alternative, oil and gas development will go forward on much of the Jack Morrow Hills. BLM will monitor its impact on other resources, including wildlife, and "adjust" the agency's management of such development as needed.

This so-called "adaptive management" strategy is based upon a number of assumptions; none of which are true. First, this strategy assumes that BLM will have sufficient resources to monitor adequately the impacts of oil and gas development. Past experience with BLM's monitoring programs demonstrates that the costs of monitoring often outstrip the agency's available resources.[61] Second, the strategy assumes that BLM will be able to identify that moment, just before the threshold is crossed and damage to other resources becomes irreparable. Yet, the SDEIS admits that BLM's preference for the adaptive management alternative is based, in part, on the fact that the agency lacks sufficient information to understand the true impacts of oil and gas development in the Jack Morrow Hills.[62] Finally, this strategy assumes that BLM will be able to put the genie of oil and gas development back in the bottle if the agency determines that unacceptable levels of harm are occurring. Once leases are issued, wells are drilled, and exploration seeks to become production, however, it is extremely unlikely that BLM will pull the plug. In our experience, limits on oil and gas development become less restrictive, rather than more so, from lease issuance to full field production.

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[61] For example, the adaptive environmental management process included in BLM's Pinedale Anticline Record of Decision has been a miserable failure. BLM implemented the development components of the management strategy but failed to monitor and address the impacts of that development. Here, BLM acknowledges a lack of site-specific data on many non-game species. Without that baseline data, how can BLM make any determinations about the impact of its decisions on the ecosystems on the Jack Morrow Hills?

[62] We note that it is only "impossible to predict how future development will proceed," SDEIS at A17-1, if the agency fails to exert the authority it has to control the pace and direction of private activities on the lands it manages. Nothing in the Mineral Leasing Act requires BLM to issue oil and gas leases. The leases it issues can contain stipulations on the time, place, and manner of both exploration and development. BLM has the power to suspend existing leases or to re-acquire the mineral rights under lease. It has the authority to condition its approval of drill permits. BLM can withdraw lands from the operation of the General Mining Law, designate lands as unsuitable for coal production, and reduce livestock AUMs. The public lands are subject to the whims of industry and the market only because BLM has chosen to make them so.

Moreover, the adaptive management strategy proposed in the SDEIS is incomplete. It identifies so-called "resource indicators"[63] but provides no indication of when adverse data on these indicators may require action on the part of BLM or what that action might be.[64] If elk numbers drop by ten percent, does oil and gas development continue on the Jack Morrow Hills? What if there is a 25 percent reduction in sage-grouse lek use? What level of road density is acceptable in crucial elk habitat?[65] What measures are appropriate when unacceptable levels of damage to resource indicators are established?[66] What degree of proof is required in order to impose "new" restrictions on development. Without this information, neither the agency nor the public will be able to make a determination as to whether a proposed activity conforms to the JMHCAP. For example, when the industry nominates additional lands for leasing in the planning area or requests APDs on existing leases, how will the agency determine what lease stipulations or conditions of approval are necessary in order to conform with the current "management strategy?"[67]

For these reasons, together with the concerns raised by many others in their comments on the SDEIS, NWF, WWF, and NRDC support adoption of the adaptive management strategy outlined in the Wildlife and Wildlands Alternative for the Jack Morrow Hills Coordinated Activity Plan.

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[63] The proposed list of resource indicators is too short. It should be expanded to include 1) air and water quality, including compliance with CAA State Implementation Plans and state water quality standards; 2) threatened and endangered species; 3) sensitive species representative of various habitat types in the planning area; 4) significant heritage resources; 5) reclamation success; 6) invasive weeds and exotic species.

[64] The SDEIS is replete with plans to gather information but provides no suggestion of how that information, once gathered, will be used. For example, BLM agrees to perform a vegetation-monitoring program. If monitoring indicates that forage levels are dropping, for example, what action does BLM propose to take to restore forage allocations for wildlife? The SDEIS and Preferred Alternative for the JMHCAP are silent. We support the development and implementation of habitat monitoring plans. However, data collection must be tied to some corrective action on the ground. In an adaptive management strategy, monitoring data must drive decisions.

[65] The SDEIS describes the area impacted by oil and gas development incorrectly. The impact area extends well beyond the lands actually covered by drill pads and roads. Noxious weeds spread from disturbed areas and extend out perpendicularly. Dust, oil, toxic spills, and trash expand from the site. Noise as well as air and water pollution travel for miles. All of this must be included in any calculation of habitat loss resulting from oil and gas development.

[66] The relationship between the monitoring plan contained in Appendix 9 and the adaptive management strategy described in Appendix 17 is unclear. The plan monitoring activities do not correspond with the management resource indicators. This is inefficient and ineffective.

[67] There is confusion already about what lands will be made available for leasing. Map A17-1 attached to the Preliminary Adaptive Management Implementation Strategy contained in Appendix 17 seems to indicate that under the Preferred Alternative, some land will immediately become available. Yet, Appendix 9 refers to an elk study to be completed in two years and states that decisions about opening lands to leasing will be made when the elk study is finished. SDEIS at A9-5. Elsewhere, the SDEIS states that "[l]eases will be held [under suspension] until indicators show acceptable effects or a positive response of resources to development . . .." SDEIS at A17-3. On the very next page, BLM announces that "[e]xisting lease suspensions will end with the signing of the record of decision for the JMH CAP." SDEIS at A17-4.

Moreover, it is impossible to tell from the SDEIS or the maps provided what lands will be available for leasing under standard lease terms and what lands will require NSO stipulations or other restrictions.

VII. ELEMENTS OF THE RESOURCE MANAGEMENT PLAN STATEMENT OF DESIRED OUTCOMES AND ALTERNATIVES FOR CONSIDERATION IN THE ENVIRONMENTAL IMPACT STATEMENT

As required by the ESA, BLM should seek to conserve the ecosystems upon which endangered and threatened species depend on in the planning area. As required by the Clean Water Act, BLM should seek to restore and maintain the chemical, physical, and biological integrity of all waters in the Jack Morrow Hills. Additionally, the plan should seek to eliminate the discharge of pollutants into waters in the planning area, "provide for the protection and propagation of fish, shellfish, and wildlife," and provide for "recreation in and on the water[s]." 33 U.S.C. § 1251(a)(1)-(2). The Clean Air Act declares a national purpose to "protect and enhance the quality of the nation's air resources so as to promote the public health and welfare . . .." 42 U.S.C. § 7401(b)(1). Pursuant to FLPMA, BLM should ensure that public lands in the Jack Morrow Hills are managed to protect the "quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values," as well as ensure compliance with the definitions of multiple use and sustained yield. 43 U.S.C. §§ 1701(a)(8), 1702(c) and (h). No unnecessary or undue degradation of the public lands can be allowed. 43 U.S.C. § 1732(b).

BLM's Fundamentals of Rangeland Health and the grazing standards and guidelines are a blueprint for ecosystem-management-based goals that BLM should apply to all activities in the planning area. *See* 43 C.F.R Subpt. 4180. The Riparian-Wetlands Initiative establishes goals for watershed planning that should be adopted in the JMHCAP. The Wilderness Act should provide the desired outcome for all BLM roadless areas, namely they should be managed so that they remain "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." 16 U.S.C. § 1131(c).

Taken together, these laws define what BLM's statement of desired outcomes should be under the JMHCAP and the JMHCAP itself should ensure such outcomes are implemented on the ground.[68] To ensure the above desired outcomes occur, BLM must adopt a land use plan that explicitly meets these legal standards. Under FLPMA, the chosen alternative must "best" meet the needs of the American people as a whole. FLPMA makes it explicitly appropriate that not all uses be accommodated in all areas, and requires consideration of the relative values of resources that cannot be defined in solely economic terms. The elements of the Wildlife and Wildlands Alternative outlined herein and in the attached summary are appropriate and reasonable under these standards, should be fully considered in the final EIS[69], and adopted as the JMHCAP.[70]

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[68] The report "Conservation Management of America's Public Lands: An Assessment and Recommendations for Progress 25 Years After FLPMA" provides further guidance on many of these elements and should be considered by BLM as it completes the JMHCAP and prepares the final supporting EIS. A copy of this white paper by the National Wildlife Federation and the Natural Resources Defense Council is attached.

[69] As noted above, under the CEQ regulations, rigorous analysis of all reasonable alternatives is "the heart" of an EIS.

Thank you for considering these comments.[71]

Sincerely,

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[70] Additional scientific support for the elements of the Wildlife and Wildlands Alternative are found in the text and citations of the Alternative and supporting comments submitted by the Wyoming Outdoor Council (WOC). Those portions of WOC's comments are incorporated herein by this reference.

[71] We have received troubling reports that BLM may refuse to accept comments submitted on postcards or via the websites of environmental organizations. While some of these comments may be duplicative of those already submitted by others, BLM should be willing to listen to every member of the public who wishes to be heard on the management of the public lands. When making a determination about whether a particular use of lands is in the public interest, it does matter whether 30 people or 30,000 people support BLM's action.

ATTACHMENTS

WILDLIFE AND WILDLANDS ALTERNATIVE

INTRODUCTION AND BACKGROUND

Located in the heart of the eight million acre Greater Red Desert, the 622,330-acre Jack Morrow Hills Study Area contains one of the most impressive combinations of historical, natural and scenic values in the American West. The area contains seven Wilderness Study Areas - the largest cluster in Wyoming; the largest desert elk herd in the world; part of the largest migratory game herd in the lower 48 states - the 50,000 strong Sublette pronghorn antelope herd; one of the last strongholds of the greater sage grouse in the Rocky Mountains; the largest active sand dune system in North America; numerous American Indian holy sites such as the White Mountain petroglyphs and the Boar's Tusk; and historic icons such as the South Pass Landscape and the Emigrant Trails. Additionally, over 350 wildlife species inhabit the Jack Morrow Hills Study Area including ferruginous hawks, golden eagles, mountain lions, black bears and coyotes. Of these wildlife species, many are species of concern including burrowing owls, mountain plover, pygmy rabbits, flannel mouth suckers, eastern short-horned lizards and Great Basin gopher snakes.

The Jack Morrow Hills area is home to a large number of rare and imperiled plants and plant communities. At least 14 rare, imperiled and plant species of concern have been identified in the study area, including the Nelson's milkvetch, the meadow pussytoes, the large-fruited bladderpod, Payson's beardtongue and alkali wild rye. The area also contains the only known occurrence of the basin big sagebrush/lemon scurfpea association in the world.

Citizen-led efforts to protect the Red Desert date back to 1898 when Lander sportsman Dr. Frank Dunham and other Wyoming hunters tried to designate much of the desert a Winter Game Preserve. This first conservation proposal included a large swath of land through the Greater Green River Basin all the way up to Yellowstone National Park, encompassing the migratory corridors used by elk, antelope and deer to travel back and forth between the desert and the Greater Yellowstone Ecosystem. In 1935, Wyoming Governor Leslie Miller unsuccessfully attempted to preserve a portion of the desert as part of a larger nationwide "Western Trails National Park" which would have protected land adjacent to the Emigrant Trails. In 1968, local rancher and wildlife advocate Tom Bell

courageously attempted to advance a Congressional proposal to designate part of the desert as a North American Antelope Range. There have been other efforts over time to protect the area as a Wild Horse Refuge, a National Wildlife Refuge, a National Park, a National Monument and a National Natural Landscape. Although former President Bill Clinton would likely have designated the Jack Morrow Hills Area of the Red Desert a National Monument in 2001, he was unable to do so due to a 1950 amendment to the Antiquities Act forbidding the further expansion of national parks and monuments in Wyoming without full Congressional approval. Today, there is a growing movement to protect the Jack Morrow Hills Study Area and other parts of the Red Desert as a National Conservation Area.

HERITAGE RESOURCES

The Wildlife and Wildlands Alternative provides enhanced protection for culturally significant areas revered by Native Americans.

The Jack Morrow Hills Study Area is rich in nationally significant cultural and historic resources. The area is home to such icons as the South Pass Historic Landscape, the Outlaw Trail, the Pony Express, Point of Rocks – South Pass Stage road, Mormon Pioneer, Oregon and California Pioneer Trails in addition to such sites as the Tri-Territory Marker- the juncture of the Oregon Territory, the Louisiana Purchase and the newly formed Mexican Republic; and the Oregon Buttes- the gateway to the Great Divide Basin. Legendary figures such as Chief Washakie, Butch Cassidy, Jedediah Smith, Jim Bridger and Kit Carson all strode this landscape and the wagon ruts left behind by over 450,000 pioneers emigrating through South Pass may still be seen today in some locations.

Although only 2% of the study area has been surveyed for resources of cultural importance, the area is home to "cultural evidence from some of the earliest inhabitants of the North America continent and are some of the most intact manifestations of such archaeological evidence known anywhere on the continent." Volcanic formations in the study area such as the Boar's Tusk are central to Shoshone creation mythology and holy sites and areas of cultural importance abound through the area, including the Indian Gap Trail, Steamboat Mountain, White Mountain Petroglyphs, Joe Hay Rim, Killpecker Creek and the Sands. Rock art, burial sites, cairns, tipi rings and campsites anywhere from

several hundred years old to several thousand years old have been identified in the Jack Morrow Hills Study Area. It should be remembered that the vast landscape of the Red Desert, with its shifting sand dunes, flat top mesas, volcanic cones and mountain vistas, has sacred meaning to many Native American Indian Tribes and can not necessarily be separated into pieces and parcels. The Shoshone, Ute, Arapaho and Crow used the area for hunting and gathering of medicine, as did other tribes.

The Wildlife and Wildlands Alternative adopts the management objective for Heritage Resources described in the BLM's Preferred Alternative: "The planning area would be managed to protect important heritage resources (cultural, historic, archaeological, and unique geological features) while allowing for educational research and appropriate interpretive uses."

Native American traditional elders have identified a number of sites important for traditional, sacred or religious uses by Native peoples. Elders in this region have referred to these sites as "respected places." SDEIS at 4-89. Native American respected places (see Glossary at G-7) located within the planning area would be managed to achieve the highest level of protection -- comparable to nationally-important historic trails and sites, such as South Pass and the Oregon, Pony Express, and Mormon Pioneer Trails, found within the planning area.

Specific management prescriptions for respected places include:

- Consultation with Tribal traditional elders or other designated representatives of the Tribes prior to any activity that could negatively impact, or interfere with use of, a respected place.
- VRM Class I (for pristine, undeveloped sites); VRM Class II (for sites with minor intrusions or existing development).
- Exclusion area for pipeline ROWs, utility lines and other linear features.
- Communication sites prohibited.
- Existing oil and gas leases remain under suspension pending site-specific analysis to determine if development can occur without adverse impacts. Lease exchange and buy outs pursued.

- Surface disturbance and disruptive activities would be prohibited within viewshed or three miles of respected places.
- Federal ownership retained.
- Withdrawn from locatable mineral entry.
- Closed to leasable solid and fluid minerals.
- Closed to mineral material sales.
- Seismic exploration using vibroseis buggies and other ground disturbing techniques prohibited.
- Increased agency enforcement to ensure artifact poachers are deterred or prosecuted.
- Indian Gap Trail and viewshed is surveyed, mapped and added to National Historic Trails system, achieving level of protection equivalent to Oregon, Pony Express, Mormon Pioneer trails.

The Wildlife and Wildlands Alternative provides increased protection for nationally significant trails like the Pony Express Trail and the Oregon Pioneer Trail.

Heritage resources not specifically addressed above would be managed in accordance with JMH Alternative 2.

AIR RESOURCES MANAGEMENT

The Wildlife and Wildlands Alternative gives priority to the restoration and protection of air and water quality.

The Wildlife and Wildlands Alternative adopts the BLM's management objectives for air and water quality. For air resources, that objective provides: "The planning area would be managed to maintain and, where possible, enhance present air quality levels and, within the scope of BLM's authority, minimize emissions that may add to acid rain, cause violations of air quality standards, or reduce visibility."

However, unlike the BLM's alternatives, the Wildlife and Wildlands Alternative adopts aggressive management actions implemented in close coordination with state and federal regulatory agencies to achieve the stated objectives:

- New emission sources are not permitted until/unless state and federal regulatory agencies perform major and minor source increment consumption analyses for PSD I and PSD II areas.
- Best available control technology (BACT) is applied to existing "grandfathered" major emission sources located in Southwest Wyoming.
- Best available retrofit technology (BART) is applied to all emission sources in Southwest Wyoming causing or contributing to visibility reduction in pristine Class I areas in the Bridger and Fitzpatrick Wilderness areas.
- Emissions of hazardous air pollutants, such as benzene, from mineral and energy production facilities are reduced and, where possible, eliminated through application of new technologies and industrial processes.
- BLM shall enforce Standard Federal Oil and Gas Lease Term # 6 (Conduct of operations) to control operations in a manner that minimizes impacts to air resources.
- Particulate emissions (PM 10 and PM 2.5) are controlled by ensuring timely and complete reclamation of disturbed areas and adequate dust control measures.
- The planning area is re-designated PSD Class 1.

WATERSHED RESOURCES

The Wildlife and Wildlands Alternative gives priority to the restoration and protection of air and water quality.

The Wildlife and Wildlands Alternative adopts the management objective for watershed resources: "The planning area would be managed to maintain or enhance land and water resources using ecological principles and science-based performance criteria," and adds a number of controls and prescriptions to restore and maintain watershed health and ecological functions.

- Total Maximum Daily Loads would be established under section 303(d) of the Clean Water Act for all perennial water bodies in the planning area to ensure applicable DEQ water quality standards are met.
- Herbicide loading areas would be prohibited within 1000 feet of water sources, wetlands, riparian areas, floodplains and special status plant species.

- Site-specific activity and implementation plans are developed for riparian areas not meeting proper functioning condition.
- Noxious weed and chemical treatment guidelines in Appendix 8 are revised to provide the highest degree of protection for wetlands, riparian areas, surface waters and sensitive plant and aquatic species. Minimum buffer for such resources is 500 feet for ground application, 1000 feet for aerial spraying.
- Wetlands and riparian areas would be exclusion areas for surface disturbing activities. Exceptions granted on case-by-case basis for environmental restoration projects.
- Areas within 500 feet of wetlands and riparian areas would be avoidance areas for surface disturbing activities and permanent structures.
- Special biological studies of the Sands' unique dunal ponds and wetlands' flora and fauna would be initiated by BLM. Appropriate measures to protect these dunal flockets would be initiated if overgrazing, off-road vehicle use, recreation or other activities threaten their ecological integrity.
- New permanent facilities and structures would be prohibited in 100-year floodplains, wetlands, and riparian areas. Linear crossings would be allowed only in previously disturbed sites or designated ROW corridors.
- Areas within 100 feet of the edge of the inner gorge of intermittent and large ephemeral drainages would be avoidance areas for surface disturbing areas.
- Minerals mining and energy development activities would be prohibited in aquifer recharge areas.

VISUAL RESOURCE MANAGEMENT

The Wildlife and Wildlands adopts the BLM's management objectives for the protection of visually sensitive areas: "To maintain or improve scenic value and overall visual quality by managing impacts of human activities and other intrusions on the visual landscape." To achieve this objective, the following actions are recommended:

- Wilderness Study Areas (WSA) and WSA expansions recommended by the Wyoming Wilderness Coalition (SDEIS Vol. 2 at A18-1) are managed VRM Class I.

- National Historic and Scenic Trails and viewsheds (5 miles either side) managed VRM Class I.
- VRM Class I (for pristine, undeveloped sites); VRM Class II (for sites with minor intrusions or existing development).
- Backcountry byways and their viewsheds designated VRM I;
- Areas of Critical Environmental Concern (ACECs) whose designation is based in whole or in part on scenic and aesthetic value would be managed as VRM Class 1; all other ACECs would be designated VRM Class II.
- Eden Valley managed as VRM Class III.
- All remaining areas managed as VRM Class II.
- Except as otherwise provided, no areas in the Jack Morrow Hills planning area would be managed as VRM Class III or IV.

LIVESTOCK GRAZING

The Wildlife and Wildlands Alternative promotes responsible livestock grazing.

Livestock grazing would continue in the planning area as described in the BLM's Preferred Alternative. Emphasis would be placed on restoring rangeland health and proper functioning condition of riparian areas. Upland and riparian vegetation would be managed to achieve desired plant community objectives.

- All grazing allotments must meet the Fundamentals of Rangeland Health, the Properly Functioning Condition of riparian areas, and other statewide standards and guidelines.
- The condition of all allotments and riparian areas in the planning area will be reviewed at least every three years for compliance with the statewide standards and guidelines. Rehabilitation of those allotments or riparian areas that are not in compliance with these requirements will be instituted no later than the start of the next grazing season. The adoption of rehabilitation measures will be a public process.
- Evaluations required under the National Environmental Policy Act and the Endangered Species Act for grazing activities on the Jack Morrow Hills will be completed within three years of adoption of the final CAP.

RECREATION RESOURCES MANAGEMENT

The Wildlife and Wildlands Alternative promotes responsible recreation, hunting, vehicle use and continued access via existing, designated roads.

The Wildlife and Wildlands Alternative adopts the BLM's management objective for recreation resources: "The planning area would be managed to accommodate opportunities for recreational resources while protecting other resource values and minimizing conflicts with other resource uses."

Except as indicated below, the Wildlife and Wildlands Alternative adopts the BLM's Preferred Alternative as the best management approach for recreation resources within the planning area.

- Recreational mining activity would be limited to a five-acre site that would be designated in the Dickie Springs-Oregon Gulch Gold Placer Mining District area outside elk calving habitat. A recreation site plan would be prepared and implemented to manage the site for recreational purposes. (JMH Alternative 3).

WILD HORSE MANAGEMEMT

The Wildlife and Wildlands Alternative adopts the BLM's Preferred Alternative for the management of wild horses: "The Divide Basin Wild Horse Herd Management Area (Map 62) boundaries would remain unchanged and the Appropriate Management Level (AML) would be maintained at 415-600 horses."

TRAVEL MANAGEMENT, ACCESS AND REALTY

The Wildlife and Wildlands Alternative promotes responsible recreation, hunting, vehicle use, grazing and continued access via existing, designated roads.

The Wildlife and Wildlands Alternative adopts -- with revisions to emphasize resource protection -- the BLM's management objective for travel management, access and realty: "Consistent with the highest degree of protection for crucial habitats and sensitive resources, [t]he planning area would be managed to accommodate access needs for approved public land uses and to manage access where appropriate to protect other resource values."

To achieve this objective, the Wildlife and Wildlands Alternative adopts the BLM's Preferred Alternative, with the following modifications:

- Geophysical and related detonation would be excluded from areas with no surface occupancy requirements, WSAs, ACECs, and other sensitive resources. Seasonal limitations would apply. (JMH Alt. 2).
- Right-of-way (ROW) exclusion and avoidance areas would be as shown in Map 27 (JMH Alt. 2).
- Off-road vehicle (ORV) use would be managed in accordance with a transportation plan that limits use to designated areas, roads and trails.
- A transportation plan would be completed as part of the JMH CAP, consistent with the terms set out in Alternative 2.

WILDLIFE

The Wildlife and Wildlands Alternative ensures the long-term survival of the Red Desert elk and pronghorn antelope herds and other wildlife, and it restores and protects wildlife habitat damaged by roads and pipelines.

Over 350 different wildlife species are found within the planning area. (SDEIS, Vol. 1 at 3-14). The area provides "crucial habitat" for all three major game species, elk, antelope and mule deer. Approximately 187,000 acres of the study area are crucial winter or crucial yearlong range for elk, including the much acclaimed resident Steamboat Mountain elk herd (the largest desert elk herd in the world), which contains between 1000 and 2000 individuals. The area also provides habitat to the largest migratory game herd in the lower 48 states - the 50,000 strong Sublette pronghorn antelope herd.

Seventeen raptor species inhabit the Jack Morrow Hills Study Area including ferruginous hawks, golden eagles, prairie falcons, Swainson's hawks, short-eared owls and burrowing owls. Additionally, numerous species of concern such as flannelmouth suckers, pygmy rabbits, Eastern short horned lizards, Great Basin gopher snakes, and Wortman's ground squirrels find shelter in the study area. Both the greater sage grouse and mountain plover, species that have experienced precipitous declines in most of their range- both candidates for listing under the Endangered Species Act- still enjoy fairly sizeable populations in the Red Desert. The area provides an oasis for other sage-brush obligates besides the sage grouse, including sage sparrows, sage thrashers and sage lizards.

In recognition of this extraordinary resource, Wildlife Habitat is added as a separate resource category (SDEIS at 2-2) for which the following resource objective is established:

- The management objective for wildlife habitat contained in the Wildlife and Wildlands Alternative provides that fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native species in the planning area.
- A Habitat Management Plan would be prepared for the entire planning area to mitigate wildlife habitat losses. (JMH Alt. 2).
- The habitat management plan would include habitat expansion efforts, threatened and endangered species reintroduction, and population goals and objectives designed to achieve and maintain viable populations of native and desired non-native species.
- Suitable wildlife habitat and forage would be provided to support the Wyoming Game and Fish Department's Strategic Plan objectives.
- Big game, sensitive species and their habitat, threatened and endangered species, special status wildlife and fish species, water developments and predators would be managed in accordance with JMH Alternative 2, except that big game connectivity areas would also be considered "sensitive habitat" and managed accordingly.
- Sage grouse and raptors would be managed in accordance with JMH Alternative 2, except that:
  - Long-term or permanent above-ground surface occupancy would be prohibited within a 2-mile radius of sage grouse leks, or on nesting habitat and winter concentration areas. Seasonal limitations on disturbing and disruptive activities would apply within two (2) miles of leks, and on nesting and concentration areas, and would be applied 24 hours daily.
  - Permanent or high profile structures would be prohibited within 1-2 miles of active and historic raptor nests, depending on species (2-miles for ferruginous hawks); temporary disturbances associated with placement of facilities would be prohibited within 1-2 miles of active raptor nests; and disruptive activities would be seasonally restricted within 1-2 miles of occupied raptor nesting sites.

Precise distance within this range would be determined on a case-by-case basis and would depend on the raptor species involved, natural topographic barriers, line of sight distances, population status, etc.

- As determined by transportation planning, unnecessary roads would be obliterated and reclaimed to a natural, pre-disturbance condition.
- Timely and complete reclamation of disturbed areas is conducted in accordance with Appendix 9 and remains an ongoing liability of the operator until released by BLM.
- Previously disturbed areas and pipeline rights-of-way that have not been successfully reclaimed (i.e. to meet goals and standards in Appendix 9) are identified and scheduled for reclamation consistent with Appendix 9 standards.
- Fences on public lands would be removed, modified or reconstructed where they impede wildlife movement or constitute threats to viability objectives.
- New fence construction in crucial big game wildlife habitats and connectivity areas would only be considered if alternatives, such as herding and other controls, are not possible. Fence construction and reconstruction would be in accordance with Wyoming Game and Fish Department design standards.

SPECIAL MANAGEMENT AREA MANAGEMENT

The Wildlife and Wildlands Alternative adopts the BLM's management objectives for special management areas: "The planning area would be managed to protect unique resource values of special management areas."

In accordance with Section 202 of the Federal Land Policy Management Act, which directs the Secretary of the Interior to "give priority to the designation and protection of areas of critical environmental concern," the Wildlife and Wildlands Alternative adopts JMH Alternative 2.

WILDERNESS STUDY AREA MANAGEMENT

The Wildlife and Wildlands Alternative would prevent new roads and developments in roadless areas, increase the size of some Wilderness Study Areas, establish new WSAs for lands identified for Wilderness designation by citizens' inventories, and recommend that all deserving WSAs and wildlands be designated as wilderness by Congress.

- Roadless areas identified by the Wyoming Wilderness Coalition would be managed as wilderness study areas.

MINERALS AND ALTERNATIVE ENERGY DEVELOPMENT

The Wildlife and Wildlands Alternative calls for the trade or buy-out of mineral leases in the area while prohibiting all new oil and gas leasing and large-scale mining.

The Wildlife and Wildlands Alternative adopts the BLM's management objectives for minerals and alternative energy resources management with one small yet significant revision, indicated in italics, below: "To provide *limited* opportunities for mineral extraction and energy development while protecting other resource values."

This revised management objective would reduce the potential for future conflict in the planning area due to large-scale oil and gas and mining activities authorized under the BLM's Preferred Alternative.

Actions to implement the revised management objective for minerals and energy development include:

- The planning area would be closed to new leasing.
- Suspended leases in the planning area would remain under suspension while funding is pursued for lease buy out or exchange. Because future development would likely lead to resource conflicts, efforts would be placed on reacquiring both producing and non-producing leases.
- On producing leases where buy out or exchange cannot be accomplished, level and pace of development would be both controlled and limited to avoid significant impact and resource conflicts by a combination of regulatory mechanisms including, but not limited to, lease suspensions, well spacing orders, unitization,

conditions of approval and adaptive management, in a manner consistent with valid existing rights.

- The entire planning area would be closed to coal exploration activity. (JMH Alternative 2).
- Federal coal lands within the Coal Occurrence and Development Potential Area would be closed to leasing and development to protect other resource values in the planning area. (JMH Alternative 2).
- Withdrawals from mineral location would be pursued over the entire planning area, except for a five-acre site designated for recreational mining.
- The entire planning area would be closed to mineral material sales. Extraction of saleable materials would be allowed as required to meet other planning objectives, such as maintenance of existing roads in the approved transportation plan. Mining and reclamation plans would be required for each use of saleable mineral materials. (JMH Alternative 2).
- Alternative energy proposals would be managed pursuant to the Preferred Alternative, except that sensitive areas would be off-limits, including but not limited to VRM Class I, Native America Indian respected places, raptor concentration areas, WSAs, ACECs, and sensitive wildlife habitats.
- Coal bed methane development on existing leases is deferred pending revision to Green River RMP.
- The Wildlife and Wildlands Alternative for minerals and energy development is consistent with federal law and policy:

"FLPMA's definition of multiple use expressly recognizes that the most 'judicious use' of land may involve the use of some land 'for less than all of the resources,' and that consideration must be given 'to the relative values of the resources and not necessarily the combination of uses that will give the greatest economic return...' 43 U.S.C. § 1702(c). Thus, foreclosing mineral exploration and development on even a sizeable tract of federal land does not violate the statutory definition of multiple use, and is not per se unreasonable." *Memorandum from John Leshy, Solicitor for the Department of the Interior*

to Bruce Babbitt, Secretary of the Interior, December 22, 2000 (Commenting on the Jack Morrow Hills Coordinated Activity Plan DEIS).

COMMUNICATION SITES

Except for the existing White Mountain communication site, the planning area is closed to communication sites.

ADAPTIVE MANAGEMENT AND MONITORING

The Wildlife and Wildlands Alternative adopts an Adaptive Management Strategy (AMS) substantially different from that described in the Preferred Alternative:

- The Citizen's Alternative rejects the notion, set out in the BLM's Preliminary Adaptive Management Implementation Strategy, that "it is impossible to predict how future development will proceed." (A17-1). Under the Wildlife and Wildlands Alternative, BLM exercises its regulatory authority to control and limit the pace, location and level of development in a manner that is consistent with valid existing rights and protection of the environment. Through a combination of lease suspensions, lease stipulations, conditions of approval, monitoring, mitigation measures and other mechanisms, the BLM will assure that future development on existing leases does not conflict with or adversely impact other uses and resource values.
- New leases will not be issued in the planning area during the life of the plan.
- Development on existing leases (those that could not be purchased or exchanged) would be controlled and limited to provide for staged development on a lease-by-lease basis, ensuring minimal environmental impacts and resource conflicts.
- The list of monitored "resource indicators" (Table A17-1) would be expanded to include: 1) air and water quality, including compliance with CAA State Implementation Plans and DEQ water quality standards; 2) threatened and endangered species; 3) sensitive species representative of various habitat types in the planning area; 4) significant heritage resources; 5) reclamation success; 6) invasive weeds and exotic species.

- The management objectives and goals (A-17-2) are revised to conform to those set out in the Wildlife and Wildlands Alternative. Wildlife resources is added as a discrete resource for which management objectives shall be established.
- The "overall approach" under the Wildlife and Wildlands Alternative is modified significantly to retain all existing lease suspensions in the planning area while lease exchange and/or buy out is pursued, and site-specific lease development plans are created.
- In accordance with BLM's regulations at 43 CFR § 1610.4-9, intervals and standards for monitoring would be established and displayed in the Adaptive Management Plan.
- The adaptive management strategy is completed and included in the Final EIS for public review and comment. The AMS is incorporated into the Record of Decision as a binding and enforceable instrument. Pending completion of the AMS and issuance of the ROD, existing oil and gas leases remain under suspension, and no new leases are offered.

RESOURCES NOT EXPRESSLY ADDRESSED IN THE WILDLIFE AND WILDLANDS ALTERNATIVE WOULD BE MANAGED IN ACCORDANCE WITH JMH SDEIS ALTERNATIVE 2.

-END-

14 February 2003

SAGE-GROUSE SCOPING ISSUES FOR REVISION OF THE BLM'S GREAT DIVIDE RESOURCE MANAGEMENT PLAN

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Background

Sage-grouse (*Centrocercus* spp.) have been demonstrated to be dependent upon sagebrush (*Artemisia* spp.) steppe habitats throughout all of their life processes (Patterson 1952). An overview of the life history of sage-grouse and their habitat is presented in the Appendix. The distribution and abundance of sage-grouse have decreased throughout their formerly occupied range (Connelly and Braun 1997, Braun 1998, Schroeder et al. 1999). The actual size of the overall decrease is unknown but most likely exceeds 50% in total area occupied and 80% in abundance (Braun 1998). Sage-grouse have been extirpated in 4-5 states and one Canadian province and have been listed as endangered in Canada. Six petitions have been filed in the United States, covering all populations, to list sage-grouse as threatened or endangered under the Endangered Species Act of 1973. The U. S. Fish and Wildlife Service has not responded to all of these petitions although the Gunnison sage-grouse (*C. minimus*) has been assigned candidate species status, sage-grouse populations (*C. urophasianus phaios*?) in Washington State have been identified as meriting "warranted but precluded" status, and a petition for listing a distinct population segment of sage-grouse in California and Nevada has been denied. Further, the Wyoming Game and Fish Department has recognized the problems with sage-grouse in Wyoming and, through a statewide working group, prepared and released for review a draft "Wyoming Greater Sage-grouse Conservation Plan" dated November 2002.

Much of the present distribution of sage-grouse is on publicly owned lands administered by the Bureau of Land Management (BLM) and the U. S. Forest Service (USFS). Management of wildlife on public lands is the responsibility of the respective state wildlife agency while management of wildlife habitat on public lands is the responsibility of the land management agency (usually BLM or USFS). Further, multiple use is most frequently prescribed for public lands administered by the BLM and USFS. Multiple uses typically include recreation, watershed, wildlife production and harvest, livestock production, and mineral exploration and development (including oil and gas production).

Energy production on public lands is not recent (Braun et al. 2002) and there has been exploration and development of typical sources such as coal, oil, and, gas dating to the 1880's. While past interest has seemed to be cyclic, depending upon demand, the recent interest in gas, and especially development of gas from coal bed methane and "tight sands" gas deposits, seems to be almost unprecedented. Many areas proposed for gas production in the western United States have been among the most productive for sagebrush-dependent wildlife, especially sage-grouse. Thus, increased development of energy resources in sagebrush steppe habitats has the potential to negatively affect sage-grouse.

The Great Divide Resource Management Area includes portions of Albany, Carbon, Laramie, and Sweetwater counties in south central Wyoming in an area known to be productive for wildlife and especially sage-grouse (Patterson 1952). Wyoming, in general, has the strongest sage-grouse population in the world. Fragmentation of the habitats upon which this population depends will slowly unravel the entire presently linked sage-grouse population in Wyoming. This has already happened in most other

states with disastrous results and has already started in Wyoming -- most noticeably at the periphery of the historical distribution. Once this continuity becomes fragmented, the overall distribution fabric is lost and sage-grouse populations will become disjointed and subject to greatly reduced abundance as well as local extirpation.

Analysis of the Great Divide Sage-grouse Data

Local information about sage-grouse use areas is sparser in the Great Divide BLM Resource Area than in other areas of Wyoming (especially the Farson Area, Sweetwater County and near Pinedale, Sublette County -- Heath et al. 1997, Lyon 2000). Most of the available data that have been mapped are those on location of leks. There is only general knowledge about sage-grouse seasonal habitat use areas outside of the lek locations. These general data are not sufficiently precise for meaningful use, especially for winter and nesting habitat. What follows is an assessment of existing sage-grouse data for the Great Divide area -- and recommendations for monitoring -- for the four key habitat types used by sage-grouse (winter use areas, leks, nesting habitat, and brood rearing areas):

1. *Winter*—General maps showing the location of sage-grouse winter use areas in the Great Divide Resource Area currently do not exist. Focus should immediately be placed on locating and mapping sage-grouse winter-use areas throughout the RMP area. This should have the highest priority, as over winter survival is critical to population maintenance. Maps should be prepared for both "average" or "normal" winters and severe winters which happen every 7-10 years. Once these areas are located and mapped, they should be described using standard measures for live sagebrush canopy cover, height, etc. following the approach of Connelly et al. (2000). Once identified, these areas should receive special attention (for example, designation as "Areas of Critical Environmental Concern") to reduce or prevent disturbance during winter, wild fire, and management activities that make them less useful to sage-grouse. Special attention should be given to any disturbance that reduces amount of live sagebrush, leaf surface, canopy cover, and height.

2. *Leks*--The available data on leks suggest that not all active lek sites have been located and that the status (active, inactive [< 2 years. > 2years]) of each site mapped is poorly known. Further, there are gaps (some leks are not counted every year) in the count data and number of counts/lek in a given year varied. The available long-term trend in numbers of cocks appears to be down but the problems identified make data analysis difficult. Since active sage-grouse leks are relatively easy to locate during late March and April, standard surveys of all areas within the proposed project area should be conducted in April 2003 and continuing at 3-year intervals. All known lek sites should be checked for activity in spring 2003. Those classified as active should be counted (number of cocks) 3-4 times each spring at 7-10 day intervals starting in late March-early April, depending upon weather conditions, and continuing into early May. Those classified as inactive should be checked in late April/early May every 2-3 years to ascertain any change in status. UTM (or GIS) coordinates for all lek sites should be taken and plotted on base maps.

3

3. *Nesting*—Adequate data on areas used for sage-grouse nesting in the Great Divide Resource Area do not exist outside of unpublished, preliminary reports. Because sage-grouse have been shown to nest at a variety of distances from active leks and use a variety of micro sites for nest placement, it is difficult to identify all nesting areas. Thus, the Connelly et al. (2000) Guidelines should be followed to offer some protection to habitats useful for nesting at distances up to 3 miles from active leks. Since most actual nesting occurs within this distance (Braun et al. 1977) (with some nests at much greater distances), it is most reasonable to depict nesting habitat as all sagebrush areas with > 10% live canopy cover of sagebrush (primarily *A. tridentate vaseyana, A. t. wyomingensis, A. tripartita, A. nova,* and *A. cana* depending upon location) and a healthy understory of native grasses and forbs. Since active lek sites can be located, identifying concentric areas within a three-mile radius around each lek site that will include most nesting sites is presently the only reasonable method to map potential nesting areas.

4. *Brood-rearing*--Broods, upon hatching, use areas close to the locations of successful nests and progressively move towards moist areas upon desiccation of vegetation in the uplands. Review of the available data suggests only general knowledge of where broods have been observed. These data appear to not have been mapped in relation to known sources of water (at ground level) or at riparian sites along streams, springs, etc. This should be done so that additional management consideration can be given to these areas. Management that should be in place includes movement of livestock to avoid degradation of plant communities in moist sites and riparian areas and fencing to allow livestock access to water only in sites where erosion and plant community degradation would not be expected or could be controlled. Early brood survival is believed to be a problem throughout Wyoming (WGFD Draft Greater Sage Grouse Conservation Plan). Early brood survival is most affected by insect and succulent forb availability within secure (good hiding cover provided by grasses and forbs) habitats (Connelly et al. 2000). Late brood rearing habitat is primarily in close proximity (< 1 mile) of sites with moisture and succulent forbs adjacent to escape cover provided by live sagebrush (Connelly et al. 2000).

Great Divide Resource Area Sage-grouse Population and Habitat Trends

The data presently available are too limited to conclusively demonstrate the health of the sage-grouse population (s) and trends in quality of the available habitats. The overall trend in number of sage-grouse counted in spring is down. However, these data are relatively short term. In addition to the already substantial coal, oil, and gas development impacts, there are the additive effects of livestock grazing, power line and road placement, ranch building placement, and management treatments of sagebrush steppe areas to improve forage for livestock. All of these factors (and many more) have cumulative effects on ecosystem health and trends in numbers of all animals that are dependent upon the sagebrush steppe. Teasing apart the specific impacts is not possible without replicated studies. What is clear is that continuing practices presently in place will not improve conditions for or knowledge about local populations of sage-grouse.

They will only lead to continued decline in health of the sagebrush habitat and in the distribution (the area of useful habitat is decreasing) and abundance of sage-grouse.

Long-term monitoring efforts (20-30 years at the minimum) and research studies to tease apart impacts of energy development and other multiple use activities are critically needed in the Great Divide Resource Area. These efforts should focus on public lands (and include immediately adjacent private and State lands) and be funded by Federal land management agencies and the oil and gas industry. The cumulative effects of all human-induced practices in the sagebrush steppe on sage-grouse need to be fully evaluated and studied.

Understanding Sage-grouse Populations and Minimum Viable Population Size

Sage-grouse are specialists at using widely spaced resources scattered over large (hundreds of miles) expanses. All populations studied make seasonal movements from winter to breeding/nesting areas and then to late brood rearing and fall use sites. Movements can be as short as 5-10 miles to in excess of 60-80 miles. Thus, it can be argued that all populations are migratory with only the distance moved differing. This is true for most grouse species. Data presented by Lyon (2000) demonstrate that some sage-grouse in western Wyoming make substantial seasonal movements (as long as 60 miles).

The present data in the scientific literature are equivocal about the size of a minimum viable population for most wildlife species and estimates range from 500 to 5,000 breeding individuals (Franklin 1980, Soule 1980). All sage-grouse do not breed every year (for example, only a few dominant males are responsible for most matings and some females do not lay eggs as yearlings). Consequently, effective spring population size (i.e., those individuals actually breeding) is smaller than the total number of individual sage-grouse in a population. For sage-grouse, it is doubtful that 500 individuals in spring would represent a population that would persist > 50 years. However, positive habitat management could reasonably be expected to provide adequate habitats to sustain a population for > 50 years provided all necessary habitat components were available over a contiguous area of not less than 50 mi^2, given a population density of 10 birds/mi^2 or at least 100 mi^2 given a population density of 5 birds/mi^2. Healthy, apparently sustainable populations, with some emigration and immigration, of > 3,000 total estimated individuals in the spring population are known to occupy "closed" areas (Jackson County, Colorado) of about 400 mi^2 of sagebrush steppe and associated riparian areas.

Scientific study has not identified a minimum viable population size or specific habitat size requirement for any population of sage-grouse. Further, habitat quality varies greatly depending upon soil factors, aspect, elevation, moisture, temperatures, management prescriptions, past and present uses, etc. Thus, there is no one definition or description of habitat quality that fits all situations as it is known that some sage-grouse populations persist in extremely degraded and marginal appearing habitats. It is also hypothesized that such populations are at great risk of extirpation as populations in similar habitat conditions have completely disappeared. Therefore, because of the difficulties in determining minimum viable population size and defining key habitat parameters for

sage-grouse, it is imperative that a conservative approach is taken towards management of activities that could compromise sage-grouse habitat and fragment local populations.

Habitat Quality and Predation

Problems with defining minimum viable population size or describing habitat quality are compounded with the addition of consideration of the effects of predation (presently being studied in the Great Divide Resource Area). Highways, roads, and power lines, for example, degrade habitat quality by increasing fragmentation, noise, and dust while attracting generalist predators and making search (by predators) of more linear areas and smaller habitat patches easier. Further, data on number and type of predators prior to apparent changes in habitat quality are not available nor are past or present predation rates in designed studies with treatments and controls. In general, predation events on birds are believed (reviewed by Cote and Sutherland 1997) to be affected by habitat quality, no matter how it is defined. It is logical that prey animals are more secure in undisturbed habitats that have low fragmentation and better shrub structure coupled with a diverse understory of grasses and forbs. Adding structures such as buildings, power lines, fences, and creating smaller, less diverse patches of habitats within the sagebrush steppe intuitively benefits potential predators of sage-grouse. Replicated studies with treatments and controls have not been conducted because of the difficulty in finding study areas of sufficient size, control of all treatments, and the reluctance of agencies and private interests to make available dedicated resources (including money and land). Management studies should be immediately implemented that focus on possible predation impacts as affected by fragmentation and livestock grazing impacts.

Assumptions/Analyses for Great Divide Resource Area Sage-grouse Management

Review of existing documents for the Great Divide Resource Area indicates the BLM has consistently ignored sage-grouse needs and the scientific literature upon which developed guidelines (Braun et al. 1977, Connelly et al. 2000) to maintain sage-grouse populations are based. Most seriously, the BLM has chosen 0.25-mile or 0.50-mile distances from active leks for avoidance of or restrictions on development even though the scientific literature indicates there should be no manipulation of sagebrush habitats within 2 miles of active leks (Connelly et al. 2000). ***The 0.25-mile or 0.50-mile restrictions seem to have been created to justify existing practices and are not based on any reputable science.*** The BLM's own analysis (see Pinedale Anticline Project Draft EIS 1999: 5-34 as an example) reports that, "of leks with at least one well within a 0.25-mile radius, four times as many are inactive than active" and that "more than three times as many leks with at least one oil or gas well within a 0.50-mile radius are inactive". Oil and gas well site development as well as development of roads, power lines, etc. all cause manipulation of habitat and reduction in area useable to sage-grouse. Further, BLM documents (Atlantic Rim Coalbed Methane Projects, Cow Creek Pod) indicate, "exceptions [for any restrictions] may be granted if the activity will occur in unsuitable [nesting = breeding] habitat".

As part of its mitigation guidelines and standard practices for surface disturbing activities, the Wyoming BLM has imposed a restriction on activity within 0.25 miles of leks during the 6:00 PM to 9:00 AM interval from 1 February through 15 May which has been extended through 30 June (to benefit nesting females) within 2 miles from leks (Atlantic Rim Coalbed Methane Projects, 22 August 2002). These dates provide minimal mitigation during the breeding and nesting periods as there is little monitoring of adherence to these restrictions and those in place can be modified. In actual practice, there is little protection from physical disturbance of habitats useful to sage-grouse nesting outside of the artificial 0.25 or 0.50 mile radius from active leks. Most critically, there is no recognition of the importance of sage-grouse winter use habitat or any stipulations to help protect these habitats. The BLM also fails to adequately address the cumulative effects on sage-grouse of all treatments (not limited to oil and gas developments).

Nowhere is there mention of the possible negative effects of seismic activities. It appears the BLM has avoided recognition of short-term effects of trails, crushing of vegetation, and direct and indirect impacts to sage-grouse from use of large vehicles involved in this activity. Unfortunately, there apparently have been no studies on the immediate impacts of seismic activities. Until demonstrated otherwise, seismic activities should be considered as factors that are negative for sagebrush habitats as they provide trails for increased predator access, they fragment habitats useful to sage-grouse, they decrease live sagebrush and forbs needed by sage-grouse, and could potentially disrupt breeding activities and nesting activities. BLM should require the oil and gas industry to fund well-designed scientific research on the effects of seismic activities on sage-grouse and their habitats.

Mitigation Measures To Protect Sage-Grouse

Present mitigation measures to protect sage-grouse and their habitats in the existing Great Divide Resource Area documents are minimal. The BLM should endorse and follow the "*Guidelines to manage sage grouse populations and their habitats*" (Connelly et al. 2000). Consideration should also be given to following the concluding comments of Braun et al. (2002) that strongly recommend that it is the responsibility of the oil and gas industry to demonstrate their activities have no negative impacts initially, short-term, or over the long-term. Effective mitigation practices, in addition to those in the *Guidelines* (Connelly et al. 2000), include permanent and seasonal road closures, burial and or modification of power lines, removal or modifications of fences and other structures, fertilization of sage-grouse winter ranges with nitrogen, and reduction or complete permanent elimination of other uses such as livestock grazing, especially on areas where oil and gas production is permitted. Mitigation should also consider those impacts that can be reasonably expected including cumulative (with other factors) effects. Full mitigation would require increasing the number (on a per unit basis) of sage-grouse in non-affected areas to equal the reduction in numbers of sage-grouse in affected areas. Research on developing methodology to enhance sagebrush habitats (to support higher densities of sage-grouse) should also be productive.

To further mitigate the impacts from the significant oil and gas developments that are being planned for the Great Divide Resource Area, the BLM should also designate, as part of the RMP revision process, multiple Areas of Critical Environmental Concern (ACECs) to protect at least 90% of sage-grouse winter use areas. The boundaries of these areas should follow the results of Recommendation # 1 (Winter) on page 3. These areas will be critical to maintaining population persistence over time.

Sage-grouse Monitoring Requirements

Assessment of the long-term effects of oil and gas development on sage-grouse and the health of the sagebrush steppe should be based on collection and analysis of population information in spring, collection and analysis of harvest information, and numbers of birds counted in selected winter habitat. Sage-grouse population statistics collected in spring are those related to number of active leks per unit of area and total number of cocks counted on a sample of randomly selected, statistically defensible accessible leks. Harvest data collection should focus on analysis of wings for changes in ratios of chicks/hen and males to females in both adult (including yearlings if not separable) and chick age classes. Once winter use areas are identified, standardized line transects should be established and annually sampled (using aircraft) following current sampling theory to estimate number of birds present. Sampling should occur immediately following fresh snowfall or during maximum snow accumulation. Changes in vegetation "quality" should be monitored at 3-5 year intervals at a statistically valid sampling rate along permanent 0.6-mile belt transects. Measurements desired include live sagebrush canopy cover, sagebrush height, and ground cover of native grasses and forbs. (This should also include measurement of residual grass height.) Modeling of the potential effects of environmental events such as drought (measured by the Palmer Drought Index) and severe winters (length of period of snow cover, depth of snow, temperature) should also be pursued.

It would also be desirable to establish concurrent long-term monitoring in areas of coal bed methane gas development in Campbell County and also within the Wind River Front area where there is currently no oil and gas development (the area is presently prohibited from new leasing) to compare with the data collected in the Great Divide Resource Area.

Long-term Effects On Great Divide Resource Area Sage Grouse Populations

The importance of sustained, long-term monitoring cannot be overstated. It is clear that oil and gas development will negatively affect sage-grouse populations (Braun et al. 2002) and only the magnitude of the impacts is unknown. The oil and gas industry should fund the monitoring and long-term research needed throughout the life of the project and the new RMP should make this a specific requirement in any new oil and gas development projects. This critical monitoring should continue until sage-grouse populations return to pre-disturbance levels, which could exceed 30 years. Cause and effect studies using an active adaptive management approach (Walters 1986) are necessary to fully understand the implications of oil and gas development on sage-grouse. The industry has the responsibility to demonstrate their activities have no negative

impacts initially, short-term, or over the long-term on the distribution and abundance of sage-grouse in areas explored and developed for oil and gas production.

Conclusion: Key Recommendations for the Great Divide RMP Revision Process

Mitigation Measures:

1. The BLM should adopt a policy of no surface disturbance within 3 miles of occupied leks as data clearly show negative impacts to sage-grouse at the present distance of 0.25 or 0.50 miles. Further, adequate data are available to demonstrate that most female sage-grouse nest within 3 miles of active leks.

2. All areas used by sage-grouse during both average or "normal" and severe winters should be located, mapped, and given special protection from wild fire, manipulation of sagebrush, and human-induced disturbance. At least 90% of this newly mapped area should be designated as a network of ACECs as part of the RMP revision process.

3. Adherence to time of use for restriction of activities from 6:00 PM through 9:00 AM during the breeding and nesting periods should be strictly monitored and enforced.

4. Management of mid to late summer brood-rearing areas should encourage forb regrowth while maintaining at least a 6 inch residual grass height with taller (> 24 inches in height), live sagebrush of > 15 % canopy cover in close (< 200 yds) proximity for use as escape cover.

5. Mitigation should be emphasized for all activities known to negatively impact sage-grouse. Mitigation measures could include, but are not limited to: burial or modification of power lines, off set drilling, road closures and time restrictions, removal of livestock grazing, nitrogen fertilization of winter and nesting areas, removal or modification of existing fences, etc. Full mitigation would be to replace the exact number of sage-grouse impacted by development activities by increasing the number per unit of area that the remaining areas can support to equal the number displaced.

Monitoring Requirements:

1. Standardized line transects in identified winter use areas should be established and annually sampled (using aircraft) following current sampling theory to estimate changes in numbers of birds present. Sampling should immediately follow fresh snowfall or during maximum snow accumulation.

2. Standard surveys of all areas to locate active leks should be conducted in spring 2003 and continue at 3-year intervals. This will provide data on lek extinction and recruitment.

3. All potential mid to late summer brood-rearing areas should be mapped based on moisture and green forb availability during the late June through late August interval. As stated above, management of mid to late summer brood-rearing areas should encourage forb regrowth while maintaining at least a 6-inch residual grass height with taller (> 24 inches in height), live sagebrush of > 15 % canopy cover in close (< 200 yards) proximity for use as escape cover.

4. Leks classified as active should be counted (number of cocks present) 3-4 times each spring at 7-10 day intervals starting in late March-early April and continuing into mid May. Those leks classified as inactive should be checked in late April/early May every 2-3 years to ascertain change in status.

5. The vegetation in areas used by sage-grouse during both average and severe winters should be described as to live sagebrush canopy cover, height, etc.

6. Harvest data based on examination of sage-grouse wings collected from hunters should continue on a well-defined population basis. Statistics needed to measure responses of sage-grouse are those relating to nest success, chicks per hen, and age/gender composition.

7. Research should be initiated to learn if monitoring of insect abundance and forb growth will reliably predict sage-grouse chick survival.

Analysis and Other Management Issues:

1. Habitat guidelines published by Connelly et al. (2000) should be incorporated into preparation of a "desired future condition" to be achieved to improve nest success and early chick sage-grouse survival.

2. Replicated long-term studies are urgently needed to understand the effects of grazing practices and habitat fragmentation on predator numbers and predation rates on sage-grouse. These studies must involve treatments and controls on a landscape basis.

3. Nesting areas, since they are difficult to locate at a population or subpopulation scale, should be defined as all area within 3 miles of active leks. This will provide a minimum amount of protection.

4. Early chick survival has been identified as a problem in Wyoming. Enhancing the forb and grass component in nesting areas (which are also early brood rearing sites) should be a priority.

5. The cumulative impacts of all human-induced activities within a given, describable sage-grouse population unit should be studied over a period sufficiently long (20-30 years) to be able to predict actual long- and short-term effects. When industry is involved in causing the impacts, they should be

expected to fully support, financially, all studies as they have the burden to demonstrate their activities are not negative to sage-grouse.

6. Well-designed research on the immediate and short-term effects of seismic activities on sage-grouse and their habitats should be funded and undertaken.

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APPENDIX: An Overview of Sage Grouse Life History and Habitat Use

Sage-grouse are sagebrush dependent species and evolved to use sagebrush steppe on a landscape scale. Thus, they may use as little as 10% (all habitat that might be available) in severe winters (Beck 1977) to as much as 70% + during late summer and fall. Winter use sites are those with large expanses of sagebrush available above the snow, frequently in drainages, large flats along ridge tops, and on west and southwest exposures (Hupp and Braun 1989). Winter food is the leaves of sagebrush of a variety of species from low sagebrush (*A. arbuscula*), silver sagebrush (*A. cana*), black sagebrush (*A. nova*), three-tip sagebrush (*A. tripartita*), to a variety of subspecies of big sagebrush (*A. tridentata*). Taller and denser sagebrush cover is important during this period (Connelly et al. 2000).

Breeding areas may be adjacent to or far removed from winter use sites. Areas chosen for breeding are those that are open within the sagebrush type with wide visibility and few impediments to hearing acuity. Sage-grouse display areas have low vegetation but with taller live sagebrush within 100-200 yards. Thus, escape and loafing cover is keenly important during the breeding season. Most importantly, sites chosen for use for display are in areas where movement of females searching for nesting sites is common. Nesting may occur as close as within 100 yards of an active lek with most nests being within 3 miles of the lek of mating. However, movements of 20 to 60 miles from lek of capture to actual nest sites have been reported (Connelly et al. 2000, Lyon 2000). During the breeding and pre-nesting period, newly growing green forbs become an important part of the diet for all sage-grouse, but especially for females. Live canopy cover of sagebrush and a diversity of herbaceous plants with taller residual cover are exceedingly important during the nesting period (Connelly et al. 2000).

Nesting areas used by sage-grouse are generally in sagebrush uplands with a live canopy cover of 15 to 25%. Taller and bushy live sagebrush plants are preferred for nest sites. These sites frequently are in larger patches of sagebrush and nests generally are placed under the tallest live sagebrush bush. Upon hatching sage-grouse move their chicks into more open habitats with live sagebrush where forbs are plentiful and grasses provide cover and heightened insect availability. Live sagebrush canopy cover can be as little as 10-15% in early brood rearing areas (Connelly et al. 2000). As broods mature, movements become longer and hens with chicks move to wet meadow or riparian areas within the sagebrush type. Taller, more robust sagebrush continues to be important for loafing and escape cover. In the absence of upland succulent forbs, hen sage-grouse quickly move their broods to moist or wet areas, if available. If these movements are long or fast, chick survival suffers. Maintaining healthy sagebrush uplands is important to chick survival and apparent nest success.

During late brood rearing, movements of broods as well as those of unsuccessful hens and males may be relatively short depending upon moisture and availability of forbs. With advent of fall, broods combine into larger flocks with older birds of both genders. Movements into sagebrush uplands, especially areas with late forb green up, become pronounced, as do distances involved. This continues into late fall and early winter when

snow initiates movement to winter ranges. Foraging on sagebrush leaves continues for adults throughout the summer, fall, and winter even though substantial amounts of forbs are taken when available. Chick sage-grouse start using sagebrush leaves in late July and early August when their diets become similar to those of adults.