ROCKY MOUNTAIN WILD

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Helen Hankins
State Director
Bureau of Land Management
Colorado State Office
2850 Youngfield Street

Lakewood, Colorado 80215-7093

December 12, 2011

Re: Protest of the Bureau of Land Management's Notice of Competitive Oil and Gas Lease Sale of Parcels with High Conservation Value

Dear Director Hankins:

In accordance with 43 C.F.R. §§ 4.450-2; 3120.1-3, Rocky Mountain Wild, Audobon Colorado, WildEarth Guardians and The Wilderness Society ("Protesting Parties") protest the February 9, 2012 sale of the following parcels. The Wilderness Society is only protesting the geothermal parcels COC73584 and COC73585.

I. Protested Parcels

COC73584	COC73585	COC75185	COC75186	COC75187
COC75188	COC75189	COC75190		

II. Protesting Parties

Rocky Mountain Wild is a non-profit environmental organization based in Denver and Durango, Colorado, that works to conserve and recover the native species and ecosystems of the Greater Southern Rockies using the best available science. RMW was formed in July 2011 by the merging of two organizations, Center for Native Ecosystems ("CNE") and Colorado Wild, and is the legal successor to both parties. Colorado Wild has worked for over a decade to protect, preserve, and restore the native plants and animals of the Southern Rocky Mountains.

Both CNE and Colorado Wild have a well-established history of participation in Bureau of Land Management ("BLM") planning and management activities, including participation in Colorado BLM oil and gas leasing decisions and the planning processes for the various Colorado BLM Field Offices ("FO"). RMW continues the work of each organization to save endangered species and preserve landscapes and critical ecosystems. It achieves these goals by working with biologists and landowners, utilizing GIS technology to promote understanding of complex land-use issues, and monitoring government agencies whose actions affect endangered and threatened species. Its members include approximately 1200 outdoor enthusiasts, wildlife conservationists,

scientists, and concerned citizens across the country.

RMW's staff and members visit, recreate on, and use lands on or near the parcels proposed for leasing. Our staff and members enjoy various activities on or near land proposed for leasing, including viewing and studying rare and imperiled wildlife and native ecosystems, hiking, camping, taking photographs, and experiencing solitude. Our staff and members plan to return to the subject lands in the future to engage in these activities, and to observe and monitor rare and imperiled species and native ecosystems. We are collectively committed to ensuring that federal agencies properly manage rare and imperiled species and native ecosystems. Members and professional staff of RMW are conducting research and advocacy to protect the populations and habitat of rare and imperiled species discussed herein. Our members and staff value the important role that areas of high conservation value should play in safeguarding rare and imperiled species and natural communities, and other unique resources on public land.

Our members' interests in rare and imperiled species and ecosystems on BLM lands will be adversely affected if the sale of these parcels proceeds as proposed. Oil and gas leasing and subsequent mineral development on the protested parcels, if approved without response to public comments made under the National Environmental Policy Act ("NEPA"), consultation required by the Endangered Species Act ("ESA"), and appropriate safeguards to minimize negative impacts, is likely to result in a greatly increased risk of significant harm to rare and imperiled species and native ecosystems. As a result, BLM's decision to lease the protested parcels is not based on the best available science and will result in significant harm to rare and imperiled species and native ecosystems. The proposed leasing of the protested parcels will harm our

members' interests in the continued use of these public lands, and the rare and imperiled species they support. Therefore protestors have legally recognizable interests that will be affected by the proposed action.

WildEarth Guardians is a Santa Fe, New Mexico-based nonprofit organization with offices in Denver and Phoenix, and more than 4,500 members throughout the American West. WildEarth Guardians is dedicated to protecting and restoring the wildlife, wild places, and wild rivers of the American West. WildEarth Guardians has members throughout the American West, including Colorado, that utilize and enjoy for recreation, aesthetics, and wildlife viewing, the area that will be affected by the proposed decision to allow leasing of land in the Gunnison Basin for geothermal development. WildEarth Guardians and its members will be harmed if the Forest Service moves forward with the project as proposed due to its impacts to wildlife.

The Wilderness Society (TWS) is a national organization with more than a half a million members and supporters nation-wide, and an active membership in Colorado. Our staff, volunteers and members enjoy birding and recreation activities in the Gunnison basin, and have participated in volunteer efforts to conserve Gunnison sage grouse in the Gunnison basin. The mission of The Wilderness Society is to protect wilderness and inspire Americans to care for our wild places. We have worked for more than 70 years to maintain the integrity of America's wilderness and public lands and ensure that land management practices are sustainable and based on sound science to ensure that the ecological integrity of the land is maintained.

The Gunnison sage grouse is of particular relevance to TWS's Dolores River Basin

The Gunnison sage grouse is of particular relevance to FWS's Dolores River Basin program, where preservation of this species is a conservation priority. The opportunity to see rare species in the wild is an important component of our members' experience of natural and wild lands, and any reduction in the persistence of rare species represents a loss to ecosystem values that are important to our members. Indeed, preservation of rare and iconic species is one of the most tangible aspects of wildlands preservation, and is key to retaining the wild western heritage that constitutes one of Colorado's most treasured resources

The Wilderness Society advocates for environmentally responsible development of renewable energy sources on public lands, and recognizes the importance of developing geothermal resources in Colorado. However, as with any industrial development, geothermal energy production and transmission can negatively impact rare and imperiled wildlife and plant species and compromise the health of ecosystems. Thus, the development of renewable resources will not be appropriate everywhere, and will require careful consideration of the tradeoffs between the benefits of renewable energy development and potential impacts on rare and imperiled species and other sensitive resources at sites of proposed development.

Clean energy and protection of the nation's natural heritage can coexist, and public lands management agencies play a critical role in demonstrating how development of renewable energy can be done right. When leasing lands for renewable energy development, and siting renewable energy facilities, public land management agencies should avoid key habitat for rare and imperiled species. In developing decisions, it is essential that agencies use the most recent and best available science; this is critical not only to making the best-informed decision possible,

but also to demonstrating to the public that agency approval of renewable energy projects reflects a reliable, top-quality analysis. Agencies should also avoid and minimize impacts to ecosystem health and important habitat for less sensitive wildlife and plant species. Public land management agencies should also ensure that such developments consider the need to protect and restore habitat connectivity.

In cases where rare species are under consideration for listing under the Endangered Species Act, and where issuance of a proposed listing rule may be immanent - such as is the case for the Gunnison sage grouse - a decision that may impact the species should be deferred until the greater certainty of a proposed listing rule is made public. Delaying a decision until after a proposed listing rule would make clear the expected management framework for the species, in order to solidify expectations for the agency and operators

Matthew Sandler, Staff Attorney for Rocky Mountain Wild, is authorized to file this protest on behalf of the Protesting Parties.

III. Acknowledgment

The Protesting Parties would like to take this opportunity to thank BLM for placing more focus on environmental consequences earlier in the leasing process. We acknowledge that this shift in BLM's process has resulted in deferral of parcels prior to leasing. We hope that BLM's Colorado offices will continue to implement the mandates of Instructional Memorandum ("IM") 2010-117 to ensure that wildlife is conserved for future generations. Additional pre-leasing analysis in the Environmental Assessment ("EA") and focusing on a specific sub-region of the

analysis in the Environmental Assessment ("EA") and focusing on a specific sub-region of the state in this lease sale both contribute to more informed decision-making and more efficient use of limited BLM and stakeholder resources.

History:

RMW has participated in and challenged the NEPA process for the geothermal parcels offered in this lease sale. Both BLM and FS released EAs analyzing the affects of leasing these parcels. RMW commented on the draft EAs from both agencies. BLM also amended its RMP to allow for geothermal leasing of this parcel. RMW protested BLMs decision to amend its RMP (see attachment 1), appealed the FS decision to allow BLM to lease the parcel on FS land (see attachment 2), and has a pending IBLA appeal challenging BLMs decision to accept the FS recommendation to lease the FS parcel (see attachment 3). The BLM protest and the FS appeal were denied by the agencies. The IBLA appeal is still pending. RMW re-asserts the arguments previously made in those challenges in the current protest.

IV. Affected Resources

Oil and gas, and geothermal exploration and development authorized through the proposed leasing of the protested parcels is likely to have significant negative impacts on the Gunnison's sage-grouse, Canada lynx, Gunnison's prairie-dog, Columbia sharp-tailed grouse, and other sensitive species. Leasing of the protested parcels is also likely to have significant

impacts on lands of high conservation value. Lands of high conservation value that may be significantly impacted by the proposed leasing include Colorado State Wildlife Areas, and CNHP Potential Conservation Areas. Exhibit 4, attached, is RMW's internal screen results.

A. Imperiled Species

1) **Gunnison sage-grouse**

Parcels COC73584 and COC73585 contain important Gunnison sage-grouse habitat. The Gunnison sage-grouse (*Centrocercus minimus*) is a unique species of grouse found only in sagebrush uplands in a small area of southwestern Colorado and southeastern Utah.[1] The Gunnison sage-grouse is closely related to the more widespread greater sage-grouse (*Centrocercus urophasianus*), but differs from the greater sage-grouse in genetic makeup, size, courtship behavior, and plumage.[2] The Gunnison sage-grouse was recognized as a separate species in 2000.[3] Gunnison sage-grouse have long been the subject of fascination because of their elaborate courtship displays, in which large numbers of males gather on display grounds (known as leks) to perform an elaborate "strutting display". Males strut about, raise and lower their wings, lift and fan their pointed tail feathers, inflate air sacs on their chests, throw their head plumes over their heads, and produce a series of interesting sounds including "wing swishes", "air sac plops" and hoots. Females observe these displays and mate with the most attractive males. The same lek may be used by grouse for decades. At one time, the Gunnison sage-grouse was so abundant that one could observe hundreds of birds at one lek. At one location in the Gunnison Basin, 500 birds were reported attending a lek in a single day in 1953.[4]

Gunnison sage-grouse depend on large, intact, interconnected expanses of sage-brush habitat for every part of their life-cycle.[5] They use a variety of habitats within the sagebrush uplands to meet their seasonal requirements for food, nesting and cover.[6] In addition, seasonal habitat requirements differ between sexes and age classes.[7] In order to support Gunnison sage-grouse, sagebrush uplands must include large expanses of sagebrush with a diversity of grasses and forbs, healthy riparian ecosystems, and seasonal habitat areas in the later seral stages of ecological succession.[8] In addition, Gunnison sage-grouse must be able to move between seasonal habitats, including leks, production, brood wintering, winter and severe winter habitats.[9]

Over the past century, human activities have caused heavy loss, fragmentation and degradation of sagebrush, such that sagebrush ecosystems are among the most threatened habitats in North America.[10] Loss and degradation of native habitats has impacted much of the

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[1] NatureServe 2009

[2] NatureServe 2009, http://www.western.edu/faculty/jyoung/gunnison-sage-grouse

[3] See exhibit 5b (Young, J.R., C.E. Braun, S.J. McCance, J.W. Hupp, and T.W. Quinn. 2000. A new species of sage-grouse (Phasianidae: *Centrocercus*) from southwestern Colorado. Wilson Bulletin 112(4): 445-453.)

[4] http://www.western.edu/faculty/jyoung/gunnison-sage-grouse

[5] Gunnison sage-grouse Rangewide Conservation Plan (hereinafter cited as "GSGRCP 2005" and found at: http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/Birds/GunnisonConsPlan.htm?Print=true)

[6] GSGRCP 2005, http://www.western.edu/faculty/jyoung/gunnison-sage-grouse

[7] Id.

[8] Id.

[9] GSGRCP 2005

[10] http://sagemap.wr.usgs.gov/monograph.aspx

sagebrush ecosystem and its associated wildlife.[11] The Gunnison sage-grouse has declined as a result of loss of suitable sagebrush habitat to meet seasonal requirements for food, cover, and nesting.[12] Human land use has altered landscapes used by Gunnison sage-grouse in most parts of their range.[13] Loss and degradation of sagebrush habitat and concomitant declines in Gunnison sage-grouse populations can be attributed primarily to agriculture, human development, altered fire regimes, and exotic plant invasions.[14]

Historically, there has been an over 90% loss in Gunnison sage-grouse habitat, and the species currently occupies only 10% of its historic range.[15] Today, there are only eight extant populations of the Gunnison sage-grouse.[16] In 2009, the total population of Gunnison sage-grouse was estimated to be fewer than 4,386 individuals. [17] This population estimate represented 1,834 fewer birds than was documented in 2006. [18]

There is significant concern about the small size of the remaining populations of Gunnison sage-grouse. The Gunnison Basin population is the largest remaining population. This population contains approximately 75% of all remaining individuals of the species and is the only population that is estimated to have more than 500 individuals.[19] The remaining seven populations are all very small and isolated. It is generally well-accepted that populations with fewer than 500 individuals are at high risk of extinction. Thus, all of the populations other than the Gunnison Basin population may become extirpated in the foreseeable future. Recent research suggests that the Gunnison Basin population has no population strongholds where Gunnison sage-grouse are not already at risk of extirpation (Wisdom et al. in press, EA pg. 55, attached as exhibit 5).

On September 28, 2010, The FWS found that the Gunnison sage-grouse is warranted but precluded for Endangered Species Act Protection as an endangered species. When FWS declares a species warranted but precluded for ESA listing a Listing Priority Number (LPN) is assigned. The LPN is a reflection of the status of the species. The range of LPNs goes from 1 (most threatened) to 12. In FWSs September 28, 2010 finding they declare, "As a result of our analysis of the best available scientific and commercial information, we assigned the Gunnison sage-grouse an LPN of 2 based on our finding that the species faces threats that are of high magnitude and are imminent. These threats include the present or threatened destruction, modification, or curtailment of its habitat; predation; the inadequacy of existing regulatory mechanisms; and other natural or man-made factors affecting its continued existence."[20] A LPN of 2 reflects the highly imperiled status of the Gunnison sage-grouse. Representatives of the U.S. Fish and Wildlife Service have stated in public forum and to local Gunnison sage grouse working groups that a proposed rule to list the Gunnison sage grouse is expected in early 2012.

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[11] Id.
[12] GSGRCP 2005
[13] http://sagemap.wr.usgs.gov/monograph.aspx
[14] See FWS finding at 59812 - 59829, see also GSGRCP 2005, http://sagemap.wr.usgs.gov/monograph.aspx
[15] Schroeder et al. 2004; GSGRCP 2005, see also http://www.western.edu/faculty/jyoung/gunnison-sage-grouse
[16] GSGRCP 2005
[17] http://www.western.edu/faculty/jyoung/gunnison-sage-grouse
[18] See FWS finding at 75 CFR 59804 at 59810
[19] Id., see also: GSGRCP 2005
[20] *see Exhibit 6 at 59853*

There is a scientific consensus that it is necessary to conserve large, interconnected expanses of sage-grouse habitat over long time frames in order to maintain and increase the abundance and viability of sage-grouse populations.[21] This is even more important for Gunnison sage-grouse given its low numbers, small range, and potentially greater sensitivity to disturbance. The current research and the information on the status of Gunnison sage-grouse populations suggests that it may be critical to conserve all currently occupied Gunnison sage-grouse habitat in order to prevent the species from continuing to decline towards extinction.

2). Canada Lynx

The Canada lynx *(Lynx canadensis)* is a Federally Listed Threatened species.[22] Based on RMW's GIS analysis, Parcels COC73584 contains lynx denning and winter habitats. FS and BLM have mapped lynx habitat, lynx analysis units, and lynx linkages to meet their obligations under the Conservation Assessments ("CA") negotiated between each agency and FWS. In addition, CDOW has mapped potential lynx habitat across the state.

BLM should defer leasing of the proposed parcels until FWS has properly designated critical habitat for the lynx. The FWS' critical habitat designation for the Canada lynx has recently been remanded to the Agency for a redesignation which may include habitat in Colorado.[23] BLM should avoid leasing any parcels that may be classified as critical habitat in order to allow FWS to designate the areas of greatest ecological importance to the lynx as critical habitat, rather than having to make decisions based on which less valuable areas have not yet been compromised by oil and gas development.

Additionally, BLM has allowed its Canada Lynx Conservation Agreement ("CA") with FWS to lapse, and is no longer abiding by the terms of this agreement. However, this does not excuse the agency from its responsibilities to adequately protect the lynx and its habitat. As a result of the lapse, BLM consistently fails to consult with FWS when it leases parcels for oil and gas development, and when it conducts site specific NEPA at later stages in the process of permitting oil and gas development. BLM should defer leasing the proposed parcels until it has reinstated its CA with FWS.

Unlike BLM, FS has not allowed its Canada Lynx Conservation Assessment and Strategy ("LCAS") to lapse. Protections for Lynx on FS lands therefore still exist. The recommendations and requirements in the LCAS represent the FS' assessment of Best Management Practices ("BMP"), based on the Best Available Science. Given that IM 2010-117 requires BLM to make leasing decisions based on the same standard,[24] it is reasonable that, even though BLM's CA has lapsed, BLM should apply the same standards as FS in making decisions about how to protect the lynx. By the terms of the LCAS, the following requirements apply for proposed oil and gas leasing and development activities that may impact the lynx or its habitat:[25]

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[21] http://sagemap.wr.usgs.gov/monograph.aspx
[22] 65 F.R. 16052
[23] *Alliance for the Wild Rockies, et al. v Lyder (D. Mont. 2010).*
[24] BLM, Instructional Memorandum No. 2010-117. Washington. D.C. May 17, 2010, at 4.
[25] United States Forest Service. *Canada Lynx Conservation Assessment and Strategy.* 2nd Edition, August 2000.

1. If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.
2. Minimize snow compaction when authorizing and monitoring developments. Encourage remote monitoring of sites that are located in lynx habitat, so that they do not have to be visited daily.
3. Develop a reclamation plan (e.g., road reclamation and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.
4. Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.

BLM should therefore defer leasing the parcels in question until it has developed and applied Timing Limitation (TL) stipulations, restrictions on snow compacting activities, and appropriate reclamation plans to ensure that leasing the proposed parcels will not have negative impacts on the lynx and its habitat.

3). Gunnison's Prairie Dog

Parcels COC73585 contains active Gunnison's prairie dog *(Cynomys gunnisoni)* colonies. The GIS screen conducted by RMW indicates that active colonies are present on the site, per surveys conducted by the Colorado Division of Wildlife ("CDOW"). BLM should defer leasing of this parcels in order to ensure that leasing the parcels does not contribute to the decline and potential extinction of the species. Should BLM decide to lease the parcels, in spite of the

presence of active Gunnison's prairie dog colonies, it should remove the portions of the parcels with active colonies from the leases, or at the very least add stipulations to the leases to protect the prairie dog, such as Controlling Surface Uses ("CSU") in areas within a buffer area of the colonies. For example, BLM Utah utilizes lease stipulation UTSO-S-71, which forbids surface disturbing activities and building permanent structures within 660 feet of Gunnison's prairie dog colonies.[26] BLM should also be applying NSO stipulations to avoid construction in prairie dog colonies.[27]

Such actions are critically important given that FWS has concluded that the species is endangered in the northeast portion of its range.[28] Despite the finding that protecting the species is warranted, FWS ruled that formal listing is currently precluded by more pressing concerns. However, because the threats to the species "have a high magnitude, and are imminent," FWS assigned it a listing priority number ("LPN") of two, recognizing the severity of the threats facing the species, including energy development.[29] Therefore, even though FWS has recognized that the species is in danger, no federal ESA protections exist to protect it, making the protection of its existing habitat all the more crucial. Given its low LPN, a decision on its listing is likely a

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[26] BLM, Utah State Office. *Utah Stipulations.* August, 2009. p 66. Available online at www.blm.gov/pgdata/etc/medialib/blm/ut/lands_and_minerals/oil_and_gas/march_2009.Par.31175.File.dat/Stips Notices and T 6E.pdf

[27] See: Colorado Division of Wildlife's Actions to Minimize Adverse Impacts to Wildlife Resources (October 2008) , Appendix A, P. 29. Found at: http://www.oilandgasbmps.org/viewpub.php?id=27

[28] 73 F.R. 6679

[29] 73 F.R. 6660

high priority for FWS. Protecting the species now may allow the species to recover to a point that will prevent FWS from ever having to formally list it as endangered altogether.

On May 10, 2011, FWS entered into a settlement with WildEarth Guardians (*In Re Endangered Species Act Section 4 Deadline Litigation, Misc. Action No. 10-377 (EGS) (D.D.C. 2011)*), regarding the listing status of 251 species that have been identified as candidates for protection as threatened or endangered species, including the Gunnison's prairie dog. The settlement requires FWS to "submit... either a Proposed Rule or a not-warranted finding no later than September 30, 2016."[30] Given the Gunnison's prairie dog's low LPN, it is likely that FWS will reach a decision on it sooner than the final September 2016 deadline. BLM should defer leasing the parcels with active colonies to protect the species until FWS has reached a final decision, to protect the species from extinction, and to prevent the need for the species to be listed as threatened or endangered.

Should FWS decide to issue a Final Rule for the Gunnison's prairie dog, it will also need to designate critical habitat for the species. In issuing a critical habitat designation, FWS is required to consider the habitat the species needs to recover, including currently unoccupied habitat that is essential for the recovery and eventual delisting of the species. Given that RMW's screen shows active Gunnison's prairie dog colonies in the proposed parcels, it is conceivable that FWS could be considering the need to designate critical habitat within them. In order to promote the persistence and recovery of this highly imperiled species, it is very important to promote population growth by protecting current and potential habitat. Much of the mapped historic habitat for Gunnison's prairie dog has been developed, or otherwise degraded to the point where it is difficult or impossible for the species to use it. BLM should defer leasing the

parcels until it has determined whether viable Gunnison's prairie dog habitat or migration corridors exist within the parcels, and make a final leasing decision accordingly.

Oil and gas development is widespread and increasing across the range of the Gunnison prairie dog.[31] The analysis that BLM conducts of the impacts of leasing on the Gunnison's prairie dog is inadequate. BLM does not consider the cumulative impact of oil and gas development on the species. The cumulative impacts of oil and gas development, plague, urbanization, predation, grazing, and climate change should be considered in order to meet NEPA's "Hard Look" requirement. Furthermore, BLM should analyze the indirect impacts of oil and gas leasing and development on the species, such as habitat fragmentation. BLM should defer leasing the parcels until it has conducted a complete analysis of the impacts of leasing the parcels on the Gunnison's prairie dog, as required by NEPA.

4) Columbian Sharp-Tailed Grouse:

Columbian sharp-tailed grouse, once considered the most abundant gallinaceous bird in the intermountain region (Bendire 1892), currently occupies less than 10% of its former range (Bart 2000). The CSTG has the smallest population size and most restricted distribution of the 6 subspecies of sharp-tailed grouse in North America (Miller and Graul 1980). Numerous factors

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[30] *In Re Endangered Species Act Section 4 Deadline Litigation, Misc. Action No. 10-377 (EGS) (D.D.C. 2011). p 6.*
[31] 73 F.R. 6667

have been implicated in the decline of CSTG. Foremost is the loss and degradation of habitats due to conversion of native rangelands to croplands, excessive grazing by livestock, herbicide treatments, fire suppression, invasion of non-native plants, removal of trees and shrubs in riparian areas, invasion of conifers, urban development and energy development. Much of the habitat that remains has been altered both structurally and floristically. [32] The impacts have been so extensive in some areas that the few remaining unaltered habitats are often too small and widely spaced to support viable grouse populations[33] The Columbian sharp-tailed grouse is a BLM sensitive species and a state species of concern. Northwestern Colorado is part of 1 of 3 metapopulations that retain 95% of the remaining CSTG in North America.[34]

CNE's GIS screening of the lease sale parcels indicates that the parcels COC75185, 75186, 75187, 75188, 75189, 75190 contain Columbian sharp-tailed grouse overall range, and winter range.[35] COC75188 contains Columbian sharp-tailed grouse production area. Production area is defined as, "An area that includes 90% of sharp-tailed grouse nesting and brood rearing habitat. This is mapped as a buffer zone of 2 km (1.24 miles) around dancing grounds." Only COC75185, 75187, 75188 have a timing limitation stipulation attached to them. This timing limitation is not sufficient to protect this grouse. Activities occurring during the other times of the year will negatively effect this species in the future. No surface occupancy stipulations should have been attached to these parcels to protect the Colombian sharp-tailed grouse. The other three parcels in Columbian sharp-tailed grouse habitat have no protections for this species. These seasonal habitat types are limiting for Columbian sharp-tailed grouse, and population declines could result from loss and degradation of these habitats.

Available data on Columbian sharp-tailed grouse movements in relation to leks, supports

Available data on Columbian sharp-tailed grouse movements in relation to leks, supports the use of a protective buffer. In Colorado, several studies find that 82—92% of females nest within 1.25 miles of the lek where they breed.[36] In addition, two studies report that 78% of females raised broods within 0.6 miles of their nest.[37] Females show fidelity to leks and nesting

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[32] Hoffman, R. W. (Technical editor) 2001. Northwest Colorado Columbian sharp-tailed grouse conservation plan. Northwest Colorado Columbian Sharp-tailed Grouse Work Group and Colorado Division of Wildlife, Fort Collins, Colorado., (found at: http://wildlife.state.co.us/NR/rdonlyres/885ED192-3228-41B7-9880-4BF83CB5A61D/0/ColumbianSharptailedGrouseConsPlan2001_NWCO.pdf)

[33] United States Department of the Interior. 2006. Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Columbian sharp-tailed Grouse as Threatened or Endangered. 71:67318-67325.

[34] Hoffman. R.W and A.E. Thomas. 2007. Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*): a technical conservation assessment. [Online]. U.S.D.A. Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/columbiansharptailedgrouse.pdf. [accessed 8 April 2007].

[35] See attachment 4

[36] Giesen, K.M. 1997. Seasonal movements, home ranges, and habitat use by Columbian sharp tailed grouse in Colorado. Special Report 72. Colorado Division of Wildlife, Denver, CO.

Collins, C.P. 2004. Ecology of Columbian sharp-tailed grouse breeding in coal mine reclamation and native upland cover types in northwestern Colorado. Thesis. University of Idaho, Moscow, ID.

Boisvert, J.H., R.W. Hoffman, and K.P. Reese. 2005. Home range and seasonal movements of Columbian sharp-tailed grouse associated with Conservation Reserve Program and mine reclamation. Western North American Naturalist 65:36-44.

[37] Collins, C.P. 2004. Ecology of Columbian sharp-tailed grouse breeding in coal mine reclamation and native upland cover types in northwestern Colorado. Thesis. University of Idaho, Moscow, ID.

areas, suggesting protection of these areas is important for long-term persistence.[38] In addition 96% of radio-marked males remained within 1.25 miles of the lek upon which they were captured from spring through summer[39]. Males attend dancing grounds in the fall also, starting in mid- to late-September[40] (Hoffman and Thomas 2007). These studies suggest that loss or degradation of habitat or disturbance within 1.25 miles of a lek may result in negative impacts on Columbian sharp-tailed grouse populations. Though there is little research focusing specifically on the impacts of oil and gas development on the Columbian sharp-tailed grouse, the species is a lekking species that is sympatric with greater sage-grouse in most of its range (Apa 1998) and in Colorado (Hoffman and Thomas 2007). Thus, this species may experience impacts similar to those of oil and gas development on greater sage-grouse. For other sage-grouse species it has been shown that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding habitat.[41]

Studies on greater sage-grouse have also demonstrated the importance of protecting all of the seasonal habitats required by the species from negative impacts of oil and gas development, including not only breeding and nesting habitat around leks, but also brood rearing and winter habitat[42]. In response to research on the impacts of oil and gas on greater sage-grouse, the BLM has widely recognized that the stipulations applied to the lease parcels at issue here (a ¼ mile NSO buffer around leks and seasonal timing limitations on disturbance), are insufficient to mitigate impacts of oil and gas development on greater sage-grouse, and has begun to implement more stringent lease stipulations and protective measures to ensure the conservation of greater sage-grouse populations. These measures include limitations on the density of energy development structures, clustered development, 0.6 mile buffers around greater sage-grouse leks, seasonal limitations on disturbance in breeding and nesting habitat and winter habitat etc. [43]

Similar lease stipulations should be applied to the leases at issue here, to protect Columbian sharp-tailed grouse populations from further decline. At a minimum BLM should add a special lease stipulation to the parcel stating that BLM reserves the authority to implement restrictions greater than a ¼ mile buffer and seasonal timing limitations, to protect Columbian sharp-tailed grouse, if future scientific analysis suggests such measures are necessary. BLM should defer the parcels in Columbian sharp-tailed grouse habitat until proper stipulations have been attached.

Boisvert, J.H., R.W. Hoffman, and K.P. Reese. 2005. Home range and seasonal movements of Columbian sharp-tailed grouse associated with Conservation Reserve Program and mine reclamation. Western North American Naturalist 65:36-44

[38] Boisvert, J.H., R.W. Hoffman, and K.P. Reese. 2005. Home range and seasonal movements of Columbian sharp-tailed grouse associated with Conservation Reserve Program and mine reclamation. Western North American Naturalist 65:36-44

[39] Boisvert, J.H., R.W. Hoffman, and K.P. Reese. 2005. Home range and seasonal movements of Columbian sharp-tailed grouse associated with Conservation Reserve Program and mine reclamation. Western North American Naturalist 65:36-44

[40] Hoffman. R.W and A.E. Thomas. 2007. Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*): a technical conservation assessment. [Online]. U.S.D.A. Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/columbiansharptailedgrouse.pdf. [accessed 8 April 2007].

[41] Naugle et al., ENERGY DEVELOPMENT AND GREATER SAGE-GROUSE, (See attachment 6)

[42] Naugle et al., ENERGY DEVELOPMENT AND GREATER SAGE-GROUSE,

[43] For example, see the protective measures applied to high and medium priority greater sage-grouse in the proposed Little Snake Field Office RMP at http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/little_snake_field/rmp_revision/final_docs.Par.82555.File.dat/04_LS-FEIS_Vol-I_Chapter-2.pdf

5) Greater Sage-Grouse:

Parcel COC75190 is in medium priority greater sage-grouse habitat and parcel COC75186 is within 4 miles of a greater sage-grouse lek. With all the work BLM is proposing to accomplish with the goal of ensuring better regulatory protections for the greater sage-grouse, in order to avoid endangered species listing, it is irresponsible for BLM to be leasing these parcels. Niether of these parcels contain stipulations addressing the greater sage-grouse. Timing and controlled surface use stipulations should be attached to these parcels to protect this species. At the least, BLM should be retaining authority to increase protections in the future based on anticipated BLM guidance and RMP amendments.

B. Areas of High Conservation Value

1). Colorado Natural Heritage Program Potential Conservation Areas

All or portions of Parcels COC73584, COC73585, COC75187, and COC75190 are located within CNHP Lower Priority PCAs. According to the CNHP, PCAs seek to facilitate a goal to "successfully protect populations" through a "focus on capturing the ecological processes that are necessary to support the continued existence of a particular element of natural heritage significance."[44] CNHP recommends that "consideration of specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be carefully considered and evaluated for their consequences to the element on which the

carefully considered and evaluated for their consequences to the element on which the conservation unit is based."[45] Higher priority PCAs are ranked by CNHP with Biodiversity Significance Ranks 1 and 2, indicating Outstanding or Very high Biodiversity Significance. Lower priority PCAs are ranked by CNHP with Biodiversity Significant Ranks 3, 4, and 5, indicating High or Moderate Biodiversity Significance. Given that the proposed parcels have already been recognized as being the site of 'ecological process that are necessary to support the continued existence of [an] element of natural heritage significance,' the BLM should consider whether "Leasing would result in unacceptable impacts to specially designated areas (whether Federal or non-Federal) and would be incompatible with the purpose of the designation,"[46] and defer leasing accordingly.

V. Statement of Reasons

Geothermal Parcels:

A BLM decision allowing the leasing of the geothermal parcels is currently challenged in the IBLA. No decision has been made by the IBLA and it would be prudent for BLM to defer leasing until their decision to accept the Forest Service's recommendation has been evaluated.

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[44] Colorado Natural Heritage Program, *Data Dictionary for Potential Conservation Area Transcription Reports from the Colorado Natural Heritage Program.* July, 2005.
[45] *Id.*
[46] BLM, Instructional Memorandum No. 2010-117. Washington, D.C. May 17, 2010 at 10

a. The Decision is Inconsistent with BLM IM 2009-071 and BLM CO IM 2010-028:

BLM is not adhering to the policies announced in BLM IM 2009-071 and BLM CO IM 2010-028. BLM IM 2009-071 directs that when necessary to maintain sustainable sage-grouse populations across the broader landscape within the state, field managers will implement an appropriate combination of the following actions in "priority habitat". BLM IM 2009-071 declares that within "priority habitat", BLM should "Withhold from sale or defer the sale of parcels, in whole or in part, that industry has proposed for oil and gas or geothermal leasing in priority habitat as supported by analysis under the National Environmental Policy Act (NEPA) of the impacts of leasing on sage-grouse, and in RMP revisions and amendments, analyze one or more alternatives that would exclude priority habitat from energy development and transmission projects." BLM CO IM 2010-028 explains "For the purposes of this IM, "core habitat" refers to those areas of highest conservation value as identified by BLM Colorado and CDOW and may include previously identified core, key or priority habitat designations. For [Gunnison sage-grouse], "core" habitat will be areas of currently *occupied habitat* supporting Gunnison Sage-grouse populations, including those smaller populations that are vulnerable to localized extirpation but necessary to maintain range-wide connectivity and genetic diversity." (*emphasis added)* BLM CO IM 2010-028 recognized that the Gunnison sage-grouse populations have declined to the point where all occupied habitat is considered "core" habitat and they acknowledge that this includes "priority habitat". BLM has failed to properly implement the mandates of these IMs throughout the environmental analysis of the currently proposed leasing.

BLM has not given the habitat within these parcels the conservation value that is

BLM has not given the habitat within these parcels the conservation value that is necessary. This habitat fulfills the IMs definitions of "core habitat" and "priority habitat" and should be protected as such. BLM should withhold from leasing the proposed parcels due to the affect leasing and subsequent development will have on the Gunnison sage-grouse population. The EA should have also analyzed alternatives that would exclude priority habitat from energy development and transmission projects. Instead, BLM amended the Gunnison RMP without considering how the Gunnison sage-grouse will be protected throughout this management area. Amending the RMP without this comprehensive level of analysis is inconsistent with these IMs. BLM failed to consider the range wide affects of leasing this parcel. The analysis that supported BLM's decision is not consistent with the level of inquiry required by these IMs. BLM did not consider how amending the RMP will affect the Gunnison sage-grouse throughout the management area. This analysis should have been completed in order to take the "hard look" required by NEPA prior to amending the Gunnison RMP. Since BLM failed to properly follow these IMs and conduct the proper analysis prior to making that decision, it is arbitrary, capricious, and an abuse of discretion.

b. BLM Failed to Consider Significant New Information:

None of the NEPA documents, to which the leasing is tied, address significant new information now available on the Gunnison sage-grouse. An "agency must be alert to new information that may alter the results of its original environmental analysis, and continue to take a 'hard look at the environmental effect of [its] planned action, even after a proposal has received

initial approval.'" *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 557 (9th Cir. 2000) (quoting *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 374 (1989)).

In order to satisfy the "hard look" requirement, the BLM must supplement its existing environmental analyses when new circumstances "raise[] significant new information relevant to environmental concerns . . . ." *Portland Audubon Soc'y v. Babbitt*, 998 F.2d 705, 708 (9th Cir. 2000). Agencies are required to "prepare supplements to either draft or final environmental impacts statements if . . . there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii) (2009). The Supreme Court has held that a supplemental EIS must be prepared if "new information is sufficient to show that the remaining action will 'affec[t] the quality of the human environment' in a significant manner or to a significant extent not already considered . . . ." *Marsh v. Or. Natural Res. Council*, 490 U.S. 390, 374 (1989); *see* 42 U.S.C. § 4332(2)(C) (2009). In a recent Utah case, the court held that the "Utah BLM ignored significant new information when it decided to lease the sixteen parcels at issue without first conducting a supplemental NEPA analysis." *So. Utah Wilderness Alliance v. Norton*, 457 F. Supp. 2d 1253, 1267 (D. Utah 2006). The analysis relied upon failed to reflect significant new information regarding the wilderness characteristics of the parcels at issue. *Id.* Further, in *Center for Native Ecosystem),* the Interior Board of Land Appeals held that once the BLM has identified existing NEPA documents, it is the responsibility of the relevant field office reviewers to determine whether there were ""significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." *Center for Native Ecosystems*, 170 IBLA 331, 346 (2006) ("CNE 1").

The BLM has failed to consider recent research on Gunnison sage-grouse that is directly relevant to analyzing the likely impacts of the proposed geothermal leasing and subsequent development on Gunnison sage-grouse. The findings of Aldridge et al. 2011[47] constitutes significant new information that call into question the conclusions of the NEPA documents to which the proposed geothermal leasing and development is tiered. The findings of Aldridge et al. 2011[48] were available to BLM in unpublished form at the time of the preparation of the NEPA documents to which the proposed action is tiered, but were not considered at that time.[49] These findings have now been published in a peer reviewed journal.[50] We demonstrate that these findings are directly relevant to analysis of the impacts of the proposed geothermal leasing and development on the Gunnison sage-grouse. The findings of Aldridge et al. 2011 are contrary to information presented in the NEPA documents to which the proposed leasing is tiered, and suggest that the proposed action will have significant impacts on Gunnison sage-grouse that have

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[47] Aldridge, C.L., D.J. Saher, T. M. Childers, K. E. Stalnecker, and Z.H. Bowen. 2011. Crucial nesting habitat for Gunnison sage-grouse: a spatially explicit hierarchical approach. Journal of Wildlife Management 9999:1-16. Attached as Exhibit 7.

[48] Id. at 46

[49] Aldridge et al. 2011 was in press, and not yet published at the time of publication of the Environmental Assessments and Finding of No Significant Impact, some of the relevant findings of the study are outlined in the U.S. Fish and Wildlife Service Finding Indicate that this information was included in FWS finding.. (*75 FR 59804*), which was available to BLM at the time that they made their decision. BLM was clearly aware of the findings of Aldridge et al. 2010, since it was cited in the U.S. Fish and Wildlife Service finding which BLM reviewed in this NEPA process. *75 FR 59815.* .

[50] Id. at 46.

not been adequately considered in the NEPA documents at issue here. We demonstrate the significance of this new information in subsequent sections of this protest. Further, there is additional significant new information that has also not been considered. Several additional presentations at the Gunnison Sage-grouse Summit detailed information that was: 1) directly relevant to determining the likely impacts of the proposed action, 2) available to BLM at the time that it made its decision, and 3) not adequately considered in the BLM EA, including (but not limited to) the following talks:

- Demography and Dispersal of Gunnison Sage-grouse, Dr. Mike Phillips Colorado Division of Wildlife, April 12, 2011
- Effect of Human Noise on Lekking Gunnison sage-grouse, Tyler Hicks, M.S. Candidate, Washington State University, April 12, 2011
- Nest Success in the Gunnison Basin, Amy Davis, Ph.D. candidate, Colorado State University, April 12, 2011

We will detail some of the relevant findings of the above research projects (as presented at the Third Annual Gunnison Sage-grouse Conservation Summit) elsewhere in this protest. None of the NEPA documents to which the geothermal leasing is tiered, adequately address this significant new information. The BLM must address this significant new information in order to comply with NEPA.

c. The BLM Failed to Consider the Best Available Science in its EA:

The decision is based on information in the EA that does not represent the best available science regarding the Gunnison sage-grouse. The BLM is required to operate under the best

science regarding the Gunnison sage-grouse. The BLM is required to operate under the best available science standard when implementing projects. *42 U.S.C. §4332.* NEPA regulations require the BLM to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements" (40 CFR 1502.24). The BLM NEPA Handbook also directs the BLM to "use the best available science to support NEPA analyses, and give greater consideration to peer-reviewed science and methodology over that which is not peer-reviewed" (BLM NEPA Handbook, page 55).

The BLM tiered this EA to the Final PEIS for Geothermal Leasing in the Western U.S. (Geothermal PEIS). This document was created in October, 2008. The BLM also depends on the findings and recommendations in the Gunnison Sage-grouse Rangewide Conservation Plan *(RCP),* which was signed by BLM on April, 2005. These documents are outdated and do not represent the best available science that should be used in assessing the impacts of geothermal energy development on Gunnison sage-grouse. At the time of publication, the RCP relied heavily on research on greater sage-grouse in developing conservation recommendations for Gunnison sage-grouse, due to a lack of adequate research on some aspects of Gunnison sage-grouse biology. This is appropriate because the two species are closely related. At the time of publication of the RCP, there was little research on the impacts of energy development on either species of sage-grouse. Since that time, a significant body of new peer-reviewed research on the impacts of energy development on greater sage-grouse has been published (see *CNE et al. comments on EA at 14-21*). There is still little information on the impacts of energy development on Gunnison sage-grouse. However, the findings of the research on the impacts of energy development on greater sage-grouse are likely applicable to Gunnison sage-grouse. Both

species are highly sensitive to disruptions in their habitat and suffer from similar threats. According to the Gunnison Sage-Grouse Rangewide Conservation Plan although Gunnison sage-grouse and greater sage-grouse are genetically, morpholigically, and behaviorally different in respect to strutting ground displays, there life history and habitat requirements are believed to be similar. Most research on sage-grouse has been conducted on greater sage-grouse and comperably little research has been done on Gunnison sage-grouse. For this reason, the Rangewide Conservation Plan relies heavily on greater sage-grouse research in assessing threats and making management recommendations for the Gunnison sage-grouse.[51] In addition, significant information on the status and probability of persistence of Gunnison sage-grouse populations has been cited in the EA, but has not been adequately considered in determining whether the geothermal development will result in significant adverse impacts on Gunnison sage-grouse. (Wisdom et al., see attachment 5, EA pg. 55).

The best available science suggests that the mitigation measures outlined in the Rangewide Conservation Plan, and adopted in the BLM EA, are not adequate to prevent significant adverse impacts of geothermal exploration and development on Gunnison sage-grouse. Indeed, this significant new information suggests that the viability of the Gunnison Basin population is already compromised, and that the proposed action will further contribute to a lower probability of persistence of the species. We detailed this significant new information in our comments on the EA. (*CNE EA comments at 15-22, 26-28*). The BLM states that it has considered this significant new information (for e.g., see EA, response to comments pg. 188-189). However, it is clear that this is not the case, as the BLM fails to: 1) cite the relevant conclusions from the recent research on the impacts of energy development on greater sage-grouse, 2) disclose adverse impacts that the recent science indicates are likely, 3) consider the

grouse, 2) disclose adverse impacts that the recent science indicates are likely, 3) consider the recent science in analyzing the effectiveness of the proposed lease stipulations, and 4) consider the significance of potential adverse impacts in light of current low probability of persistence of the Gunnison sage-grouse populations. Specific examples of failure to consider significant new information are given in subsequent sections of this protest and in the comments that we submitted previously. It is important to note that the BLM and CDOW have acknowledged that the range-wide conservation plan needs to be updated or supplemented to take into account a substantial body of new scientific information (personal communication, BLM State Director Helen Hankins November 9, 2010; personal communication Jeff VerSteeg, Colorado Parks and Wildlife December 1st 2010). The range-wide plan steering committee is planning to meet in the near future to discuss the need to update the range-wide conservation plan. The BLM has improperly relied entirely on the Gunnison sage-grouse range-wide conservation plan in analyzing impacts and developing lease stipulations to conserve Gunnison sage-grouse in the face of geothermal development. The BLM must consider significant new information and meet the best available science standard. If the BLM has considered the body of recent research we submitted in our comments on the EA, and decided that it is not relevant in predicting impacts and developing lease stipulations and other mitigation measures, the BLM must describe its rationale for this determination in detail, rather than simply asserting that it has considered the best available science.

The BLM failed to consider the best available science in the U.S. Fish and Wildlife Service's September 28, 2010 12-month finding detailing their rationale for their determination

[51] Gunnison Sage-Grouse Rangewide Conservation Plan

that the Gunnison sage-grouse is a candidate for listing under the Endangered Species Act. This finding and the citations therein constitute a summary of the bulk of the best available science, including recent research that was not considered at the time of publication of the Gunnison Sage-grouse Rangewide Conservation Plan. Much of this information is directly relevant to determining the likely direct, indirect and cumulative impacts of the proposed geothermal development on Gunnison sage-grouse, and very little of this information was considered in the BLM's EA for the proposed geothermal development. The BLM EA did not adequately consider the information in the finding itself, or in the relevant research cited in the finding. We will highlight some of the specific instances where BLM failed to consider the relevant information in the FWS finding.

d. The Decision Fails to Adequately Analyze the Direct, Indirect, and Cumulative Affects of Leasing These Parcels:

NEPA dictates that BLM take a "hard look" at the environmental consequences of a proposed action and the requisite environmental analysis "must be appropriate to the action in question." *Metcalf v. Daley*, 214 F.3d 1135, 1151 (9th Cir. 2000); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989). In order to take the "hard look" required by NEPA, BLM is required to assess impacts that include: "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, *whether direct, indirect, or cumulative*." 40 C.F.R. § 1508.8 (emphasis added). "[C]umulative impact analysis must be timely. It is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now." *Kern v. US. Bureau of land Management*, 284 F.3d 1062, 1075 (9th Cir. 2000).

The BLM failed to adequately analyze potential direct, indirect, and cumulative impacts of the proposed leasing and RMP amendment on the Gunnison sage-grouse throughout the planning area.

"In determining the scope of the required NEPA analysis, an agency must consider not only the proposed action, but also three types of related actions – 'connected actions', similar 'actions', and 'cumulative actions'. *40 C.F.R. 1508.25(a)*. "Cumulative actions" are those" which when viewed with other proposed actions have cumulatively significant impacts." *Id. at 1508.25 (a)(2)*. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. 40 C.F.R. 1508.27 (b)(7). It is not appropriate to defer consideration of cumulative impacts when meaningful consideration can be given now. *See; Neighbors of Cuddy Mountain v. United States Forest Service,* 137 F.3d 1372, 1380 (9th Cir. 1998); *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312-1313 (9th Cir. 1990)

The scope of the BLM analysis of indirect and cumulative impacts on Gunnison sage-grouse is inappropriately narrow, and the BLM has avoided a finding of significance by breaking down the action into small component parts, analyzing only a small portion of the afected area, failing to consider the impacts of cumulative actions, and deferring consideration of cumulative impacts to a later date, when meaningful consideration can be given now.

The BLM failed to adequately analyze the indirect and cumulative impacts of reasonably foreseeable geothermal development on adjacent geothermal lease parcels on Forest Service, State Land Board, and Private lands on Gunnison sage-grouse. In addition, the BLM failed to adequately analyze indirect and cumulative impacts that will extend beyond the boundaries of these lease parcels, and outside of the boundaries of the BLM cumulative effects analysis area for Gunnison sage-grouse delineated in the EA. These indirect and cumulative impacts include: impacts associated with 1) direct and functional loss of a high quality Gunnison sage-grouse habitat on and around the lease parcels, 2) large-scale avoidance of energy development infrastructure by Gunnison sage-grouse, 3) construction of new roads and increased use of existing roads used to access the parcels, 4) construction, upgrade and maintenance of transmission lines, 5) potential for facilitation of the spread of West Nile Virus, noxious weeds and fire, 6) cumulative impacts of past, present and reasonably foreseeable activities on the quality and quantity of sagebrush vegetation and sage-grouse habitat on lands adjacent to the BLM parcel, 7) impacts to Waunita lek and consequences for lek viewing opportunities, and 8) the indirect and cumulative effects of geothermal development, both at the scale of the BLM analysis area considered in the EA, and at appropriate larger scales, including the overall cumulative impact on the Gunnison Basin population. These impacts are reasonably foreseeable impacts and the BLM has the information needed to conduct a meaningful analysis of these impacts at the current time. The following paragraphs detail some of the inadequacies of BLM's analysis:

1. The BLM fails to adequately analyze the potential for direct and functional loss of high quality habitat on and around the lease parcels, and the consequence of this for the Gunnison Basin population. The BLM's finding of no significant impact rests on their conclusion that

sage-grouse occupied habitat on the nomination area is overall less than average quality relative to sage-grouse habitat throughout the Gunnison Basin, particularly for nesting and early brood rearing, and during winter, and that, in spite of evidence of regular use of the area, it is presumed that the density of sage-grouse on the area is low compared to higher quality habitats elsewhere in the Gunnison Basin (EA pg. 63); and thus that direct and functional loss of this habitat will not result in significant adverse impacts on the Gunnison Basin population. However, this conclusion is in direct conflict with significant new information outlined in the findings of Aldridge et al. 2011.[52] Aldridge et al. (2011) developed a landscape-scale spatial model predicting Gunnison sage-grouse nesting probability in the Gunnison Basin. Aldridge et al. 2011 suggest that their model be used as an initial management tool to identify crucial nesting habitat for Gunnison sage-grouse. They define crucial nesting habitat as nesting habitat that is necessary for the survival and long-term viability of Gunnison sage-grouse.[53] Crucial nesting habitat identified by their model is the area delineated in yellow, orange and red on the map at Attachment 8. The highest quality crucial nesting habitat in their models is delineated in red, and they suggest that these areas constitute high priority conservation areas for protection, while the remaining crucial nesting habitat is delineated in yellow.[54] This model suggests that sage-grouse occupied habitat on the nomination area is crucial nesting habitat that is necessary for the survival and long-term viability of Gunnison sage-grouse. This model shows that a significant amount of crucial nesting habitat, including the highest quality crucial nesting habitat, exists on

[52] See attachment 7.
[53] Id.
[54] See attachment 7, pg. 9

and near the lease application parcels, and in the much larger area surrounding the lease parcels that could experience indirect and cumulative impacts associated with the proposed geothermal development. See Attachment 8 for a map of the overlap of crucial nesting habitat and the proposed geothermal lease parcels (delineated in yellow, orange and red, with the highest quality nesting habitat in red). Aldridge et al. (2011) note that, given the extreme fidelity of these imperiled birds to nesting areas, managers should strive to protect as many of crucial nesting habitats as possible. This constitutes significant new information that has not been adequately analyzed in the NEPA documents to which the proposed leasing is tiered.

The BLM's conclusion that habitat on the lease parcels is of relatively low quality, is based on an analysis of the degree to which small-scale characteristics of the habitat (e.g. sagebrush shrub cover and height, herbaceous cover etc.), align with the habitat guidelines in the Gunnison sage-grouse Rangewide Conservation Plan (EA pg. 58). However, significant new information outlined in the findings of Aldridge et al. 2011 suggests that Gunnison sage-grouse nest site selection is influenced by a number of landscape factors (e.g. proportion of sagebrush cover > 5%, mean productivity, and density of 2 wheel drive roads etc.) and patch-scale factors (e.g. distance from high volume paved roads, distance from residential areas etc.). These factors were not included in the BLM's analysis of habitat quality described in the EA.[55] These characteristics may be more important in determining nesting habitat quality than the degree to which small-scale characteristics of the habitat (e.g. herbaceous cover etc.) align with the habitat guidelines in the Gunnison Sage-grouse Range-wide Conservation Plan. This constitutes significant new information that has not been adequately analyzed. In fact, additional significant new information outlined in recent research findings suggests that local scale vegetation characteristics outlined in the habitat guidelines in the Rangewide Conservation Plan fail to

predict nest locations or nest success.[56] One possible explanation for this is that landscape scale factors are playing a critical rol in determining nest-site selection and nest sucess. Thus, any assessment of habitat quality must include both: 1) the relevant landscape/patch-scale factors demonstrated to influence nesting habitat selection, and 2) assessment of the degree to which local-scale vegetation characteristics align with published habitat guidelines. The above information is significant new information that is critical to determination of the likely impacts of the proposed geothermal development on Gunnison sage-grouse. The BLM must consider this information as part of a new NEPA analysis of the impacts of the proposed leasing, prior to leasing the protested parcels.

Further, the BLM's analysis of habitat quality was limited to the lease parcels, and did not include analysis of the quality of habitat outside of the lease parcels. Gunnison sage-grouse habitat outside of the lease parcels may be indirectly and cumulatively impacted by geothermal development on the lease parcels. As described previously, the findings of Aldridge et al. 2011 suggest that there is a substantial amount of crucial nesting habitat, including the highest quality nesting habitat, in the areas around the lease parcels.[57] The BLM does not adequately analyze the potential indirect and cumulative impacts of the proposed action on crucial nesting and other important seasonal habitat outside of the lease parcels.

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[55] See attachment 7
[56] e.g. Davis, 2011, Gunnison Sage-Grouse Summit Presentation
[57] See attachment 7

Finally, the BLM recognizes that the quality of sage-grouse habitat in the area has been reduced due to past activities authorized by the BLM and FS on and around the lease parcels (EA pg. 56). Then, instead of considering the known negative impact of past actions on habitat quality in its analysis of cumulative impacts (as required by law) the BLM uses the fact that past actions in the area have reduced habitat quality for Gunnison sage-grouse, to justify its rational that the area constitutes marginal habitat and thus that the proposed project will not have significant adverse impacts on sage-grouse. The BLM must consider the role of past actions in reducing the quality of habitat in the area, in its cumulative effects analysis. BLM should also consider that the quality of this sage-grouse habitat will increase if given the time to recover from past actions authorized by BLM, absent the additional impacts of the proposed geothermal development.

2. The BLM fails to adequately analyze the impacts of behavioral avoidance of energy development infrastructure. The BLM notes that sage-grouse may avoid using suitable habitat adjacent to transmission lines, pipelines and roads (EA pg. 62). However, the BLM does not disclose that sage-grouse are likely to avoid using otherwise suitable habitat adjacent to other types of energy development structures, including wells, the geothermal plant, substations, etc. In addition, the BLM does not disclose the amount of suitable habitat that is likely to be avoided adjacent to energy development infrastructure, or the magnitude of the population level impact that can result from behavioral avoidance of energy development infrastructure in otherwise suitable habitat. As a consequence, the BLM underestimates the potential adverse impacts of energy development infrastructure on Gunnison sage-grouse. For example, the BLM does not include information from recent peer-reviewed research relevant to predicting the magnitude of impact that may result from behavioral avoidance of energy development infrastructure. Naugle

et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding populations (*see Attachment 6*). In addition, Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day[58]. This information is not included in the EA, though it is obviously relevant to predicting impacts of the proposed project on sage-grouse, and determining the likely effectiveness of lease stipulations, and was provided to the BLM in our previous comment letters. Further, Aldridge et al. 2011 found that Gunnison sage-grouse in the Gunnison Basin avoided high density residential development at a landscape scale. In addition, females chose to place nests farther away from any single development at the patch scale, and maximum probabilities of nest site selection are reached at approximately 1.6 miles (2.5 km) from any given development. Thus, Aldridge et al. (2011) suggest that future developments (urban and roads) be prevented within this distnace of crucial nesting habitat, if habitat, and thus populations, are to be maintained. This significant new information, combined with existing information on the impacts of roads and energy development on Gunnison sage-grouse suggests that it is critical to consider the potential negative impacts of behavioral avoidance of geothermal infrastructure at distances between 1.6 and 3.9 miles of leks and crucial nesting habitat. The BLM's failure to consider the impacts of behavioral avoidance of infrastructure at these distances, renders its finding of no significant impact arbitrary and capricious.

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[58] Holloran (2005) found at: http://rockymountainwild.org/_site/wp-content/uploads/Holloran2005PhD.pdf

In addition, the BLM fails to discuss the potential population level consequences of behavioral avoidance of energy development and other cumulative impacts of energy development. For example, recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al. 2009, *See Attachment 6*) Additional information on the potential for behavioral avoidance of human infrastructure, including roads and other types of infrastructure associated with energy development, some of which is specific to Gunnison sage-grouse, is included in the FWS finding (*75 FR 59804*) and the papers cited in the finding. The BLM did not adequately consider any of the information in the FWS finding or the papers cited therein regarding the potential for behavioral avoidance of infrastructure. The potential for these types of impacts is not disclosed in the EA, although it is obviously relevant to understanding the impacts of geothermal energy development activities on Gunnison sage-grouse populations, and was provided to the BLM in our comments on the EA.

3. The BLM fails to adequately analyze the indirect and cumulative impacts of increased use of existing roads and construction of new roads for geothermal energy development on fragmentation is one of the most significant threats to the species. We strongly encourage the BLM to avoid additional habitat fragmentation." *(Comments to EA at 175)* Leasing of these

parcels will lead to additional habitat fragmentation. Additional indirect effects of roads may result from birds' behavioral avoidance of road areas because of noise, visual disturbance, pollutants, noxious weeds and predators moving along a road. There are existing roads that are outside of the cumulative effects analysis area for impacts to Gunnison sage-grouse in the BLM EA, that are likely to receive substantial increases in traffic volume as a consequence of geothermal development on the parcel. These roads travel through important sage-grouse habitat (including breeding, brood rearing, and wintering habitat), and some are in close proximity to active leks (within fewer than 1.9 miles). In addition, new roads may be required both within and outside of the lease parcels (including the BLM, FS, Private and State Land Board Parcels), and these new roads could be constructed within 0.6 miles of active leks, and through other important sage-grouse habitat, including crucial nesting, breeding, brood rearing and wintering habitat). Given that: 1) Recent landscape-scale spatial model predicting Gunnison sage-grouse nest site selection in the Gunnison Basin, showed strong avoidance of areas with high densities (above 0.50km/km^2) of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel drive sedan clearance) within 6.4 km (4 mi) of nest sites.[59] The occurrence of Gunnison sage-grouse nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2) (Aldridge et al. 2011), 2) increases in traffic that exceed 1 vehicle per day on roads within 1.9 miles of leks have been shown to result in declines in male lek attendance (Holloran et al. 2005)[60], 3) sage-grouse may avoid suitable nesting, brood rearing, and wintering habitat in proximity to roads (see citations in our comments

[59] Id at insert 1st ref to Aldridge et al. 2011

[60] http://rockymountainwild.org/_site/wp-content/uploads/Holloran2005PhD.pdf

on the EA, and see *75 FR 59804* and citations therein), 4) increased traffic can cause sage-grouse mortality due to collision, and 5) that recent research shows that lek viewing noises and trucks on the existing county road near the Waunita lek (a road that is obviously likely to be used to access the parcels), disturb birds on the lek (e.g. cause flushing and other behaviors related to disturbance) (Hicks, 2011, Gunnison Sage-grouse Summit Presentation); it is critical to consider how construction of new roads and improvements and increased in traffic on existing roads may impact Gunnison sage-grouse populations. The BLM has not analyzed the potential impacts of increased traffic on these roads on Gunnison sage-grouse populations in light of the above science. The discussion of impacts of roads in the EA is limited to a vague general statement that roads will fragment habitat for Gunnison sage-grouse (EA at 64). The BLM summarizes the mileage of existing roads in the area, and the mileage of new roads likely to be built, but includes little or no analysis of the potential impacts of these roads in light of the science outlined above. There is no discussion of the likely location of roads that will be used to access the project relative to sage-grouse leks or other seasonal sage-grouse habitats. There is no discussion of the existing road density in the area, or of how roads built for geothermal development will contribute to road density. There is no discussion of the class of roads that will be required (e.g. will roads be class 1-4

4. There is no discussion of important potential adverse impacts of such roads in light of the above science, and there is no discussion of the consequences of such impacts to the Gunnison sage-grouse population given that all habitat in the Gunnison Basin is currently indirectly affected by roads, and existing road densities are negatively affecting the Gunnison Basin population. *75 FR 59804.* The BLM may expect that timing limitations restricting human disturbance during critical seasons will limit impacts of existing roads. However, timing

limitations do not apply to operation and maintenance activities, and BLM will not be able to enforce timing limitations on roads that cross lands that are not owned and managed by the BLM. Further, BLM allows for waiver, modification and exception of timing limitations. FWS has indicated that timing limitations that do not apply to operation and maintenance activities and are subject to waiver, modification and exception, are likley to be insufficient to mitigate impacts of energy development on greater sage-grouse, and the same is likely true for the impacts of geothermal development on Gunnison sage-grouse.[61] Finally, timing limitations address only the impacts of associated with roads, and do not mitigate all of the other potential negative indirect affects of roads discussed above. Thus BLM must provide an adequate analysis of the potential cumulative impacts of construction of new roads, and increased traffic on existing roads likely to be used to access the project area. This analysis should not be deferred to later stages of the permitting process, as it is straightforward to predict: 1) the increase in road density that may result from the proposed project, 2) the location and type of new roads and their proximity to leks, crucial nesting habitat and other seasonal habitat, 3) distances at which Gunnison sage-grouse are likely to behaviorally avoid roads, 4) which of the existing roads are most likely to be used to access the lease parcels, and 3) the likely impacts of increased traffic on these roads. Meaningful analysis of this issue is possible at the current time, and thus cannot legally be deferred to a later date.

[61] FWS comments on the proposed Little Snake Field Office RMP at http://rockymountainwild.org/_site/wp-content/uploads/FWS-Comments.pdf

5. The BLM has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines that will be needed if geothermal development occurs in the area, and to analyze the cumulative impacts of existing transmission lines combined with reasonably foreseeable upgrade and maintenance of existing lines and construction of new lines. The reasonably foreseeable development scenario projects that five miles of new transmission line will be constructed during the utilization stage to convey geothermal energy produced on the parcels to end users (EA pg. 64). This new transmission line will need to be connected to a new or existing transmission line (outside of the BLM cumulative effects analysis area for Gunnison sage-grouse) that can handle the electrical output of the geothermal power plant. At a minimum this would require upgrade of an existing transmission line (outside of the BLM cumulative effects analysis area for Gunnison sage-grouse), and may require construction of a new line. The BLM does not adequately analyze the potential indirect and cumulative impacts of transmission line construction, upgrade, and maintenance on Gunnison sage-grouse, either within or outside of the lease parcel. The best available science suggests that construction of new transmission lines, and upgrade and maintenance of existing transmission lines, can have negative impacts on Gunnison sage-grouse. The BLM fails to acknowledge in the EA that transmission lines can: 1) cause sage-grouse mortality due to collisions with lines, 2) facilitate raptor predation by increasing perch sites for raptors, 3) cause sage-grouse to avoid otherwise suitable habitat in proximity to transmission lines, 4) result in direct loss of habitat, 5) result in increased traffic and human disturbance, and 6) facilitation invasion of noxious weeds in sage-grouse habitat (*CNE comments at 12-13, see also 75 FR 59819*) The BLM's analysis of the impacts of transmission lines is limited to an estimate of the amount of surface disturbance likely to result from transmission line construction, and a general discussion of how transmission lines will contribute to fragmentation of Gunnison sage-grouse habitat. The BLM does not adequately analyze a

number of potential effects of existing transmission lines in the area on Gunnison sage-grouse, or consider how additional construction, upgrade and maintenance of transmission lines due to the proposed project will contribute to the cumulative effects of existing transmission lines. The BLM does not consider readily available science that provides information that facilitates prediction of the likely potential direct, indirect and cumulative effects of transmission lines. *Id.*

In addition, the BLM has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines on lands outside of the BLM cumulative effects area for Gunnison sage-grouse. Existing and new power lines that may be used to transport electricity from the plant to end users will pass through occupied habitat and in proximity to sage-grouse leks located outside of the BLM cumulative effects area for Gunnison sage-grouse. Construction, upgrade and maintenance of these lines, and associated adverse impacts on Gunnison sage-grouse populations, constitute reasonably foreseeable cumulative impacts of geothermal leasing. At the current time, it is possible to disclose locations of existing transmission lines likely to be used for transport of electricity from the plant, determine whether such lines can currently handle the amount of energy projected to be produced by the plant, determine whether these lines will need to be upgraded, or whether new lines are required, and predict the cumulative impacts of construction, upgrade and maintenance of these lines on Gunnison sage-grouse. Thus, meaningful analysis of this issue is possible at the current time. Transmission lines may result in cumulative adverse impacts to a larger proportion of the overall Gunnison Basin population than is considered in this EA, and BLM must analyze these potential impacts.

The lease stipulations and other mitigation measures in the EA are not adequate to prevent significant direct, indirect and cumulative impacts associated with transmission lines (see further discussion in subsequent sections of this protest).

6. The BLM has failed to adequately analyze the potential indirect and cumulative impacts of the potential for the facilitation of the spread of West Nile Virus due to sump pits which may provide short-term breeding grounds for mosquitoes.

7. The BLM has failed to adequately analyze the potential for the project to result in the spread of weeds outside of the BLM cumulative effects analysis area for Gunnison sage-grouse, or the potential cumulative impacts of increased risk of fire associated with the geothermal development. The spread of non-natives plant species can reduce forbs that are critical to the survival of young Gunnison sage-grouse during the breeding season. The spread of cheatgrass can increase the risk of high-frequency, high-intensity fire, which can result in permanent loss of habitat. Cheatgrass is present in the Gunnison Basin. It is very difficult to avoid facilitating the spread of this species as part of activities associated with the proposed development, and virtually impossible to eliminate it once it has become established. The BLM has not adequately disclosed the degree to which the area is affected by noxious weeds, discussed the potential for the project to increase noxious weeds, discussed the implications of this for sage-grouse habitat, or discussed potential difficulties likely to be encountered in efforts to prevent this type of impact.

8. The BLM inappropriately limited its analysis of the cumulative impacts of activities that will

alter sagebrush vegetation to activities on the lease parcels, rather than considering the cumulative impacts of removal and alteration of sagebrush vegetation on the entire area that will be impacted by geothermal development. The cumulative effects analysis should have considered all lands open to geothermal development under the RMP and the Geothermal PEIS within this planning area since the decision to amend the RMP will affect geothermal leasing on all these areas.

9. The EA has failed to adequately analyze the potential cumulative impacts of geothermal development in the area on the Waunita lek, and thus public opportunities to view the Gunnison sage-grouse. The Waunita lek is the only place in the world where the public has the opportunity to observe the mating ritual of the Gunnison sage-grouse. If this lek is lost as a result of leasing and development, this unique opportunity will be lost. The BLM must analyze how the public will be affected by the potential loss of this natural experience. In addition, the BLM must analyze the socioeconomic impacts that will result from loss of this lek, including 1) impacts to businesses that benefit from the large number of visitors who travel to the lek and spend money on hotels, gas, food, and other items during their stay in Gunnison, 2) the loss of the educational opportunity afforded by the lek, 3) increased pressure on other leks by individuals trying to find another location to view the birds, etc. The BLM assumes that, because the lek is more than 0.6 miles from the lease parcel boundary, there will be no impacts to the lek. This assumption is false. One of the roads that is a logical route for access to the parcels for geothermal development is in close proximity to the Waunita lek. Potential upgrade and increased use of this road is likely to lead to increased disturbance of the lek (see previous discussion of impacts

of roads). In fact, recent research suggests that truck traffic along the existing road results in disturbance of birds at the lek.[62] The lek likely persists in spite of this disturbance because the level of traffic is currently relatively low. However, this is unlikely to be the case if there are substantial increases in truck traffic along this existing road.[63] Timing limitations do not adequately address this issue because they do not apply to routine maintenance and operation activities, which could result in substantial traffic increases, and because they are subject to exception, waiver and modification. In addition, birds that use the Waunita lek, use nesting, brood rearing and winter habitat within and around the lease parcels that will be negatively affected by direct and functional loss of habitat due to the footprint of the geothermal development. This could result in population declines and decreased lek attendance, regardless of whether the geothermal development results in direct loss of 'lek habitat', or a level of direct disturbance at the lek that prevents males from attending leks. Timing limitations do not address this issue. These impacts may also interact, as recent research suggests that birds are more easily disturbed by truck traffic on the road near the Waunita lek, when there are fewer birds at the lek.[64] Thus population reductions that result from other impacts associated with geothermal development may make the lek less resilient to disturbance.[65] BLM does not adequately analyze the potential impacts of the proposed action on the Waunita lek, and the viewing, economic and educational opportunities afforded by the lek.

10. The BLM fails to provide an adequate analysis of cumulative impacts within the analysis area in the EA. The BLM provides a summary of the past (EA pgs. 57-58), present (EA pgs. 62) and reasonably foreseeable actions (EA pgs. 3-5) that may affect Gunnison sage-grouse in the analysis area. However, the BLM provides virtually no actual analysis of the cumulative effects of the proposed project combined with these past, present and reasonably foreseeable actions on

of the proposed project combined with these past, present and reasonably foreseeable actions on Gunnison sage-grouse habitat and populations. The BLM argues that it cannot conduct this analysis until it has more site-specific information about how geothermal development will proceed on the parcel. However, there is clearly sufficient information in the EA to conduct an adequate coarse-scale cumulative effects analysis which at least attempts to predict the cumulative impacts on Gunnison sage-grouse to the extent necessary in order to determine whether leasing and reasonably foreseeable development on the parcels is likely to have significant adverse cumulative impacts on Gunnison sage-grouse, and to determine the likely effectiveness of the proposed lease stipulations to be amended to the Gunnison RMP.

In addition, the BLM failed to provide an analysis of the indirect and cumulative effects of geothermal development at an appropriate spatial scale. The BLM's analysis of impacts is largely limited to the impacts to habitat on the lease parcels, with some limited consideration of impacts to leks within 4 miles of the lease parcel boundaries. This analysis does not adequately account for indirect and cumulative impacts of the proposed action that will occur outside of the lease parcels. Gunnison sage-grouse habitat outside of the lease parcels may be indirectly and cumulatively impacted by the proposed geothermal development (see discussion elsewhere in this protest). This habitat is likely to be used not only by Gunnison sage-grouse from the one active lek on the lease parcel, but also by birds from six active leks that are within 4 miles of the

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[62] (Hicks, 2011, Gunnison Sage-grouse Presentation Summit).
[63] Add citation to Holloran?
[64] Add citation to Hicks
[65] (Hicks, 2011, Gunnison Sage-grouse Presentation Summit

lease parcel, and potentially by birds from leks at even greater distances from the lease parcel. Gunnison sage-grouse are dependent on large contiguous and unfragmented landscapes to meet their life-history needs. Recent research in the Gunnison Basin suggests that females regularly make long distance movements in winter of up to 25 miles to and from winter habitat in the Basin.[66] This is significant new information which has not been adequately considered in the relevant NEPA documents. Previous work suggested that prevention of direct and functional loss of habitat within 4 miles from leks may be needed in order to protect 81% of seasonal locations, and 80% of nests (approximately 81% of all breeding, summer, fall, and winter seasonal locations were within 4 miles of the lek of capture, and that 80% of hens nest and raise broods in suitable habitats within 4 miles of the hen's lek of attendance) (Gunnison Sage-Grouse Rangewide Conservation Plan, 2005). Given the current status of Gunnison sage-grouse, it may be necessary to protect more than 81% of seasonal locations, and 80% of nests. Aldridge et al. (2011) find that a radio-marked female traveled 10.1 km (6.3 miles) from the lek of capture to a nesting site.[67] This is additional significant new information that has not been considered. The above information suggests that, it is essential to predict the full extent of the potential direct and functional loss of habitat from the entire footprint of the geothermal development (including roads used to access the parcel, powerlines, etc.), at a much larger scale than was done in the EA. The BLM does not adequately analyze the impacts of the potential direct and functional habitat loss associated with the geothermal footprint on: 1) leks that are within 4 miles of the analysis area, 2) leks that are within 6.3 miles of the analysis area, and 3) birds from leks up to 25 miles away from the project boundaries that use winter habitats within the geothermal footprint. The decision to amend the Gunnison RMP to facilitate geothermal development will affect resources beyond the boundaries of the analysis area in the EA. BLM should have considered how this RMP amendment will affect all the areas it manages.

In addition, the EA limits reasonably foreseeable impacts in the area for the purpose of its cumulative effects analysis solely to the impacts outlined in the reasonably foreseeable development scenario for geothermal development. It does not consider a variety of other reasonably foreseeable activities likely to occur in the area that will contribute to the cumulative effects of the proposed development on Gunnison sage-grouse.

Further the EA has failed to disclose the overall magnitude of cumulative impacts on the Gunnison sage-grouse population. The FWS finding provides a coarse-scale analysis of the cumulative effects of the past, present and reasonably foreseeable human activities in the Gunnison Basin on Gunnison sage-grouse. The BLM should have used the FWS analysis as a baseline, and then considered how the cumulative effects of the proposed development would add to the overall cumulative impacts of human activities on the Gunnison Basin population described by FWS in their finding. *75 FR 59804.* In addition, the BLM does not adequately disclose the overall impacts of the proposed geothermal development on the Gunnison Basin population. There is one active lek within the lease parcel boundaries, and there are 6 active leks within 4 miles of the lease parcel boundaries, or approximately 10% of the active leks in the Gunnison Basin. The EA estimates these leks support 18% of the Gunnison Basin population (BLM EA at 51), and assumes that this is the maximum proportion of the Gunnison Basin population that could be negatively impacted by the proposed geothermal development.

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[66] Phillips, 2011, Gunnison Sage-Grouse Summit Presentation

[67] Add citation to Aldridge et al.

However, as we have established previously, the impacts of the development could impact birds from leks that are more than four miles from the lease parcel boundaries, and thus the proposed action has the potential to negatively impact a larger proportion of the Gunnison Basin population. The BLM must provide an adequate analysis of the impacts of the proposed action on the Gunnison Basin population. This analysis must include full consideration of all the indirect and cumulative impacts discussed in this protest. In addition, this analysis must disclose why the potential loss of this large proportion of the Gunnison Basin population does not constitute a significant adverse impact, particularly in light of the fact that recent research suggests that the Gunnison Basin population has no strongholds (including the Gunnison Basin) were Gunnison sage-grouse are not already at risk of extirpation (Wisdom et al. in press, EA pg. 55). Please refer to CNE's comments to the EA, pages 3-8 and the recent FWS finding[68] for a full description of the current status of the Gunnison sage-grouse. The species is currently at risk of extinction due to limited availability of high quality habitat and prevalence of human impacts that continue to result in additional loss, degradation and fragmentation of habitat. Any additional direct or functional loss of habitat is likely to increase the need for protection under the Endangered Species Act, and reduce the probability of persistence of the species. The BLM has discounted the magnitude of potential environmental consequences of the proposed action by failing to adequately analyze cumulative impacts at the appropriate spatial scale. The BLM must adequately analyze these cumulative effects in an EIS that conducts the analysis at an appropriate spatial scale.

e. The BLM has failed to adequately analyze the effectiveness of the lease stipulations and other mitigation measures in the Environmental Assessment, and the determination that lease stipulations and other mitigation measures will prevent significant impacts to

Gunnison sage-grouse is arbitrary and capricious:

A complete discussion of steps that can be taken to mitigate adverse environmental impacts is an important ingredient of the NEPA process. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989). "Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Id.* In recognition of the importance of a discussion of mitigation measures, Council on Environmental Quality (CEQ) regulations "require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)." *Id. at 352.* When a proposed action will result in impacts to resources, the Agency is obligated to describe what mitigating efforts it could pursue to off-set the damages that would result from the proposed action. *See 40 C.F.C. § 1502.16(h) (2009)* (stating that an EIS "shall include discussions of. . .[m]eans to mitigate adverse environmental impacts").

"Mitigation must 'be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1154 (9th Cir. 1996). (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989)). The Ninth Circuit explained that fair evaluation requires agencies to "analyze[] the mitigation measures in detail [and] explain how effective the measures would be. A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by

[68] Add citation to FWS finding.

NEPA." *Nw. Indian Cemetery Protective Ass'n v. Peterson*, 764 F.2d 581, 588 (9th Cir. 1985), rev'd on other grounds, 485 U.S. 439 (1988).

In *Davis v. Mineta*, the Tenth Circuit found that federal agencies did not comply with NEPA when they relied on the possibility of mitigation measures in issuing a FONSI. According to the court, "[m]itigation measures may be relied upon to make a finding of no significant impact only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal. As a general rule, the regulations contemplate that agencies should use a broad approach in defining significance and should not rely on the possibility of mitigation as an excuse to avoid the EIS requirement." *Davis v. Mineta*, 302 F.3d 1104, 1125 (10th Cir. 2002)

The BLM must evaluate the effectiveness of the mitigation measures used in geothermal leasing with the best available science. "The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." *40 C.F.R. § 1500.1(b) (2009)*. "For this reason, agencies are under an affirmative mandate to 'insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements[,] identify any methodologies used and . . . make explicit reference by footnote to the scientific and other sources relied upon for conclusions[.]'" *Envtl. Def. v. U.S. Army Corps of Eng'rs*, 515 F. Supp. 2d 69, 78 (D.D.C. 2007) (citing *40 C.F.R. § 1502.24 (2009)*). If there is scientific uncertainty NEPA imposes the mandatory duties to: (1) disclose the scientific uncertainty; (2) complete independent research and gather information if no adequate information exists unless costs are exorbitant or the means of obtaining the information are not known; and (3) evaluate the potential, reasonably foreseeable impacts in the

absence of relevant information. *See 40 C.F.R. § 1502.22 (2009).* The BLM determined that the proposed action will not result in significant impacts to Gunnison sage-grouse that require an EIS. This determination is predicated on the assumption that lease stipulations will prevent significant adverse impacts to Gunnison sage-grouse.

The lease stipulation prohibiting surface occupancy within 0.6 miles of a lek will not prevent significant adverse impacts to Gunnison sage-grouse. The BLM EA states that the purpose of the 0.6 mile NSO buffer is to protect grouse courtship sites from disturbances that would force strutting sage-grouse onto less desirable sites, interfere with mating processes, or result in lek site destruction (EA pgs. 31- 32). This 0.6 mile buffer distance is based on the following information from the Rangewide Conservation Plan. The RCP defines 'lek habitat' as an area within 0.6 miles of an active lek, based on several studies of daytime movements of adult male Greater sage-grouse during the breeding season (no similar data is available for Gunnison sage-grouse) (GSG RCP). In addition, the RCP cites one study that found that, 23% of Gunnison sage-grouse nests (GSG RCP, App. J. Fig. 1), and 27.5% of seasonal habitat locations occurred within 0.6 miles of the lek of capture in the Gunnison Basin (Gunnison Sage-Grouse Rangewide Conservation Plan 2005). The 0.6 mile NSO stipulation may prevent geothermal development from resulting in direct loss of 27.5% of the habitat used by a population from a given lek and 23% of the nests of birds from a given lek in a given breeding season. However, it allows geothermal development to result in direct loss of: 1) roughly 77% of the nests of birds from a given lek in a given breeding season, and 2) roughly 73% of the habitat used by a population from a given lek (including nesting, brood rearing, summer-fall, and winter habitat). Further,

there is a significant amount of crucial nesting habitat and other seasonal habitats on the parcel that are outside of the 0.6 mile buffer.[69] Thus, even if this lease stipulation achieves its stated intent, it will not prevent significant adverse impacts to Gunnison sage-grouse populations.

The impacts of direct loss of nesting habitat in these areas will have significant adverse impacts on the Gunnison Basin population. A recent landscape-scale spatial model predicting Gunnison sage-grouse nesting probability in the Gunnison Basin shows that a significant amount of high quality/crucial nesting habitat exists on or near the lease application parcels, and in the much larger area surrounding the lease parcels that could experience indirect and cumulative impacts associated with the proposed geothermal development.[70] Loss of substantial amounts of this nesting habitat due to geothermal development will have significant negative impacts on the Gunnison Basin population, and the protection of a small proportion of this nesting habitat afforded by the 0.6 mile buffer does not mitigate these impacts to insignificance. It is important to note that nest success, is a key vital rate in determining whether a population declines or grows [Gunnison sage-grouse population dynamics are most sensitive during nesting and early brood rearing stages (Gunnison Sage-Grouse Rangewide Conservation Plan), and nest success explains 31% of population growth of greater sage-grouse (Walker and Naugle, in press, Doherty 2008, *see citations in our comments on the EA at 39-40*)]. Further, predation may be a significant factor that influences nest success in the Gunnison Basin. Predation risk is reduced in greater sage-grouse when females dispersed nests widely (Holloran and Anderson 2005, Doherty 2008, *see citations in our comments on the EA at 39-40*). Greater sage-grouse nests spaced more closely to one another had lower nest success, while nest success was greater the farther the nest occurred from a lek (Holloran and Anderson 2005, Doherty 2008, *see citations in our comments on the EA at 39-40*). This suggests that nests at greater distances from the lek may have

disproportionate potential importance for population recruitment. In addition, it suggests that geothermal development that results in loss of nesting habitat could have additional indirect impacts, by increasing the numbers of nests in the remaining habitat, thereby increasing predation and reducing nest success. The BLM does not adequately disclose these significant potential direct, indirect and cumulative impacts. The 0.6 mile buffer will not mitigate these impacts to insignificance, nor will any of the other stipulations attached to the lease. The Controlled Surface Use (CSU) stipulation applied to Gunnison sage-grouse habitat will allow for the ability to design road and other infrastructure locations are placed within the lease parcels, but it will not prevent direct and functional loss of nesting habitat outside the lease parcels, and will have limited utility in protecting this habitat within the lease parcels, as much of the habitat in the parcels is either important sage-grouse habitat or is not ideal for development for other reasons, and thus roads and structures are likely to be sited in sage-grouse habitat even with the CSU stipulation in place. Protective measures applied as conditions of approval at later stages of the permitting process will be limited to measures consistent with lease rights, and thus may be limited in their ability to reduce these impacts to insignificance.

Significant impacts are also highly likely to result from the potential direct loss of up to 73% of the habitat used by a population from a given lek, including not only nesting habitat, but also brood rearing, summer-fall, and winter habitat (see previous discussion). Gunnison sage-grouse require all of these seasonal habitats to survive. Gunnison sage-grouse populations in the

[69] For example, there is substantial crucial nesting habitat outside of the 0.6 mile buffer, see Attachment 8.
[70] See Attachment 7

Gunnison Basin may be limited by the availability of sufficient high quality brood rearing and winter habitat. Direct loss of brood rearing habitat may reduce survival of young. Direct loss of winter habitat may result in reduced overwinter survival. A stipulation that protects only 'lek habitat' while allowing for direct loss of a substantial proportion of all other seasonal habitat types, will not prevent significant adverse impacts to the population. The 0.6 mile buffer will not mitigate these impacts to insignificance, nor will any of the other stipulations attached to the lease. The Controlled Surface Use (CSU) stipulation applied to Gunnison sage-grouse habitat will allow for the ability to design road and other infrastructure locations are placed within the lease parcels, but it will not prevent direct and functional loss of habitat outside the lease parcels, and will have limited utility in protecting this habitat within the lease parcels, as much of the habitat in the parcels is either important sage-grouse habitat or is not ideal for development for other reasons (e.g. steep slopes of Tomichi Dome, lynx habitat etc.), and thus roads and structures are likely to be sited in sage-grouse habitat even with the CSU stipulation in place. Protective measures applied as conditions of approval at later stages of the permitting process will be limited to measures consistent with lease rights, and thus may be limited in their ability to reduce these impacts to insignificance.

Further, the BLM's proposed lease stipulations, and additional protective measures (consistent with lease rights) that could be applied at the project stage, will not prevent a number of additional types of indirect and cumulative impacts that are likely to result in significant adverse impacts. This is due to a failure to consider the best available science, including significant new information that was not available at the time of publication of the Gunnison sage-grouse rangewide conservation plan (*see citation in our comments on the EA at 39-40, see also 75 FR 59804 and citations therein*)

Recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition, or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al., *see Attachment 6)*

It is critical to note that the above impacts are not limited to impacts that result from reductions in sagebrush vegetation and human disturbance directly in the vicinity of the area of development. Naugle et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding populations (*see Attachment 6)* Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day (see citation in our comments on the EA). A recent landscape-scale spatial model predicting Gunnison sage-grouse nest site selection in the Gunnison Basin, showed strong avoidance of areas with high road densities of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel drive sedan clearance) within 6.4 km (4 mi) of nest sites.[71] The

[71] Add citation to Aldridge et al. 2011.

occurrence of Gunnison sage-grouse nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2).[72] This is significant new information which must be considered in BLM's analysis of the likely effectiveness of proposed mitigation measures. The proposed action could eventually result in construction of a number of energy development structures (e.g. wells, a plant, transmission lines etc.), construction of new roads, and substantial increases in traffic on existing roads. The BLM has not adequately analyzed whether the lease stipulations outlined in the EA and subsequent conditions of approval applied at the project stage, will effectively mitigate the potential indirect and cumulative impacts of avoidance of energy development infrastructure to insignificance; particularly given that the impacts of the project will add to the already substantial negative cumulative impacts of existing and reasonably foreseeable human infrastructure in the Gunnison Basin (*75 FR 59804*).

The 0.6 mile NSO buffer and the Controlled Surface Use stipulation on seasonal sage-grouse habitat are both aimed solely at preventing the direct impacts of loss of sagebrush habitat and do not address the above indirect and cumulative impacts. The seasonal timing limitations address the indirect impacts of increased traffic, but do not address all of the other potential negative direct and indirect effects of roads. In addition, the seasonal timing limitations are unlikely to be effective because they don't address the impacts of increased traffic during the production phase. There are no stipulations that address the indirect and cumulative impacts of noise, transmission lines and a variety of other aspects of the proposed development. The BLM will be limited in its ability to apply adequate protective measures at later stages in the permitting process, as any protective measures at that stage must be consistent with lease rights granted.

In addition, the likelihood that the lease stipulations will mitigate impacts to

In addition, the likelihood that the lease stipulations will mitigate impacts to insignificance is further reduced by the fact that they are subject to waiver, modification and exception, (WEM) and that the criteria for WEM are unlikely to ensure that WEM of stipulations do not result in significant adverse impacts. For example, the 'No Surface Occupancy' stipulation (NSO) that prevents development in mapped Gunnison sage-grouse habitat within 0.6 miles of Gunnison sage-grouse leks will be subject to Waiver, Exception, and Modification criteria (WEMs). "An exception may also be granted by the authorized officer if the proponent, BLM, State wildlife agency, and where necessary, other affected interests, develop non-monetary compensation or mitigation that satisfactorily offsets anticipated impacts to Gunnison sage-grouse habitats and/or breeding activities." There is no discussion of what types of compensation or mitigation would be considered to satisfactorily offset impacts. Previous efforts to offset impacts of energy development by restoring or enhancing sage-grouse habitat have been ineffective, and in some cases have resulted in further negative impact to Gunnison sage-grouse. It is unclear whether there is an effective means by which one could mitigate or compensate for the direct and functional loss of Gunnison sage-grouse habitat. The BLM cannot include a provision that allows destruction of high quality occupied habitat based on some speculative attempt to compensate or mitigate for this damage. The BLM fails to disclose significant adverse impacts that may result from the proposed action if WEM's are allowed within the 0.6 mile buffer around sage-grouse leks.

Occupied sage-grouse habitat within the 0.6 mile buffer of leks may be impacted by geothermal development, and this could result in reductions in habitat quality and quantity and

[72] Add Aldridge citation.

disturbance/displacement of individuals due to human activity. The BLM fails to provide an adequate analysis of all of the impacts that could result from allowing WEMs within the 0.6 mile buffer around leks, and fails to disclose the potential for significant adverse impacts. Allowing WEMs within the 0.6 mile buffer of leks is likely to lead to declines at the six active sage-grouse leks within a 4-mile buffer around the project area, and further contribute to a lower probability of persistence for the Gunnsion sage-grouse.

The BLM also fails to adequately analyze other potential mitigation measures that might effectively mitigate impacts to insignificance, including, but not limited to, a non-waiveable 4 mile NSO buffer around Gunnison sage-grouse leks.

Though application the proposed lease stipulations may prevent direct loss of a small proportion of the Gunnison sage-grouse habitat likely to be impacted by the geothermal footprint, there is no reason to believe that these stipulations will prevent significant impacts on Gunnison sage-grouse due to direct loss of 73% of the habitat associated with each lek (including nesting, brood rearing, and wintering habitat), impacts on leks and breeding populations associated with the placement of energy development structures within 3.9 miles of active leks, declines in lek attendance associated with traffic exceeding 1 vehicle per day within 1.9 miles of leks, behavioral avoidance of crucial nesting habitat in areas with high densities of roads classed 1-4, impacts of cumulative increases in road density and the overall human footprint, and the direct and indirect impacts associated with construction of 5 miles of new transmission line and improvement of existing lines. The BLM provides no rationale describing how the lease stipulations will minimize these likely impacts to insignificance.

Finally, BLM has not provided an adequate analysis of mitigation measures that may be applied at later stages of the geothermal development process (those not included as stipulations on the lease). Depending on future actions to justify BLM's decision is a violation of the NEPA process. BLM must address these resource protection concerns at the leasing stage, particularly given that their ability to add adequate protections at later stages may be limited by lease rights.

The agency cannot rely on broad generalizations and vague references to possible future mitigation measures in making a finding of no significant impact. Rather, the agency is required to detail any mitigation measures that are relied upon to achieve a finding of no significant impact, and provide a detailed description of the mitigation measures that will be undertaken, and a detailed analysis of the effectiveness of such measures. This analysis must be done at the leasing stage, because once the parcel is leased, the agency is constrained in additional mitigation measures that can be applied, as any measures at that stage must be consistent with lease rights granted.

f. The BLM Should Have Prepared an Environmental Impact Statement Due to the Effects of this Leasing on the Gunnison Sage-Grouse:

The BLM should have prepared an Environmental Impact Statement ("EIS") analyzing the leasing of these parcels. In addition, the BLM should have either considered the impacts of geothermal development on Forest Service lease parcels in its analysis of cumulative impacts in an EIS; or considered the geothermal leasing proposed on adjacent Forest Service and BLM

parcels to be connected actions and prepared a joint BLM/FS EIS that considered the impacts of leasing and subsequent development on both parcels. Further, BLM should have analyzed the effects of amending the Gunnison RMP on the entire management area. An analysis of this amendment on the entire resource planning area could have only been done through the creation of an EIS. BLM inappropriately limited the scope of their analysis in an attempt to circumvent the need to create an EIS.

NEPA requires federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment...." *42 U.S.C.§ 4332(2)(C).* "[C]ourts have uniformly held that NEPA's EIS procedure applies where the federal government grants a lease." *City and County of Denver By and Through Bd. of Water Com'rs v. Bergland*, 517 F.Supp. 155, 200 (D.Colo. 1981). "CEQ regulations require that "connected" or "closely related" actions "be discussed in the same impact statement." *40 C.F.R. § 1508.25(a)(1)*, and that "significance cannot be avoided by terming an action temporary or breaking it down into small component parts." *40 CFR 1508.27(b)(7).*"One of the primary reasons for requiring an agency to evaluate "connected actions" in a single EIS is to prevent agencies from minimizing the potential environmental consequences of a proposed action (and thus short-circuiting NEPA review) by segmenting or isolating an individual action that, by itself, may not have a significant environmental impact." *Citizens' Committee to Save Our Canyons v. U.S. Forest Service*, 297 F.3d 1012, 1028 (10th Cir. 2002). BLM's National Environmental Policy Handbook (*H-1790-1)* lists actions that normally require preparation of an EIS. [S]team-electric power plants are one of the actions on that list. *H-1790-1 at 70.* The BLM determination that actions resulting from the decision in question do not constitute major Federal actions significantly affecting the quality of the human environment, and that an EIS is therefore not required, is arbitrary and

capricious. There are a number of flaws in the rationale outlined in the BLM Decision Notice (DN) and Finding of No Significant Impact (FONSI) for the above determination. The conclusion that "Neither the Proposed Action nor Alternative 3 will have a significant effect on the human environment." (DN pgs. 9, FONSI pg. 2), is arbitrary and capricious. As discussed previously in this protest, amending the RMP and allowing leasing and subsequent geothermal development is likely to result in short and long-term significant impacts on the local Gunnison sage-grouse population. The RMP amendment covers substantial amounts of land that were not analyzed within this EA. The Decision Notice is not limited to this specific project, yet was based on analysis of only the proposed BLM lease parcel. An EIS should have been prepared that analyzed all the areas managed by the Gunnison RMP that are open to geothermal development.

The statement that the area of the decision does not contain unique characteristics (FONSI pg. 3) is arbitrary and capricious. Our comments on the BLM EA clearly establish that the area is ecologically critical due to its significance as key habitat for the globally critically imperiled Gunnison sage-grouse. *(comments on the EA at 3-8).* Significant new information also indicate that the area includes crucial nesting habitat for Gunnison sage-grouse, which is defined as habitat that is necessary for the survival and long-term viability of Gunnison sage-grouse.[73] Further, the FWS considers all occupied habitat for Gunnison sage-grouse to be critical habitat, and will include all occupied habitat in delineation of critical habitat in early 2012 (FWS comments at Gunnison sage-grouse candidate conservation agreement biology team meeting,

[73] Insert footnote – Aldridge et al. 2011.

December 2011). The BLM EA does adequately analyze the potentially significant direct, indirect and cumulative impacts to critical, and therefore ecologically significant, Gunnison sage-grouse habitat. Further the Waunita lek is the only location in the world where the public has an opportunity to view the Gunnison sage-grouse. The BLM EA does not adequately disclose potentially significant direct, indirect and cumulative impacts to the persistence of the population that uses this lek, and therefore does not adequately analyze the potentially significant impact of loss of the only location where the public can view the Gunnison sage-grouse.

The effects of the proposed action on Gunnison sage-grouse are highly controversial. There is scientific controversy and uncertainty regarding the likely impacts of the proposed action on Gunnison sage-grouse, the likely efficacy of lease stipulations and other mitigation measures applied to minimize impacts, and the degree to which the proposed project is likely to contribute to local and regional population declines. In addition, there is scientific and philosophical controversy regarding what the target population size should be for the Gunnison Basin population in order to ensure long-term persistence of this population, and whether areas of Gunnison sage-grouse habitat on public lands should be set aside as reserves that are free from development. Scientists recommend holistic management approaches including conserving existing habitats and populations, combined with restoring habitat to maintain population persistence (Wisdom et al. in press, EA pg. 55). The proposed action is not consistent with these recommendations, and thus there is substantial uncertainty and controversy regarding whether the proposed action will contribute to the risk of loss of the Gunnison Basin population and extinction of the species. The conclusion that the effects of the proposed action are not highly controversial (FONSI pg. 3) is arbitrary and capricious.

Further, there is substantial uncertainty regarding how geothermal development will impact Gunnison sage-grouse, and the proposed action involves unique or unknown risks to Gunnison sage-grouse. The effects of energy development (and geothermal development in particular) on Gunnison sage-grouse have never been studied. Some predictions regarding impacts can be made from what is known about Gunnison sage-grouse biology and from understanding of research on the impacts of other types of energy development on greater sage-grouse. However, it is not known how impacts of geothermal development to Gunnison sage-grouse may differ based on a likely greater sensitivity to impacts, differences between geothermal development and other types of development (e.g. oil and gas) whose impacts have been better studied. In addition, there are unique risks associated with allowing development in habitat for a population that has already declined to the point where it has no strongholds and is at low risk of extirpation, even without any further reduction in numbers (Wisdom et al, in press, EA pg. 55). The conclusion that the possible effects of the proposed action are not highly uncertain, and do not involve unique or unknown risks (FONSI pg. 3), is arbitrary and capricious.

The determination that the proposed action will not result in cumulatively significant impacts (FONSI pg. 4) is arbitrary and capricious for the reasons outlined previously in our comments and in this protest.

For the reasons outlined above, the actions resulting from the decision in question constitute major Federal actions significantly affecting the quality of the human environment, and an EIS is required.

Finally, the leasing of the BLM parcels and the Forest Service parcels are connected actions which should be considered jointly in a combined BLM/FS EIS. The nominated parcel consisted of 3,765 acres of Forest Service lands, 4,586 acres of BLM land, and 400 acres of private land with federal mineral estate. The total federal land proposed for leasing in these EAs is 8,351 acres. The leasing of these two parcels are connected actions since the entirety of both parcels was nominated to BLM. BLM and the Forest Service failed to analyze the affects of leasing an 8,351 acre parcel on the human environment. The cumulative effects section of the EA does not adequately analyze the total impacts of leasing the combined parcels. Preparing separate EAs for the BLM and Forest Service parcels failed to give an accurate analysis of the proposed leasing and anticipated development of this sensitive land. Analyzing smaller parcels allowed these agencies to give the appearance that leasing would not significantly affect the human environment. This expressly violates 40 CFR 1508.27(b)(7). An EIS is necessary to determine how leasing the whole 8,351 acres will affect the human environment.

g. The BLM failed to Prevent Undue and Unnecessary Degradation to Gunnison sage-Grouse Populations and Has Failed to Meet its Obligations Under BLM Manual 6840:

The BLM has a duty under the Federal Land Policy and Management Act ("FLPMA") to prevent unnecessary and undue degradation to the lands under its management. "In managing the public lands the [Secretary of Interior] shall, by regulation or otherwise, take any action

necessary to prevent unnecessary or undue degradation of the lands." *43 U.S.C. § 1732(b)*. The use of the imperative language "shall" makes clear that Congress intended to leave the Secretary no discretion in administering the Act. NRDC v. Jamison, 815 F. Supp. 454, 468 (D.D.C. 1992). "The court in Mineral Policy Ctr. v. Norton [found] that in enacting FLPMA, Congress's intent was clear: Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary . . . is undue or excessive." Mineral Policy Ctr. v. Norton, 292 F. Supp. 2d 30, 43 (D.D.C. 2003). In addition, that court held that "FLPMA, by its plain terms, vests the Secretary of the Interior with the authority – and indeed the obligation – to disapprove of an otherwise permissible . . . operation because the operation though necessary . . . would unduly harm or degrade the public land." Id. at 49.

The purpose of Section 6840 of the BLM Manual is to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are:
(1) species listed or proposed for listing under the Endangered Species Act (ESA), and
(2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA
The objectives of the special status species policy are:
A. To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species.

B. To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA. [see exhibit 10].

The Gunnison sage-grouse is a BLM sensitive species that is to be managed to promote its conservation and minimize the need for listing under ESA, in accordance with BLM's special status species policy (BLM Manual 6840).

Allowing development in occupied Gunnison sage-grouse habitat is a violation of FLPMA and the BLM manual. This development is going to hinder the chances of this population's rebound. The FWS has announced that this species is likely to become extinct in the foreseeable future. BLM is acting arbitrarily and capriciously by leasing these parcels for geothermal development.

Geothermal and Oil and Gas Parcels:

VI. Federal Land Policy Management Act

A. BLM Must Prevent Unnecessary or Undue Degradation

The BLM has a duty under the Federal Land Policy and Management Act ("FLPMA") to prevent unnecessary and undue degradation to the lands under its management. "In managing the public lands the [Secretary of Interior] shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). The

use of the imperative language "shall", makes clear that Congress intended to leave the Secretary no discretion in administering the Act. *NRDC v. Jamison*, 815 F. Supp. 454, 468 (D.D.C. 1992). "The court in *Mineral Policy Ctr. v. Norton* [found] that in enacting FLPMA, Congress's intent was clear: Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary . . . is undue or excessive." *Mineral Policy Ctr. v. Norton*, 292 F. Supp. 2d 30, 43 (D.D.C. 2003). In addition, that court held that "FLPMA, by its plain terms, vests the Secretary of the Interior with the authority – and indeed the obligation – to disapprove of an otherwise permissible . . . operation because the operation though necessary . . . would unduly harm or degrade the public land." *Id.* at 49.

Leasing the protested parcels as proposed will result in unnecessary and undue degradation to rare and imperiled species and their habitat, including the Gunnison sage-grouse, Gunnison's prairie dog, and Canada Lynx. Lands of high conservation value that may be significantly impacted by the proposed leasing include CNHP designated PCAs.

B. BLM Must Mitigate Adverse Effects

The BLM must mitigate the adverse effects on the aforementioned imperiled species in order to comply with the "unnecessary and undue degradation" standard of FLPMA. BLM must also mitigate adverse effects on sensitive resources within ACEC and CNHP PCAs *Kendall's Concerned Area Residents*, 129 IBLA 130, 138; *see* 42 C.F.R. 3809.2-1(b). The BLM has failed

to minimize adverse impacts of oil and gas development on the aforementioned species and lands of high conservation value.

C. Consistency

The BLM is violating FLPMA because it is not being consistent with the policies of state, tribal, and other agencies in its conservation policies regarding Gunnison sage-grouse, Gunnison prairie-dog, greater sage-grouse, Colombian sharp-tailed grouse, and Canada lynx. FLPMA requires the BLM to seek to "be consistent with officially approved and adopted resource related policies and programs . . . of other federal agencies, State and local governments and Indian tribes." 43 C.F.R. § 1610.3-2; *see* 43 U.S.C. § 1712(c)(9). The proposed leasing is not consistent with COGCC Regulations and other state, local and federal policies and programs.

VII. Endangered Species Act

The U.S. Fish and Wildlife Service has announced that the Gunnison's sage-grouse will recieve Endangered Species Act protection in the coming months. Leasing parcels in occupied Gunnison's sage-grouse habitat is a violation of BLM's duty to manage its land for multiple uses. One reason for the listing determination was a lack of regulatory mechanisms to protect this species. BLMs actions in leasing occupied habitat for energy development further demonstrates the agencies lack of protective mechanisms. This geothermal leasing is going to contribute to the need to list the species. Consultation with FWS should have been conducted to ensure adequate protection for this candidate species.[74]

A. Duty to Conserve and Duty to Engage in Recovery Planning

In addition to consultation requirements, federal agencies are bound by two affirmative obligations under the ESA. Section 7(a)(1) states that federal agencies shall "seek to conserve [listed] species and shall utilize their authorities in furtherance of the purposes of [the] Act." 16 U.S.C. § 1536(a)(1). A number of courts have held that the duty to conserve imposes an independent duty upon agencies to give the conservation of a listed species top priority. *Carson-Truckee Water Conserv. Dist. v. Watt*, 549 F. Supp. 704 (D. Nev. 1982) *citing TVA v. Hill*, 437 U.S. 153, 184 (1978); *Bensman v. U.S. Forest Serv.*, 984 F. Supp. 1242, 1246 (D. Mont. 1997). The ESA also states that the Secretary "shall develop and implement plans for the conservation and survival [of listed species] unless he finds that such a plan will not promote the conservation of the species." 16 U.S.C § 1533(f)(1).

VIII. BLM has Discretion to Not Lease

Under the statutory and regulatory provisions authorizing this lease sale, the BLM has full discretion over whether or not to offer these lease parcels for sale. The Mineral Leasing Act of 1920 ("MLA") provides that "[a]ll lands subject to disposition under this chapter which are known or believed to contain oil and gas deposits *may* be leased by the Secretary." 30 U.S.C. § 226(a) (2009) (emphasis added). The Supreme Court has concluded that this "left the Secretary

[74] FWS comments on the proposed Little Snake Field Office RMP at http://rockymountainwild.org/_site/wp-content/uploads/FWS-Comments.pdf

discretion to refuse to issue any lease at all on a given tract." *Udall v. Tallman*, 380 U.S. 1, 4 (1965); *see also Wyo. Ex rel. Sullivan v. Lujan*, 969 F.2d 877 (10th Cir. 1992); *McDonald v. Clark*, 771 F.2d 460, 463 (10th Cir. 1985) ("While the [Mineral Leasing Act] gives the Secretary the authority to lease government lands under oil and gas leases, this power is discretionary rather than mandatory y."); *Burglin v. Morton*, 527 F.2d 486, 488 (9th Cir. 1975).

Submitting a leasing application vests no rights to the applicant or potential bidders. The BLM retains the authority not to lease. "The filing of an application which has been accepted does not give any right to lease, or generate a legal interest which reduces or restricts the discretion vested in the secretary whether or not to issue leases for the lands involved." *Duesing v. Udall*, 350 F.2d 748, 750-51 (D.C. Cir. 1965), *cert. den.* 383 U.S. 912 (1966); *see also Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1230 (9th Cir. 1988); *Pease v. Udall*, 332 F.2d 62, 63 (9th Cir. 1964); *Geosearch v. Andrus*, 508 F. Supp. 839, 842 (D.C. Wyo. 1981).

The arguments set forth in detail above demonstrate that exercise of the discretion not to lease the protested parcels is appropriate and necessary. Withdrawing the protested parcels from the lease sale until BLM has met its legal obligations to conduct an adequate NEPA analysis by responding to public comments, upheld the requirements of the Endangered Species Act, and met the requirements of IM 2010-117 and other BLM regulations is a proper exercise of BLM's discretion under the MLA. The BLM has no legal obligation to lease the disputed parcels and is required to withdraw them until the agencies have complied with the applicable law.

IX. Conclusion & Request for Relief

The Protesting Parties therefore requests that the BLM withdraw the protested parcels from the February 2012 lease sale.

Sincerely,

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Attachments:

Attachment 1: BLM RMP Amendment Protest
Attachment 2: Forest Service Geothermal Appeal
Attachment 3: BLM Geothermal IBLA Appeal Statement of Reasons
Attachment 4: RMW Internal Screen Results
Attachment 5: Wisdom et. al.
Attachment 6: Naugle et. al.
Attachment 7: Aldridge et. al.
Attachment 8: Rocky Mountain Wild Map of Aldridge Crucial Nesting Habitat

Attachment 1

Protest of Decision of the Bureau of Land Management Gunnison Field Office

RE: Proposed Decision to Amend Geothermal Lease Stipulations in the Gunnison Resource Area Approved Resource Management Plan

DATED this 22nd day of April, 2011

Background:

On March 24, 2011, Bureau of Land Management (BLM) State Director Helen Hankins signed the Decision Record ("DR") to amend certain geothermal lease stipulations in the Gunnison Resource Area Approved Resource Management Plan. This decision was based on an Environmental Assessment (DOI-BLM-CO-S060-2010-0030-EA) ("EA") analyzing the affects on the natural and human environment.

Center for Native Ecosystems (CNE), WildEarth Guardians, The Wilderness Society, and Colorado Wild have members who enjoy the Gunnison sage-grouse and the habitat affected by this leasing decision. Appellants submitted scoping comments and comments to the proposed EA with dozens of documents and research findings to be considered for this NEPA process as it was developed.

Protestors will demonstrate that the BLM State Director's decision is arbitrary and capricious and not in accordance with the legal requirements of federal statutes and regulations. Consequently, Protestors requests that the DR be withdrawn, a proper and defensible NEPA process be conducted and a new decision issued that protects our public

defensible NEPA process be conducted and a new decision issued that protects our public resources.

THE Protesting Parties:

Center for Native Ecosystems works to conserve and recover the native species and ecosystems of the Greater Southern Rockies using the best available science. Center for Native Ecosystems and the undersigned organizations are very concerned about the potential impacts of the proposed geothermal leasing and subsequent geothermal energy development on the Gunnison sage-grouse and other wildlife species.

Colorado Wild is a non-profit organization formed in 1998 to protect, preserve, and restore the native plant and animals of the Southern Rocky Mountains, focusing its efforts on habitat protection in the forested high country. We have approximately 650 members throughout Colorado and in other states. We regularly and systematically review proposed projects and plans for Colorado's national forests, BLM actions, and regulations proposed for federal lands.

WildEarth Guardians is a Santa Fe, New Mexico-based nonprofit organization with offices in Denver and Phoenix, and more than 4,500 members throughout the American West. WildEarth Guardians is dedicated to protecting and restoring the wildlife, wild places, and wild rivers of the American West. WildEarth Guardians has members throughout the American West, including Colorado, that utilize and enjoy for recreation, aesthetics, and wildlife viewing, the area that will be affected by the proposed decision to

allow leasing of land in the Gunnison Basin for geothermal development. WildEarth Guardians and its members will be harmed if the Forest Service moves forward with the project as proposed due to its impacts to wildlife.

The Wilderness Society is a national organization with more than a half a million members and supporters nation-wide, and an active membership in Colorado. Our staff, volunteers and members enjoy birding and recreation activities in the Gunnison basin, and have participated in volunteer efforts to conserve Gunnison sage grouse. The mission of The Wilderness Society is to protect wilderness and inspire Americans to care for our wild places. We have worked for more than 70 years to maintain the integrity of America's wilderness and public lands and ensure that land management practices are sustainable and based on sound science to ensure that the ecological integrity of the land is maintained. The Gunnison sage grouse is of particular relevance to our Dolores River Basin program, where preservation of this species is a conservation priority.

We generally advocate for development of renewable energy sources, and recognize the importance of developing geothermal resources in Colorado. However, as with any industrial development, geothermal energy production and transmission can negatively impact rare and imperiled wildlife and plant species and compromise the health of ecosystems. Thus, the development of renewable resources will not be appropriate everywhere, and will require careful consideration of the tradeoffs between the benefits of renewable energy development and potential impacts on rare and imperiled species and other sensitive resources at sites of proposed development. When leasing lands for renewable energy development, and siting renewable energy facilities, public land

renewable energy development, and siting renewable energy facilities, public land management agencies should avoid key habitat for rare and imperiled species. Agencies should also avoid and minimize impacts to ecosystem health and important habitat for less sensitive wildlife and plant species. Public land management agencies should also ensure that such developments consider the need to protect and restore connectivity. Finally, public land agencies should provide for public involvement at all stages of the process of approving renewable energy development.

CNE and the undersigned organizations have a long-standing interest in the conservation of Gunnison sage-grouse, Canada lynx, and other sensitive species. Many of our members regularly visit Gunnison sage-grouse habitat and seek opportunities to view Gunnison sage-grouse. The elaborate courtship display of Gunnison sage-grouse is one of the most captivating wildlife watching experiences in North America. The Waunita lek is the only place where the public can view the courtship display of Gunnison sage-grouse. Many of our members have visited the Waunita lek to enjoy watching the courtship dance of the Gunnison sage-grouse, and the surrounding area to view Gunnison sage-grouse habitat and the many other species that share sagebrush uplands inhabited by sage-grouse, as well as other plants and wildlife on public lands managed by both the Forest Service and Bureau of Land Management in the area. For example, one of our members viewed the Gunnison sage-grouse conducting their mating dance at the Waunita lek, and watched Gunnison's prairie dogs, golden eagles, and other birds and wildlife on the lease parcels on April 13th. We intend to return to this area regularly in the future. CNE and Wild Earth Guardians are part of the coalition of organizations that filed a

petition asking the U.S. Fish and Wildlife Service (FWS) to protect the Gunnison sage-grouse under the Endangered Species Act. CNE was also a part of the coalition that filed a petition asking the FWS to give the Gunnison prairie dog ESA listing status. CNE and the undersigned organizations also regularly participate in public land management decisions on Forest Service and Bureau of Land Management Lands that affect Gunnison sage-grouse and other sensitive wildlife and plant species.

CNE has invested significant time, resources and effort at each stage of this process by providing considerable input of research, analysis, and agency reports. Although we brought to the decision-maker's attention a number of significant issues in the underlying assumptions of the analysis, as well as specific details of the process; our requests were not granted.

We incorporate by reference all of the points raised in our comments as they apply to the following protest points.

STATEMENT OF REASONS:

The BLM has acted arbitrarily and capriciously and abused its discretion for the following reasons:

a. **The purpose and need for the proposed action is inappropriately narrow and the BLM failed to consider an adequate range of alternatives:**

The purpose and need section for the proposed action is inappropriately narrow. The purpose and need for this action is "to make public lands geothermal resources in the analysis area available for lease in a manner that protects public land resources and resource values and mitigates impacts on other land uses while helping to meet the increasing interest in geothermal energy development. In addition, the purpose is to amend the RMP to include additional lease stipulations necessary to protect resources and resource values, particularly for Gunnison sage-grouse and its habitat, and to mitigate impacts on other land uses." *EA at 6* The BLM NEPA handbook explains that "...the purpose and need statement as a whole describes the problem or opportunity to which the BLM is responding and what BLM hopes to accomplish by the action (*BLM's NEPA Handbook, H-1601-1, Section, 6.2, page 35 available at http://www.blm.gov/pgdata/etc/medialib/blm/wo /Information_Resources_Management/policy/blm_handbook.Par.24487.File.dat/h1790-1-2008-1.pdf*)" The BLM manual provides the following direction for development of purpose and need statements: "...the purpose and need statement cannot be arbitrarily narrow..., and "...the purpose and need for the action is usually related to achieving the goals and objectives for the [Land Use Plan]; reflect this in your purpose and need statement". *Id.* BLM failed to adequately incorporate the balance between energy development and Gunnison sage-grouse conservation in this purpose and need statement.

BLM Instructional Memorandum No. CO-2010-028 establishes that Gunnison sage-grouse are to be managed to promote their conservation and minimize the need for listing under the ESA. *IM No. CO-2010-028 at 2.* The IM further states that "[f]or GUSG, "core"

habitat will be areas of currently occupied habitat supporting Gunnison Sage-grouse populations, including those smaller populations that are vulnerable to localized extirpation but necessary to maintain range-wide connectivity and genetic diversity." The Gunnison RMP states that "Sagebrush and riparian vegetation on public lands would be managed to support approximately 9,000 sage grouse. Identified sage grouse habitat, including nesting, brood rearing, and wintering areas, would be maintained or improved. Sage grouse strutting grounds, or leks, would be protected by seasonally restricting or excluding surface-disturbing activities." *RMP at 1-3.* BLM is a signatory to the Gunnsion Sage-grouse Rangewide Conservation Plan. "The Gunnison Sage-grouse Rangewide Conservation Plan (RCP) is intended to help reach the goal of increasing the current abundance and viability of Gunnison sage-grouse and their habitat." *RCP at 4.* These goals should have been included in the purpose and need section of this Geothermal EA.

BLM arbitrarily limited the purpose and need of the project as the leasing of the parcels in question. The BLM should have been defined the purpose and need more broadly, balancing the RMP and BLM policy objective of facilitating renewable energy development, particularly geothermal development in the Gunnison Field Office, with the equally important RMP and BLM policy objective of maintaining and increasing Gunnison sage-grouse populations. As a consequence of this inappropriately narrow purpose and need statement, the BLM failed to analyze an adequate range of alternatives. Alternatives that should have been analyzed include: 1) delineation and protection of priority/core habitat, 2) maximizing the conservation of sagebrush habitat, 3) closing core/priority habitat to energy development throughout the whole planning area, 4) protect all core/priority Gunnison sage-grouse habitat as a reserve set-aside from energy

development, 5) an alternative that maximizes the conservation of sagebrush in the entire planning area, and 6) considered whether they could accomplish their geothermal energy objective by providing for geothermal leasing opportunities outside of core sage-grouse habitat. The purpose and need for this project should have been broader to incorporate the balance between geothermal development and sage-grouse conservation throughout the planning area. This inappropriately narrow purpose and need section renders the subsequent NEPA analysis arbitrary and capricious.

b. The BLM improperly limited the geographic scope and analysis in the EA:

The geographic scope of the analysis area in the EA is too small to adequately analyze the issues related to the Decision Record that was issued. Further, the proposed action stated in the EA is not consistent with the Decision Record that was issued. The EA declares that the proposed action is "to offer leases for geothermal resources on the federal mineral estate and to attach lease stipulations necessary to protect resource values." The Decision Record indicates that the BLM will "Amend Geothermal Lease Stipulations in the Gunnison Resource Area Approved Resource Management Plan." *See Decision Record.* Defining geographic boundaries and issues for analysis in the EA must be appropriately tailored to the decision being made. The Decision that was made was much broader than the proposed action. Amending the RMP will affect lands outside the analysis area in this EA and affect resources that were not properly analyzed.

The Gunnison RMP covers 614,233 acres of BLM land. The Geothermal Programmatic Environmental Impact Statement (PEIS) closed 164,408 acres in the Gunnison field office to geothermal development. This leaves 449,825 acres open to geothermal development in lands managed by the Gunnison RMP. BLM improperly limited its analysis to 5,525 acres. The geographic boundary of the analysis area cannot allow for the "hard look" necessary for proper NEPA analysis. BLM must analyze how amending the RMP will affect the entirety of the area managed under the Gunnison RMP. This type of comprehensive analysis would require a much broader analysis area to consider the affects on all areas open to geothermal development. The decision to amend the RMP was based solely on an analysis of 1.2% of the area affected by the amendment. Deciding to amend the Gunnison RMP based on analysis of a very small portion of that managed area is arbitrary, capricious, and an abuse of discretion.

c. The decision is inconsistent with BLM IM 2009-071 and BLM CO IM 2010-028:

BLM is not adhering to the policies announced in BLM IM 2009-071 and BLM CO IM 2010-028. BLM IM 2009-071 directs that when necessary to maintain sustainable sage-grouse populations across the broader landscape within the state, field managers will implement an appropriate combination of the following actions in "priority habitat". BLM IM 2009-071 declares that within "priority habitat", BLM should "Withhold from sale or defer the sale of parcels, in whole or in part, that industry has proposed for oil and gas or geothermal leasing in priority habitat as supported by analysis under the National Environmental Policy Act (NEPA) of the impacts of leasing on sage-grouse, and in RMP revisions and amendments, analyze one or more alternatives that would exclude priority

habitat from energy development and transmission projects." BLM CO IM 2010-028 explains "For the purposes of this IM, "core habitat" refers to those areas of highest conservation value as identified by BLM Colorado and CDOW and may include previously identified core, key or priority habitat designations. For [Gunnison sage-grouse], "core" habitat will be areas of currently *occupied habitat* supporting Gunnison Sage-grouse populations, including those smaller populations that are vulnerable to localized extirpation but necessary to maintain range-wide connectivity and genetic diversity." *(emphasis added)* BLM CO IM 2010-028 recognized that the Gunnison sage-grouse populations have declined to the point where all occupied habitat is considered "core" habitat and they acknowledge that this includes "priority habitat". BLM has failed to properly implement the mandates of these IMs throughout the environmental analysis of the currently proposed leasing.

BLM has not given the habitat within these parcels the conservation value that is necessary. This habitat fulfills the IMs definitions of "core habitat" and "priority habitat" and should be protected as such. BLM should withhold from leasing the proposed parcels due to the affect leasing and subsequent development will have on the Gunnison sage-grouse population. The EA should have also analyzed alternatives that would exclude priority habitat from energy development and transmission projects. Instead, BLM amended the Gunnison RMP without considering how the Gunnison sage-grouse will be protected throughout this management area. Amending the RMP without this comprehensive level of analysis is inconsistent with these IMs. BLM failed to consider the range wide affects of leasing this parcel. The analysis that supported BLM's decision is not consistent with the level of inquiry required by these IMs. BLM did not consider how amending the RMP will affect the Gunnison sage-grouse throughout the management area. This analysis must be completed in order to take the "hard

look" required by NEPA prior to amending the Gunnison RMP. Since BLM failed to properly follow these IMs and conduct the proper analysis prior to making this decision, it is arbitrary, capricious, and an abuse of discretion.

d. The BLM has failed to consider the best available science in its EA:

The decision is based on information in the EA that does not represent the best available science regarding the Gunnison sage-grouse. The BLM is required to operate under the best available science standard when implementing projects. *42 U.S.C. §4332.*

The BLM tiered this EA to the Final PEIS for Geothermal Leasing in the Western U.S. (Geothermal PEIS). This document was created in October, 2008. The BLM also depends on the findings and recommendations in the Gunnison Sage-grouse Rangewide Conservation Plan *(RCP),* which was signed by BLM on April, 2005. These documents are outdated and do not represent the best available science that should be used in assessing the impacts of geothermal energy development on Gunnison sage-grouse. At the time of publication, the RCP relied heavily on research on greater sage-grouse in developing conservation recommendations for Gunnison sage-grouse, due to a lack of adequate research on some aspects of Gunnison sage-grouse biology. This is appropriate because the two species are closely related. At the time of publication of the RCP, there was little research on the impacts of energy development on either species of sage-grouse. Since that time, a significant body of new peer-reviewed research on the impacts of energy development on greater sage-grouse has been published (see *CNE et al. comments on EA at 14-21*). There is still little or no information on the impacts of energy

development on Gunnison sage-grouse. However, the findings of the research on the impacts of energy development on greater sage-grouse are likely applicable to Gunnison sage-grouse. Both species are highly sensitive to disruptions in their habitat and suffer from similar threats. In addition, significant information on the status and probability of persistence of Gunnison sage-grouse populations has been cited in the EA, but has not been adequately considered in determining whether the geothermal development will result in significant adverse impacts on Gunnison sage-grouse. (Wisdom et al. in press, EA pg. 55).

The best available science suggests that the mitigation measures outlined in the Rangewide Conservation Plan, and adopted in the BLM EA, may not be adequate to prevent significant adverse impacts of geothermal exploration and development on Gunnison sage-grouse. Indeed, this significant new information suggests that the viability of the Gunnison Basin population is already compromised, and that the proposed action will further contribute to a lower probability of persistence of the species. We detailed this significant new information in our comments on the EA. (*CNE EA comments at 15-22, 26-28*). The BLM states that it has considered this significant new information (for e.g., see EA, response to comments pg. 188-189). However, it is clear that this is not the case, as the BLM fails to: 1) cite the relevant conclusions from the recent research on the impacts of energy development on greater sage-grouse, 2) disclose adverse impacts that the recent science indicates are likely, 3) consider the recent science in analyzing the effectiveness of the proposed lease stipulations, and 4) consider the significance of potential adverse impacts in light of current low probability of persistence of the

Gunnison sage-grouse populations. Specific examples of failure to consider significant new information are given in subsequent sections of this protest and in the comments that we submitted previously. It is important to note that the BLM and CDOW have acknowledged that the range-wide conservation plan needs to be updated or supplemented to take into account a substantial body of new scientific information (personal communication, BLM State Director Helen Hankins November 9, 2010; personal communication Jeff VerSteeg, December 1st 2010). The range-wide plan steering committee is planning to meet in the near future to discuss the need to update the range-wide conservation plan. The BLM has improperly relied entirely on the Gunnison sage-grouse range-wide conservation plan in analyzing impacts and developing lease stipulations to conserve Gunnison sage-grouse in the face of geothermal development. The BLM must consider significant new information and meet the best available science standard. If the BLM has considered the body of recent research we submitted in our comments on the EA, and decided that it is not relevant in predicting impacts and developing lease stipulations and other mitigation measures, the BLM must describe its rationale for this determination in detail, rather than simply asserting that it has considered the best available science.

The BLM failed to consider the best available science in the U.S. Fish and Wildlife Service's September 28, 2010 12-month finding detailing their rationale for their determination that the Gunnison sage-grouse is a candidate for listing under the Endangered Species Act. This finding and the citations therein constitute a summary of the bulk of the best available science, including recent research that was not considered at the time of publication of the Gunnison Sage-grouse Rangewide Conservation Plan.

Much of this information is directly relevant to determining the likely direct, indirect and cumulative impacts of the proposed geothermal development on Gunnison sage-grouse, and very little of this information was considered in the BLM's EA for the proposed geothermal development. The BLM EA did not adequately consider the information in the finding itself, or in the relevant research cited in the finding. We will highlight some of the specific instances where BLM failed to consider the relevant information in the FWS finding. In addition, the findings recent research conducted by Dr. Cameron Aldridge and others, contain significant information that is essential to an adequate analysis of the likely the direct, indirect and cumulative impacts of the proposed project on Gunnison sage-grouse. This study is in press and will be published and available to the public in the near future. Although this study is not currently available to the public, some of the relevant findings of the study are outlined in the U.S. Fish and Wildlife Service finding (*75 FR 59804*), which was available to BLM at the time that they made their decision. BLM was clearly aware of the findings of Aldridge et al. 2010, since it was cited in the U.S. Fish and Wildlife Service finding which BLM reviewed in this NEPA process. *75 FR 59815.* Presumably the author would have shared the findings with BLM had they requested the information, given that the findings were shared with the U.S. Fish and Wildlife Service. In addition, the findings of this study were presented by Dr. Aldridge in a presentation titled "Modeling Management Priorities for Sagebrush Habitats" at the Third Annual Gunnison Sage-Grouse Summit, on April 13, 2011. BLM staff from the Gunnison Field Office were present at the Summit. We will detail some of the relevant findings of Aldridge and others, as summarized in the FWS finding and

presented at the Third Annual Gunnison Sage-grouse Conservation Summit, elsewhere in this protest. When we refer to Aldridge et al. 2010 and 2011 throughout this protest, we are referring to the information on this research that we obtained from the summary in the FWS finding and from the presentation at the Third Annual Gunnison Sage-grouse Conservation Summit. Several additional presentations at the Gunnison Sage-grouse Summit detailed information that was: 1) directly relevant to determining the likely impacts of the proposed action, 2) available to BLM at the time that it made its decision, and 3) not adequately considered in the BLM EA, including (but not limited to) the following talks:

- Demography and Dispersal of Gunnison Sage-grouse, Dr. Mike Phillips Colorado Division of Wildlife, April 12, 2011
- Effect of Human Noise on Lekking Gunnison sage-grouse, Tyler Hicks, M.S. Candidate, Washington State University, April 12, 2011
- Nest Success in the Gunnison Basin, Amy Davis, Ph.D. candidate, Colorado State University, April 12, 2011

We will detail some of the relevant findings of the above research projects (as presented at the Third Annual Gunnison Sage-grouse Conservation Summit) elsewhere in this protest.

e. The decision fails to adequately analyze the direct, indirect, and cumulative affects of leasing this parcel:

NEPA dictates that BLM take a "hard look" at the environmental consequences of a proposed action and the requisite environmental analysis "must be appropriate to the action in

question." *Metcalf v. Daley*, 214 F.3d 1135, 1151 (9th Cir. 2000); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989). In order to take the "hard look" required by NEPA, BLM is required to assess impacts that include: "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, *whether direct, indirect, or cumulative*." 40 C.F.R. § 1508.8 (emphasis added). "[C]umulative impact analysis must be timely. It is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now." *Kern v. US. Bureau of land Management*, 284 F.3d 1062, 1075 (9th Cir. 2000). The BLM failed to adequately analyze potential direct, indirect, and cumulative impacts of the proposed leasing and RMP amendment on the Gunnison sage-grouse throughout the planning area.

"In determining the scope of the required NEPA analysis, an agency must consider not only the proposed action, but also three types of related actions – 'connected actions', similar 'actions', and 'cumulative actions'. *40 C.F.R. 1508.25(a).* "Cumulative actions" are those" which when viewed with other proposed actions have cumulatively significant impacts." *Id. at 1508.25 (a)(2).* Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. 40 C.F.R. 1508.27 (b)(7). It is not appropriate to defer consideration of cumulative impacts when meaningful consideration can be given now. *See; Neighbors of Cuddy Mountain v. United States Forest Service,* 137 F.3d 1372, 1380 (9th Cir. 1998); *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312-1313 (9th Cir. 1990)

The scope of the BLM analysis of indirect and cumulative impacts on Gunnison sage-grouse is inappropriately narrow, and the BLM has avoided a finding of significance by breaking down the action into small component parts, analyzing only a small portion of the affected area, failing to consider the impacts of cumulative actions, and deferring consideration of cumulative impacts to a later date, when meaningful consideration can be given now.

The BLM failed to adequately analyze the indirect and cumulative impacts of reasonably foreseeable geothermal development on adjacent geothermal lease parcels on Forest Service, State Land Board, and Private lands on Gunnison sage-grouse. In addition, the BLM failed to adequately analyze indirect and cumulative impacts that will extend beyond the boundaries of these lease parcels, and outside of the boundaries of the BLM cumulative effects analysis area for Gunnison sage-grouse. These indirect and cumulative impacts include: impacts associated with 1) direct and functional loss of a high quality Gunnison sage-grouse habitat on and around the lease parcels, 2) large-scale avoidance of energy development infrastructure by Gunnison sage-grouse, 3) construction of new roads and increased use of existing roads used to access the parcels, 4) construction, upgrade and maintenance of transmission lines, 5) potential for facilitation of the spread of West Nile Virus, noxious weeds and fire, 6) cumulative impacts of past, present and reasonably foreseeable activities on the quality and quantity of sagebrush vegetation and sage-grouse habitat on lands adjacent to the BLM parcel, 7) impacts to Waunita lek and consequences for lek viewing opportunities, and 8) the indirect and cumulative effects of geothermal development, both at the scale of the BLM analysis area considered in the EA, and at appropriate larger scales, including the overall cumulative impact on the Gunnison Basin population. These impacts are reasonably foreseeable impacts and the BLM has the information needed to conduct a meaningful analysis of these impacts at the current time. In addition, the FS must explicitly

meaningful analysis of these impacts at the current time. In addition, the FS must explicitly consider 1) the large body of recent peer-reviewed research that was provided as part of our comments on the EA, (*CNE EA comments at 15-22, 26-28)*, 2) the large body of recent peer-reviewed research summarized and cited in the U.S. Fish and Wildlife Service's September 28, 2010 12-month finding (*75 FR 59804*), and recent relevant research from the Gunnison Basin, including, but not limited to Aldridge et al. 2010 in its analysis of the above impacts. The following paragraphs detail some of the inadequacies of BLM's analysis:

1. The BLM fails to adequately analyze the potential for direct and functional loss of high quality habitat on and around the lease parcels, and the consequence of this for the Gunnison Basin population. The BLM's finding of no significant impact rests on their conclusion that sage-grouse occupied habitat on the nomination area is overall less than average quality relative to sage-grouse habitat throughout the Gunnison Basin, particularly for nesting and early brood rearing, and during winter, and that, in spite of evidence of regular use of the area, it is presumed that the density of sage-grouse on the area is low compared to higher quality habitats elsewhere in the Gunnison Basin (EA pg. 63); and thus that direct and functional loss of this habitat will not result in significant adverse impacts on the Gunnison Basin population. However, this conclusion is in direct conflict with the findings of a recent landscape-scale spatial model predicting Gunnison sage-grouse nesting probability in the Gunnison Basin (Aldridge et al. 2010 and 2011). This model shows that a significant amount of high quality nesting habitat exists on or near the lease application parcels, and in the much larger area surrounding the lease parcels that could experience indirect and cumulative impacts associated with the proposed geothermal development. The BLM's conclusion that

habitat on the lease parcels is of relatively low quality, is based on an analysis of the degree to which small-scale characteristics of the habitat (e.g. sagebrush shrub cover and height, herbaceous cover etc.), align with the habitat guidelines in the Gunnison sage-grouse Rangewide Conservation Plan (EA pg. 58). A number of recent studies of Gunnison sage-grouse nesting habitat find that local scale vegetation characteristics outlined in the habitat guidelines in the Rangewide Conservation Plan fail to predict nest locations or nest success (e.g. Davis, 2011, Gunnison Sage-Grouse Summit Presentation). One possible reason for this may be that nest selection and nest success is determined by landscape-scale factors such as road densities rather than local-scale habitat factors (e.g. Davis, 2011, Gunnison Sage-Grouse Summit Presentation). The BLM does not describe the results of Aldridge et al. 2010/2011, or adequately explain why it still feels that the nesting habitat in the area that will be affected by the proposed geothermal development is of low quality, given these findings, though its response to comments suggests that it is aware of the findings of Aldridge et al. 2010-2011.

Further, the BLM's analysis of habitat quality was limited to the lease parcels, and did not include analysis of the quality of habitat outside of the lease parcels. Gunnison sage-grouse habitat outside of the lease parcels may be indirectly and cumulatively impacted by geothermal development on the lease parcels (see discussion elsewhere in this protest). Modeling done by Aldridge et. al. 2010/2011 suggests that there is a substantial amount of high quality habitat in the areas around the lease parcels. The BLM does not adequately analyze the potential indirect and cumulative impacts of the proposed action on high quality habitat outside of the lease parcels.

Finally, the BLM recognizes that the quality of sage-grouse habitat in the area has been reduced due to past activities authorized by the BLM and FS on and around the lease parcels (EA pg. 56).

Then, instead of considering the known negative impact of past actions on habitat quality in its analysis of cumulative impacts (as required by law) the BLM uses the fact that past actions in the area have reduced habitat quality for Gunnison sage-grouse, to justify its rational that the area constitutes marginal habitat and thus that the proposed project will not have significant adverse impacts on sage-grouse. The BLM must consider the role of past actions in reducing the quality of habitat in the area, in its cumulative effects analysis. BLM should also consider that the quality of this sage-grouse habitat will increase if given the time to mature without development pressures.

2. The BLM fails to adequately analyze the impacts of behavioral avoidance of energy development infrastructure. The BLM notes that sage-grouse may avoid using suitable habitat adjacent to transmission lines, pipelines and roads (EA pg. 62). However, the BLM does not disclose that sage-grouse are likely to avoid using otherwise suitable habitat adjacent to other types of energy development structures, including wells, the geothermal plant, substations, etc. In addition, the BLM does not disclose the amount of suitable habitat that is likely to be avoided adjacent to energy development structures, or the magnitude of the population level impact that can result from behavioral avoidance of energy development infrastructure in otherwise suitable habitat. As a consequence, the BLM underestimates the potential adverse impacts of energy development infrastructure on Gunnison sage-grouse. For example, the BLM does not include information from recent peer-reviewed research relevant to predicting the magnitude of impact that may result from behavioral avoidance of energy development infrastructure. Naugle et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek

results in measureable impacts on sage-grouse leks and breeding populations (*see citation and discussion in our comments on the EA at 17*). In addition, Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day (*see citation and discussion in our comments on the EA at 20*). This information is not included in the EA, though it is obviously relevant to predicting impacts of the proposed project on sage-grouse, and determining the likely effectiveness of lease stipulations, and was provided to the BLM in our previous comment letters.

In addition, the BLM fails to discuss the potential population level consequences of behavioral avoidance of energy development and other cumulative impacts of energy development. For example, recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al. 2009, *see citation and discussion in our comments on the EA at 16-17*) Additional information on the potential for behavioral avoidance of human infrastructure, including roads and other types of infrastructure associated with energy development, some of which is specific to Gunnison sage-grouse, is included in the FWS finding (*75 FR 59804*) and the papers cited in the finding. The BLM did not adequately consider any of the

information in the FWS finding or the papers cited therein regarding the potential for behavioral avoidance of infrastructure. The potential for these types of impacts is not disclosed in the EA, although it is obviously relevant to understanding the impacts of geothermal energy development activities on Gunnison sage-grouse populations, and was provided to the BLM in our comments on the EA.

2. The BLM fails to adequately analyze the indirect and cumulative impacts of increased use of existing roads and construction of new roads for geothermal energy development on Gunnison sage-grouse. The U.S. Fish and Wildlife Service commented that "Habitat fragmentation is one of the most significant threats to the species. We strongly encourage the BLM to avoid additional habitat fragmentation." *(Comments to EA at 175)* Leasing of these parcels will lead to additional habitat fragmentation. Additional indirect effects of roads may result from birds' behavioral avoidance of road areas because of noise, visual disturbance, pollutants, noxious weeds and predators moving along a road. There are existing roads that are outside of the cumulative effects analysis area for impacts to Gunnison sage-grouse in the BLM EA, that are likely to receive substantial increases in traffic volume as a consequence of geothermal development on the parcel. These roads travel through important sage-grouse habitat (including breeding, brood rearing, and wintering habitat), and some are in close proximity to active leks (within fewer than 1.9 miles). In addition, new roads may be required both within and outside of the lease parcels (including the BLM, FS, Private and State Land Board Parcels), and these new roads could be constructed within 0.6 miles of active leks, and through other important sage-grouse habitat, including breeding, brood rearing and wintering habitat). Given that: 1) Recent landscape-scale spatial model predicting Gunnison sage-grouse nest site selection in the Gunnison Basin, showed strong

avoidance of areas with high road densities of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel drive sedan clearance) within 6.4 km (4 mi) of nest sites (Aldridge et al. 2010/2011). The occurrence of Gunnison sage-grouse nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2) (Aldridge et al. 2010/2011), 2) increases in traffic that exceed 1 vehicle per day on roads within 1.9 miles of leks have been shown to result in declines in male lek attendance (Holloran et al. 2005, *see citation in our comments on the EA at 16, 39-40*), 2) sage-grouse may avoid suitable nesting, brood rearing, and wintering habitat in proximity to roads (see citations in our comments on the EA, and see *75 FR 59804* and citations therein), 3) increased traffic can cause sage-grouse mortality due to collision, and 4) that recent research shows that lek viewing noises and trucks on the existing county road near the Waunita lek (a road that is obviously likely to be used to access the parcels), disturb birds on the lek (e.g. cause flushing and other behaviors related to disturbance) (Hicks, 2011, Gunnison Sage-grouse Summit Presentation) ; it is critical to consider how construction of new roads and improvements and increased in traffic on existing roads may impact Gunnison sage-grouse populations. The BLM has not analyzed the potential impacts of increased traffic on these roads on Gunnison sage-grouse populations in light of the above science. The discussion of impacts of roads in the EA is limited to a vague general statement that roads will fragment habitat for Gunnison sage-grouse (EA at 64). The BLM summarizes the mileage of existing roads in the area, and the mileage of new roads likely to be built, but includes little or no analysis of the potential impacts of these roads in light of the science outlined above. There is no discussion of the likely location of roads that will be used to access the project relative to sage-grouse leks or other seasonal sage-grouse habitats. There is no discussion of important potential adverse impacts of such roads in light of the above science, and there is no discussion of the consequences of such impacts to the Gunnison sage-

grouse population given that all habitat in the Gunnison Basin is currently indirectly affected by roads, and existing road densities are negatively affecting the Gunnison Basin population. *75 FR 59804*. The BLM may expect that timing limitations restricting human disturbance during critical seasons will limit impacts of existing roads. However, timing limitations do not apply to operation and maintenance activities, and BLM will not be able to enforce timing limitations on roads that cross lands that are not owned and managed by the BLM. Further, BLM allows for waiver, modification and exception of timing limitations. Finally, timing limitations address only the impacts of disturbance associated with roads, and do not mitigate all of the other potential negative indirect affects of roads discussed above. Thus BLM must provide an adequate analysis of the potential cumulative impacts of construction of new roads, and increased traffic on existing roads likely to be used to access the project area. This analysis should not be deferred to later stages of the permitting process, as it is straightforward to predict: 1) the increase in road density that may result from the proposed project, 2) which of the existing roads are most likely to be used to access the lease parcels, and 3) the likely impacts of increased traffic on these roads. Meaningful analysis of this issue is possible at the current time, and thus cannot legally be deferred to a later date.

3. The BLM has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines that will be needed if geothermal development occurs in the area, and to analyze the cumulative impacts of existing transmission lines combined with reasonably foreseeable upgrade and maintenance of existing lines and construction of new lines. The reasonably foreseeable development scenario projects that five miles of new transmission line will be constructed during the utilization stage to convey geothermal energy produced on the parcels to end users (EA pg. 64). This new transmission line will need to be

connected to a new or existing transmission line (outside of the BLM cumulative effects analysis area for Gunnison sage-grouse) that can handle the electrical output of the geothermal power plant. At a minimum this would require upgrade of an existing transmission line (outside of the BLM cumulative effects analysis area for Gunnison sage-grouse), and may require construction of a new line. The BLM does not adequately analyze the potential indirect and cumulative impacts of transmission line construction, upgrade, and maintenance on Gunnison sage-grouse, either within or outside of the lease parcel. The best available science suggests that construction of new transmission lines, and upgrade and maintenance of existing transmission lines, can have negative impacts on Gunnison sage-grouse. The BLM fails to acknowledge in the EA that transmission lines can: 1) cause sage-grouse mortality due to collisions with lines, 2) facilitate raptor predation by increasing perch sites for raptors, 3) cause sage-grouse to avoid otherwise suitable habitat in proximity to transmission lines, 4) result in direct loss of habitat, 5) result in increased traffic and human disturbance, and 6) facilitation invasion of noxious weeds in sage-grouse habitat (*CNE comments at 12-13, see also 75 FR 59819*) The BLM's analysis of the impacts of transmission lines is limited to an estimate of the amount of surface disturbance likely to result from transmission line construction, and a general discussion of how transmission lines will contribute to fragmentation of Gunnison sage-grouse habitat. The BLM does not adequately analyze a number of potential effects of existing transmission lines in the area on Gunnison sage-grouse, or consider how additional construction, upgrade and maintenance of transmission lines due to the proposed project will contribute to the cumulative effects of existing transmission lines. The BLM does not consider readily available science that provides information that facilitates prediction of the likely potential direct, indirect and cumulative effects of transmission lines. *Id.*

In addition, the BLM has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines on lands outside of the BLM cumulative effects area for Gunnison sage-grouse. Existing and new power lines that may be used to transport electricity from the plant to end users will pass through occupied habitat and in proximity to sage-grouse leks located outside of the BLM cumulative effects area for Gunnison sage-grouse. Construction, upgrade and maintenance of these lines, and associated adverse impacts on Gunnison sage-grouse populations, constitute reasonably foreseeable cumulative impacts of geothermal leasing. At the current time, it is possible to disclose locations of existing transmission lines likely to be used for transport of electricity from the plant, determine whether such lines can currently handle the amount of energy projected to be produced by the plant, determine whether these lines will need to be upgraded, or whether new lines are required, and predict the cumulative impacts of construction, upgrade and maintenance of these lines on Gunnison sage-grouse. Thus, meaningful analysis of this issue is possible at the current time. Transmission lines may result in cumulative adverse impacts to a larger proportion of the overall Gunnison Basin population than is considered in this EA, and BLM must analyze these potential impacts.

The lease stipulations and other mitigation measures in the EA are not adequate to prevent significant direct, indirect and cumulative impacts associated with transmission lines (see further discussion in subsequent sections of this protest).

4. The BLM has failed to adequately analyze the potential indirect and cumulative impacts of the potential for the facilitation of the spread of West Nile Virus due to sump pits which may provide short-term breeding grounds for mosquitoes.

5. The BLM has failed to adequately analyze the potential for the project to result in the spread of weeds outside of the BLM cumulative effects analysis area for Gunnison sage-grouse, or the potential cumulative impacts of increased risk of fire associated with the geothermal development. The spread of non-natives plant species can reduce forbs that are critical to the survival of young Gunnison sage-grouse during the breeding season. The spread of cheatgrass can increase the risk of high-frequency, high-intensity fire, which can result in permanent loss of habitat. Cheatgrass is present in the Gunnison Basin. It is very difficult to avoid facilitating the spread of this species as part of activities associated with the proposed development, and virtually impossible to eliminate it once it has become established. The BLM has not adequately disclosed the degree to which the area is affected by noxious weeds, discussed the potential for the project to increase noxious weeds, discussed the implications of this for sage-grouse habitat, or discussed potential difficulties likely to be encountered in efforts to prevent this type of impact.

6. The BLM inappropriately limited its analysis of the cumulative impacts of activities that will alter sagebrush vegetation to activities on the lease parcels, rather than considering the cumulative impacts of removal and alteration of sagebrush vegetation on the entire area that will be impacted by geothermal development. The cumulative effects analysis should have considered all lands open to geothermal development under the RMP and the Geothermal PEIS within this planning area since the decision to amend the RMP will affect geothermal leasing on all these areas.

7. The EA has failed to adequately analyze the potential cumulative impacts of geothermal development in the area on the Waunita lek, and thus public opportunities to

geothermal development in the area of the Waunita lek, and thus public opportunities to view the Gunnison sage-grouse. The Waunita lek is the only place in the world where the public has the opportunity to observe the mating ritual of the Gunnison sage-grouse. If this lek is lost as a result of leasing and development, this unique opportunity will be lost. The BLM must analyze how the public will be affected by the potential loss of this natural experience. In addition, the BLM must analyze the socioeconomic impacts that will result from loss of this lek, including 1) impacts to businesses that benefit from the large number of visitors who travel to the lek and spend money on hotels, gas, food, and other items during their stay in Gunnison, 2) the loss of the educational opportunity afforded by the lek, 3) increased pressure on other leks by individuals trying to find another location to view the birds, etc. The BLM assumes that, because the lek is more than 0.6 miles from the lease parcel boundary, there will be no impacts to the lek. This assumption is false. One of the roads that is a logical route for access to the parcels for geothermal development is in close proximity to the Waunita lek. Potential upgrade and increased use of this road is likely to lead to increased disturbance of the lek (see previous discussion of impacts of roads). In fact, recent research suggests that truck traffic along the existing road results in disturbance of birds at the lek (Hicks, 2011, Gunnison Sage-grouse Presentation Summit). The lek likely persists in spite of this disturbance because the level of traffic is currently relatively low. However, this is unlikely to be the case if there are substantial increases in truck traffic along this existing road. Timing limitations do not adequately address this issue because they do not apply to routine maintenance and operation activities, which could result in substantial traffic increases, and because they are subject to exception, waiver and modification. In

addition, birds that use the Waunita lek, use nesting, brood rearing and winter habitat within and around the lease parcels that will be negatively affected by direct and functional loss of habitat due to the footprint of the geothermal development. This could result in population declines and decreased lek attendance, regardless of whether the geothermal development results in direct loss of 'lek habitat', or a level of direct disturbance at the lek that prevents males from attending leks. Timing limitations do not address this issue. These impacts may also interact, as recent research suggests that birds are more easily disturbed by truck traffic on the road near the Waunita lek, when there are fewer birds at the lek. Thus population reductions that result from other impacts associated with geothermal development may make the lek less resilient to disturbance. (Hicks, 2011, Gunnison Sage-grouse Presentation Summit). The BLM does not adequately analyze the potential impacts of the proposed action on the Waunita lek, and the viewing, economic and educational opportunities afforded by the lek.

8. The BLM fails to provide an adequate analysis of cumulative impacts within the analysis area in the EA. The BLM provides a summary of the past (EA pgs. 57-58), present (EA pgs. 62) and reasonably foreseeable actions (EA pgs. 3-5) that may affect Gunnison sage-grouse in the analysis area. However, the BLM provides virtually no actual analysis of the cumulative effects of the proposed project combined with these past, present and reasonably foreseeable actions on Gunnison sage-grouse habitat and populations. The BLM argues that it cannot conduct this analysis until it has more site-specific information about how geothermal development will proceed on the parcel. However, there is clearly sufficient information in the EA to conduct an adequate coarse-scale cumulative effects analysis which at least attempts to predict the cumulative impacts on Gunnison sage-grouse to the extent

necessary in order to determine whether leasing and reasonably foreseeable development on the parcels is likely to have significant adverse cumulative impacts on Gunnison sage-grouse, and to determine the likely effectiveness of the proposed lease stipulations to be amended to the Gunnison RMP.

In addition, the BLM failed to provide an analysis of the indirect and cumulative effects of geothermal development at an appropriate spatial scale. The BLM's analysis of impacts is largely limited to the impacts to habitat on the lease parcels, with some limited consideration of impacts to leks within 4 miles of the lease parcel boundaries. This analysis does not adequately account for indirect and cumulative impacts of the proposed action that will occur outside of the lease parcels. Gunnison sage-grouse habitat outside of the lease parcels may be indirectly and cumulatively impacted by the proposed geothermal development (see discussion elsewhere in this protest). This habitat is likely to be used not only by Gunnison sage-grouse from the one active lek on the lease parcel, but also by birds from six active leks that are within 4 miles of the lease parcel, and potentially by birds from leks at even greater distances from the lease parcel. Gunnison sage-grouse are dependent on large contiguous and unfragmented landscapes to meet their life-history needs. Recent research in the Gunnison Basin suggests that females regularly make long distance movements in winter of up to 25 miles to and from winter habitat in the Basin (Phillips, 2011, Gunnison Sage-Grouse Summit Presentation). Another recent study suggests that prevention of direct and functional loss of 6.2 miles from leks from direct and functional loss may be needed in order to protect 90% of the nests associated with a particular lek (90% of Gunnison sage-grouse nests are within 6.2 miles of the lek where breeding took place) (Aldridge et al. 2010/2011). Previous work suggested that prevention of direct and functional loss of habitat within 4 miles from leks may be needed in order to protect 81% of seasonal locations, and 80% of nests (approximately 81% of all breeding, summer, fall, and

winter seasonal locations were within 4 miles of the lek of capture, and that 80% of hens nest and raise broods in suitable habitats within 4 miles of the hen's lek of attendance) (Gunnison Sage-Grouse Rangewide Conservation Plan, 2005). Thus, it is essential to predict the full extent of the potential direct and functional loss of habitat from the entire footprint of the geothermal development (including roads used to access the parcel, powerlines, etc.), at a much larger scale than was done in the EA. The BLM does not adequately analyze the impacts of the potential direct and functional habitat loss associated with the geothermal footprint on: 1) leks that are within 4 miles of the analysis area, 2) leks that are within 6.2 miles of the analysis area, and 3) birds from leks up to 25 miles away from the project boundaries that use winter habitats within the geothermal footprint. The decision to amend the Gunnison RMP to facilitate geothermal development will affect resources beyond the boundaries of the analysis area in the EA. BLM should have considered how this RMP amendment will affect all the areas it manages.

In addition, the EA limits reasonably foreseeable impacts in the area for the purpose of its cumulative effects analysis solely to the impacts outlined in the reasonably foreseeable development scenario for geothermal development. It does not consider a variety of other reasonably foreseeable activities likely to occur in the area that will contribute to the cumulative effects of the proposed development on Gunnison sage-grouse.

Further the EA has failed to disclose the overall magnitude of cumulative impacts on the Gunnison sage-grouse population. The FWS finding provides a coarse-scale analysis of the cumulative effects of the past, present and reasonably foreseeable human activities in the Gunnison Basin on Gunnison sage-grouse. The BLM should have used the FWS analysis as a baseline, and then considered how the cumulative effects of the proposed development would add to the overall cumulative impacts of human activities on the Gunnison Basin population described by FWS in their finding. *75 FR 50804*. In addition, the BLM does not

population described by FWS in their finding. 75 FR 59804. In addition, the BLM does not adequately disclose the overall impacts of the proposed geothermal development on the Gunnison Basin population. There is on active lek within the lease parcel boundaries, and there are 6 active leks within 4 miles of the lease parcel boundaries, or approximately 10% of the active leks in the Gunnison Basin. The EA estimates these leks support 18% of the Gunnison Basin population (BLM EA at 51), and assumes that this is the maximum proportion of the Gunnison Basin population that could be negatively impacted by the proposed geothermal development. However, as we have established previously, the impacts of the development could impact birds from leks that are more than four miles from the lease parcel boundaries, and thus the proposed action has the potential to negatively impact a larger proportion of the Gunnison Basin population. The BLM must provide an adequate analysis of the impacts of the proposed action on the Gunnison Basin population. This analysis must include full consideration of all the indirect and cumulative impacts discussed in this protest. In addition, this analysis must disclose why the potential loss of this large proportion of the Gunnison Basin population does not constitute a significant adverse impact, particularly in light of the fact that recent research suggests that the Gunnison Basin population has a low probability of persistence even at its current size, and that there are no strongholds (including the Gunnison Basin) were Gunnison sage-grouse are not already at risk of extirpation (Wisdom et al. in press, EA pg. 55). Please refer to CNE's comments to the EA, pages 3-8 for a full description of the current status of the Gunnison sage-grouse. The species is currently at risk of extinction due to limited availability of high quality habitat and prevalence of human impacts that continue to result in additional loss, degradation and fragmentation of habitat. Any additional direct or functional loss of habitat is likely to increase the need for protection under the Endangered Species Act, and reduce the

probability of persistence of the species. The BLM has discounted the magnitude of potential environmental consequences of the proposed action by failing to adequately analyze cumulative impacts at the appropriate spatial scale. The BLM must adequately analyze these cumulative effects in an EIS that conducts the analysis at an appropriate spatial scale.

f. The BLM has failed to adequately analyze the effectiveness of the lease stipulations and other mitigation measures in the Environmental Assessment, and the determination that lease stipulations and other mitigation measures will prevent significant impacts to Gunnison sage-grouse is arbitrary and capricious:

A complete discussion of steps that can be taken to mitigate adverse environmental impacts is an important ingredient of the NEPA process. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989). "Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Id.* In recognition of the importance of a discussion of mitigation measures, Council on Environmental Quality (CEQ) regulations "require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)." *Id. at 352.* When a proposed action will result in impacts to resources, the Agency is obligated to describe what mitigating efforts it could pursue to off-set the damages that would result from the proposed action. *See 40 C.F.C. § 1502.16(h) (2009)* (stating that an EIS "shall include discussions of. . .[m]eans to mitigate adverse environmental impacts"). "Mitigation must 'be discussed in sufficient detail to ensure

that environmental consequences have been fairly evaluated." *Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1154 (9th Cir. 1996). (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989)). The Ninth Circuit explained that fair evaluation requires agencies to "analyze[] the mitigation measures in detail [and] explain how effective the measures would be. A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." *Nw. Indian Cemetery Protective Ass'n v. Peterson*, 764 F.2d 581, 588 (9th Cir. 1985), rev'd on other grounds, 485 U.S. 439 (1988).

In *Davis v. Mineta*, the Tenth Circuit found that federal agencies did not comply with NEPA when they relied on the possibility of mitigation measures in issuing a FONSI. According to the court, "[m]itigation measures may be relied upon to make a finding of no significant impact only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal. As a general rule, the regulations contemplate that agencies should use a broad approach in defining significance and should not rely on the possibility of mitigation as an excuse to avoid the EIS requirement." *Davis v. Mineta*, 302 F.3d 1104, 1125 (10th Cir. 2002)

The BLM must evaluate the effectiveness of the mitigation measures used in geothermal leasing with the best available science. "The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." *40 C.F.R. § 1500.1(b) (2009)*. "For this reason, agencies are under an affirmative mandate to 'insure the professional integrity, including scientific integrity,

of the discussions and analyses in environmental impact statements[,] identify any methodologies used and . . . make explicit reference by footnote to the scientific and other sources relied upon for conclusions[.]'" *Envtl. Def. v. U.S. Army Corps of Eng'rs*, 515 F. Supp. 2d 69, 78 (D.D.C. 2007) (citing *40 C.F.R. § 1502.24 (2009)*). If there is scientific uncertainty NEPA imposes the mandatory duties to: (1) disclose the scientific uncertainty; (2) complete independent research and gather information if no adequate information exists unless costs are exorbitant or the means of obtaining the information are not known; and (3) evaluate the potential, reasonably foreseeable impacts in the absence of relevant information. *See 40 C.F.R. § 1502.22 (2009)*. The BLM determined that the proposed action will not result in significant impacts to Gunnison sage-grouse that require an EIS. This determination is predicated on the assumption that lease stipulations will prevent significant adverse impacts to Gunnison sage-grouse.

The lease stipulation prohibiting surface occupancy within 0.6 miles of a lek will not prevent significant adverse impacts to Gunnison sage-grouse. The BLM EA states that the purpose of the 0.6 mile NSO buffer is to protect grouse courtship sites from disturbances that would force strutting sage-grouse onto less desirable sites, interfere with mating processes, or result in lek site destruction (EA pgs. 31- 32). This 0.6 mile buffer distance is based on the following information from the Rangewide Conservation Plan. The RCP defines 'lek habitat' as an area within 0.6 miles of an active lek, based on several studies of daytime movements of adult male Greater sage-grouse during the breeding season (no similar data is available for Gunnison sage-grouse) (GSG RCP). In addition, the RCP cites one study that found that, 23% of Gunnison sage-grouse nests (GSG RCP, App. J. Fig. 1), and 27.5% of seasonal habitat locations occurred within 0.6 miles of the lek of capture in

the Gunnison Basin (Gunnison Sage-Grouse Rangewide Conservation Plan 2005). The 0.6 mile NSO stipulation may prevent geothermal development from resulting in direct loss of 27.5% of the habitat used by a population from a given lek and 23% of the nests of birds from a given lek in a given breeding season. However, it allows geothermal development to result in direct loss of: 1) roughly 77% of the nests of birds from a given lek in a given breeding season, and 2) roughly 73% of the habitat used by a population from a given lek (including nesting, brood rearing, summer-fall, and winter habitat). Thus, even if this lease stipulation achieves its stated intent, it will not prevent significant adverse impacts to Gunnison sage-grouse populations.

The impacts of direct loss of nesting habitat in these areas will have significant adverse impacts on the Gunnison Basin population. A recent landscape-scale spatial model predicting Gunnison sage-grouse nesting probability in the Gunnison Basin shows that a significant amount of high quality nesting habitat exists on or near the lease application parcels, and in the much larger area surrounding the lease parcels that could experience indirect and cumulative impacts associated with the proposed geothermal development. (Aldridge et al. 2010/2011). Loss of substantial amounts of this nesting habitat due to geothermal development will have significant negative impacts on the Gunnison Basin population, and the protection of a small proportion of this nesting habitat afforded by the 0.6 mile buffer does not mitigate these impacts to insignificance. It is important to note that nest success, is a key vital rate in determining whether a population declines or grows [Gunnison sage-grouse population dynamics are most sensitive during nesting and early brood rearing stages (Gunnison Sage-Grouse Rangewide Conservation Plan), and nest success explains 31% of population growth of greater sage-grouse (Walker and Naugle, in press, Doherty

2008, *see citations in our comments on the EA at 39-40*)]. Further, predation may be a significant factor that influences nest success in the Gunnison Basin. Predation risk is reduced in greater sage-grouse when females dispersed nests widely (Holloran and Anderson 2005, Doherty 2008, *see citations in our comments on the EA at 39-40*). Greater sage-grouse nests spaced more closely to one another had lower nest success, while nest success was greater the farther the nest occurred from a lek (Holloran and Anderson 2005, Doherty 2008, *see citations in our comments on the EA at 39-40*). This suggests that nests at greater distances from the lek may have disproportionate potential importance for population recruitment. In addition, it suggests that geothermal development that results in loss of nesting habitat could have additional indirect impacts, by increasing the numbers of nests in the remaining habitat, thereby increasing predation and reducing nest success. The BLM does not adequately disclose these significant potential direct, indirect and cumulative impacts. The 0.6 mile buffer will not mitigate these impacts to insignificance, nor will any of the other stipulations attached to the lease. The Controlled Surface Use (CSU) stipulation applied to Gunnison sage-grouse habitat will allow for the ability to design road and other infrastructure locations are placed within the lease parcels, but it will not prevent direct and functional loss of nesting habitat outside the lease parcels, and will have limited utility in protecting this habitat within the lease parcels, as much of the habitat in the parcels is either important sage-grouse habitat or is not ideal for development for other reasons, and thus roads and structures are likely to be sited in sage-grouse habitat even with the CSU stipulation in place. Protective measures applied as conditions of approval at later stages of the permitting process will be limited to measures consistent with lease rights, and thus may be limited in their ability to reduce these impacts to insignificance.

Significant impacts are also highly likely to result from the potential direct loss of up to 73%

of the habitat used by a population from a given lek, including not only nesting habitat, but also brood rearing, summer-fall, and winter habitat. Gunnison sage-grouse require all of these seasonal habitats to survive. Gunnison sage-grouse populations in the Gunnison Basin may be limited by the availability of sufficient high quality brood rearing and winter habitat. Direct loss of brood rearing habitat may reduce survival of young. Direct loss of winter habitat may result in reduced overwinter survival. A stipulation that protects only 'lek habitat' while allowing for direct loss of a substantial proportion of all other seasonal habitat types, will not prevent significant adverse impacts to the population. The 0.6 mile buffer will not mitigate these impacts to insignificance, nor will any of the other stipulations attached to the lease. The Controlled Surface Use (CSU) stipulation applied to Gunnison sage-grouse habitat will allow for the ability to design road and other infrastructure locations are placed within the lease parcels, but it will not prevent direct and functional loss of habitat outside the lease parcels, and will have limited utility in protecting this habitat within the lease parcels, as much of the habitat in the parcels is either important sage-grouse habitat or is not ideal for development for other reasons, and thus roads and structures are likely to be sited in sage-grouse habitat even with the CSU stipulation in place. Protective measures applied as conditions of approval at later stages of the permitting process will be limited to measures consistent with lease rights, and thus may be limited in their ability to reduce these impacts to insignificance.

Further, the BLM's proposed lease stipulations, and additional protective measures (consistent with lease rights) that could be applied at the project stage, will not prevent a number of additional types of indirect and cumulative impacts that are likely to result in significant adverse impacts. This is due to a failure to consider the best available science,

including significant new information that was not available at the time of publication of the Gunnison sage-grouse rangewide conservation plan (*see citation in our comments on the EA at 39-40, see also 75 FR 59804 and citations therein*).

Recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition, or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al., *see citation in our comments on the EA at 39-40*)

It is critical to note that the above impacts are not limited to impacts that result from reductions in sagebrush vegetation and human disturbance directly in the vicinity of the area of development. Naugle et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding populations (*see citation in our comments on the EA at 39-40*). Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day (see citation in our comments on the EA). A recent landscape-scale spatial model predicting Gunnison sage-grouse nest site selection in the Gunnison Basin, showed strong avoidance of areas with high road densities of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel

drive sedan clearance) within 6.4 km (4 mi) of nest sites (Aldridge et al. 2010/2011). The occurrence of Gunnison sage-grouse nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2) (Aldridge et al. 2010/2011). The proposed action could eventually result in construction of a number of energy development structures (e.g. wells, a plant, transmission lines etc.), construction of new roads, and substantial increases in traffic on existing roads. The BLM has not adequately analyzed whether the lease stipulations outlined in the EA and subsequent conditions of approval applied at the project stage, will effectively mitigate the potential indirect and cumulative impacts of avoidance of energy development infrastructure to insignificance; particularly given that the impacts of the project will add to the already substantial negative cumulative impacts of existing and reasonably foreseeable human infrastructure in the Gunnison Basin (*75 FR 59804*).

The 0.6 mile NSO buffer and the Controlled Surface Use stipulation on seasonal sage-grouse habitat are both aimed solely at preventing the direct impacts of loss of sagebrush habitat and do not address the above indirect and cumulative impacts. The seasonal timing limitations address the indirect impacts of increased traffic, but do not address all of the other potential negative direct and indirect effects of roads. There are no stipulations that address the indirect and cumulative impacts of noise, transmission lines and a variety of other aspects of the proposed development. The BLM will be limited in its ability to apply adequate protective measures at later stages in the permitting process, as any protective measures at that stage must be consistent with lease rights granted.

In addition, the likelihood that the lease stipulations will mitigate impacts to significance is further reduced by the fact that they are subject to waiver, modification and exception, (WEM) and that the criteria for WEM are unlikely to ensure that WEM of stipulations do not result in significant adverse impacts. For example, the 'No Surface Occupancy' stipulation (NSO) that prevents development in mapped Gunnison sage-grouse habitat within 0.6 miles of Gunnison sage-grouse leks will be subject to Waiver, Exception, and Modification criteria (WEMs). "An exception may also be granted by the authorized officer if the proponent, BLM, State wildlife agency, and where necessary, other affected interests, develop non-monetary compensation or mitigation that satisfactorily offsets anticipated impacts to Gunnison sage-grouse habitats and/or breeding activities." There is no discussion of what types of compensation or mitigation would be considered to satisfactorily offset impacts. Previous efforts to offset impacts of energy development by restoring or enhancing sage-grouse habitat have been ineffective, and in some cases have resulted in further negative impact to Gunnison sage-grouse. It is unclear whether there is an effective means by which one could mitigate or compensate for the direct and functional loss of Gunnison sage-grouse habitat. The BLM cannot include a provision that allows destruction of high quality occupied habitat based on some speculative attempt to compensate or mitigate for this damage. The BLM fails to disclose significant adverse impacts that may result from the proposed action if WEM's are allowed within the 0.6 mile buffer around sage-grouse leks.

Occupied sage-grouse habitat within the 0.6 mile buffer of leks may be impacted by geothermal development, and this could result in reductions in habitat quality and quantity and disturbance/displacement of individuals due to human activity. The BLM

fails to provide an adequate analysis of all of the impacts that could result from allowing WEMs within the 0.6 mile buffer around leks, and fails to disclose the potential for significant adverse impacts. Allowing WEMs within the 0.6 mile buffer of leks is likely to lead to declines at the six active sage-grouse leks within a 4-mile buffer around the project area, and further contribute to a lower probability of persistence for the Gunnsion sage-grouse.

The BLM also fails to adequately analyze other potential mitigation measures that might effectively mitigate impacts to insignificance, including, but not limited to a non-waiveable 4 mile NSO buffer around Gunnison sage-grouse leks.

Though application the proposed lease stipulations may prevent direct loss of a small proportion of the Gunnison sage-grouse habitat likely to be impacted by the geothermal footprint, there is no reason to believe that these stipulations will prevent significant impacts on Gunnison sage-grouse due to direct loss of 73% of the habitat associated with each lek (including nesting, brood rearing, and wintering habitat), impacts on leks and breeding populations associated with the placement of energy development structures within 3.9 miles of active leks, declines in lek attendance associated with traffic exceeding 1 vehicle per day within 1.9 miles of leks, impacts of cumulative increases in road density and the overall human footprint, and the direct and indirect impacts associated with construction of 5 miles of new transmission line and improvement of existing lines. The BLM provides no rationale describing how the lease stipulations will minimize these likely impacts to insignificance.

Finally, BLM has not provided an adequate analysis of mitigation measures that may be applied at later stages of the geothermal development process (those not included as stipulations on the lease). Depending on future actions to justify BLM's decision is a violation of the NEPA process. BLM must address these resource protection concerns at the leasing stage, particularly given that their ability to add adequate protections at later stages may be limited by lease rights.

The agency cannot rely on broad generalizations and vague references to possible future mitigation measures in making a finding of no significant impact. Rather, the agency is required to detail any mitigation measures that are relied upon to achieve a finding of no significant impact, and provide a detailed description of the mitigation measures that will be undertaken, and a detailed analysis of the effectiveness of such measures. This analysis must be done at the leasing stage, because once the parcel is leased, the agency is constrained in additional mitigation measures that can be applied, as any measures at that stage must be consistent with lease rights granted.

g. The BLM should have prepared an Environmental Impact Statement due to the effects of this leasing on the Gunnison sage-grouse:

The BLM should have prepared an Environmental Impact Statement ("EIS") analyzing the leasing of these parcels. In addition, the BLM should have either considered the impacts of geothermal development on Forest Service lease parcels in its analysis of cumulative impacts in an EIS; or considered the geothermal leasing proposed on adjacent Forest Service and BLM parcels to be connected actions and prepared a joint BLM/FS

EIS that considered the impacts of leasing and subsequent development on both parcels. Further, BLM should have analyzed the effects of amending the Gunnison RMP on the entire management area. An analysis of this amendment on the entire resource planning area could have only been done through the creation of an EIS. BLM inappropriately limited the scope of their analysis in an attempt to circumvent the need to create an EIS.

NEPA requires federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment...." *42 U.S.C.§ 4332(2)(C).* "[C]ourts have uniformly held that NEPA's EIS procedure applies where the federal government grants a lease." *City and County of Denver By and Through Bd. of Water Com'rs v. Bergland*, 517 F.Supp. 155, 200 (D.Colo. 1981). "CEQ regulations require that "connected" or "closely related" actions "be discussed in the same impact statement." *40 C.F.R. § 1508.25(a)(1)*, and that "significance cannot be avoided by terming an action temporary or breaking it down into small component parts." *40 CFR 1508.27(b)(7).*"One of the primary reasons for requiring an agency to evaluate "connected actions" in a single EIS is to prevent agencies from minimizing the potential environmental consequences of a proposed action (and thus short-circuiting NEPA review) by segmenting or isolating an individual action that, by itself, may not have a significant environmental impact." *Citizens' Committee to Save Our Canyons v. U.S. Forest Service*, 297 F.3d 1012, 1028 (10th Cir. 2002). BLM's National Environmental Policy Handbook (*H-1790-1)* lists actions that normally require preparation of an EIS. [S]team-electric power plants are one of the actions on that list. *H-1790-1 at 70.*

The BLM determination that actions resulting from the decision in question do not constitute major Federal actions significantly affecting the quality of the human environment, and that an EIS is therefore not required, is arbitrary and capricious. There are a number of flaws in the rationale outlined in the BLM Decision Notice (DN) and Finding of No Significant Impact (FONSI) for the above determination.

The conclusion that "Neither the Proposed Action nor Alternative 3 will have a significant effect on the human environment." (DN pgs. 9, FONSI pg. 2), is arbitrary and capricious. As discussed previously in this protest, amending the RMP and allowing leasing and subsequent geothermal development is likely to result in short and long-term significant impacts on the local Gunnison sage-grouse population. The RMP amendment covers substantial amounts of land that were not analyzed within this EA. The Decision Notice is not limited to this specific project, yet was based on analysis of only the proposed BLM lease parcel. An EIS should have been prepared that analyzed all the areas managed by the Gunnison RMP that are open to geothermal development.

The statement that the area of the decision does not contain unique characteristics (FONSI pg. 3) is arbitrary and capricious. Our comments on the BLM EA clearly establish that the area is ecologically critical due to its significance as key habitat for the globally critically imperiled Gunnison sage-grouse. *(comments on the EA at 3-8).* The Waunita lek is the only location in the world where the public has an opportunity to view the Gunnison sage-grouse. The BLM EA does not adequately disclose potentially significant direct, indirect and cumulative impacts to the persistence of the population that uses this lek, and therefore does not adequately analyze the potentially significant

impact of loss of the only location where the public can view the Gunnison sage-grouse.

The effects of the proposed action on Gunnison sage-grouse are highly controversial. There is scientific controversy and uncertainty regarding the likely impacts of the proposed action on Gunnison sage-grouse, the likely efficacy of lease stipulations and other mitigation measures applied to minimize impacts, and the degree to which the proposed project is likely to contribute to local and regional population declines. In addition, there is scientific and philosophical controversy regarding what the target population size should be for the Gunnison Basin population in order to ensure long-term persistence of this population, and whether areas of Gunnison sage-grouse habitat on public lands should be set aside as reserves that are free from development. Scientists recommend holistic management approaches including conserving existing habitats and populations, combined with restoring habitat to maintain population persistence (Wisdom et al. in press, EA pg. 55). The proposed action is not consistent with these recommendations, and thus there is substantial uncertainty and controversy regarding whether the proposed action will contribute to the risk of loss of the Gunnison Basin population and extinction of the species. The conclusion that the effects of the proposed action are not highly controversial (FONSI pg. 3) is arbitrary and capricious.

Further, there is substantial uncertainty regarding how geothermal development will impact Gunnison sage-grouse, and the proposed action involves unique or unknown risks to Gunnison sage-grouse. The effects of energy development (and geothermal

development in particular) on Gunnison sage-grouse have never been studied. Some predictions regarding impacts can be made from what is known about Gunnison sage-grouse biology and from understanding of research on the impacts of other types of energy development on greater sage-grouse. However, it is not known how impacts of geothermal development to Gunnison sage-grouse may differ based on potential differences in their level of sensitivity to impacts, differences between geothermal development and other types of development (e.g. oil and gas) whose impacts have been better studied. In addition, there are unique risks associated with allowing development in habitat for a population that has already declined to the point where it's long-term probability of persistence is low, even without any further reduction in numbers (Wisdom et al, in press, EA pg. 55). The conclusion that the possible effects of the proposed action are not highly uncertain, and do not involve unique or unknown risks (FONSI pg. 3), is arbitrary and capricious.

The determination that the proposed action will not result in cumulatively significant impacts (FONSI pg. 4) is arbitrary and capricious for the reasons outlined previously in our comments and in this protest.

For the reasons outlined above, the actions resulting from the decision in question constitute major Federal actions significantly affecting the quality of the human environment, and an EIS is required.

Finally, the leasing of the BLM parcels and the Forest Service parcels are connected actions which should be considered jointly in a combined BLM/FS EIS. The nominated

parcel consisted of 3,765 acres of Forest Service lands, 4,586 acres of BLM land, and 400 acres of private land with federal mineral estate. The total federal land proposed for leasing in these EAs is 8,351 acres. The leasing of these two parcels are connected actions since the entirety of both parcels was nominated to BLM. BLM and the Forest Service failed to analyze the affects of leasing an 8,351 acre parcel on the human environment. The cumulative effects section of the EA does not adequately analyze the total impacts of leasing the combined parcels. Preparing separate EAs for the BLM and Forest Service parcels failed to give an accurate analysis of the proposed leasing and anticipated development of this sensitive land. Analyzing smaller parcels allowed these agencies to give the appearance that leasing would not significantly affect the human environment. This expressly violates 40 CFR 1508.27(b)(7). An EIS is necessary to determine how leasing the whole 8,351 acres will affect the human environment.

h. The BLM violated NEPA by deferring environmental analysis until later in the process:

Analysis of environmental impacts should not be deferred until the application for permit to drill stage. NEPA analysis must be conducted prior to a federal action that would result in an "irreversible and irretrievable commitment of resources." *Mobile Oil Corp. v. F.T.C.*, 562 F.2d 170, 173 (2d. Cir. 1977). Doing otherwise "would frustrate the fundamental purpose of the National Environmental Policy Act . . . which is to ensure that federal agencies take a 'hard look' at the environmental consequences of their actions, early enough so that it can serve as an important contribution to the decision making process."

Sierra Club v. Bosworth, 510 F.3d 1016, 1026 (9th Cir. 2007). In a more recent Tenth Circuit case the court stated that "assessment of all 'reasonably foreseeable' impacts must occur at the earliest practicable point, and must take place before an 'irretrievable commitment of resources' is made." *N.M. ex rel Richardson v. BLM*, 565 F.3d 683, 717-18 (10th Circuit 2009).

Analysis and surveys of these parcels should be conducted at the first instance possible and that is the leasing stage. Once a lease is granted resources are already committed to the development process, it will be more difficult for BLM to ensure proper protections for the human environment once leases are issued. Biological resource surveys should also be conducted now to determine the occurrence of rare or threatened species on these parcels. This is even more appropriate when, as here, the BLM knows these types of species are present.

We have previously described a number of potential direct, indirect, and cumulative impacts of the proposed project that have not been adequately analyzed in the EA. It is currently possible for BLM to provide meaningful analysis of these impacts, and such analysis cannot legally be deferred to future analysis at later stages of the process of permitting geothermal development in the area in question.

If BLM is deferring analysis till a later stage in the process they must include a stipulation that preserves their right to preclude development based on the outcome of future analysis and emerging science, regardless of whether the Gunnison sage-grouse received endangered species act listing. BLM should also preserve their right to attach more restrictive stipulations in the future.

stipulations in the future.

i. The BLM failed to prevent undue and unnecessary degradation to Gunnison sage-grouse populations and has failed to meet its obligations under BLM manual 6840:

The BLM has a duty under the Federal Land Policy and Management Act ("FLPMA") to prevent unnecessary and undue degradation to the lands under its management. "In managing the public lands the [Secretary of Interior] shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." *43 U.S.C. § 1732(b)*. The use of the imperative language "shall" makes clear that Congress intended to leave the Secretary no discretion in administering the Act. NRDC v. Jamison, 815 F. Supp. 454, 468 (D.D.C. 1992). "The court in Mineral Policy Ctr. v. Norton [found] that in enacting FLPMA, Congress's intent was clear: Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary . . . is undue or excessive." Mineral Policy Ctr. v. Norton, 292 F. Supp. 2d 30, 43 (D.D.C. 2003). In addition, that court held that "FLPMA, by its plain terms, vests the Secretary of the Interior with the authority – and indeed the obligation – to disapprove of an otherwise permissible . . . operation because the operation though necessary . . . would unduly harm or degrade the public land." Id. at 49.

The Gunnison sage-grouse is a BLM sensitive species that is to be managed to promote its conservation and minimize the need for listing under ESA, in accordance with BLM's special status species policy (BLM Manual 6840).

For the reasons outlined previously in this protest BLM has failed to promote the conservation of Gunnison sage-grouse and to minimize the need for listing under the ESA, and has allowed for unnecessary and undue degradation.

CONCLUSIONS:

The APA prohibits an agency from acting in an arbitrary and capricious fashion. Fair and honest procedures are also an element of complying with NEPA. *40 C.F.R. 1502.1* To assure that a fair discussion occurs, agencies are required to obtain high quality information, including accurate scientific analysis. *40 C.F.R.1500.1 (b)* The regulations are very explicit that, "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." *40 C.F.R. 1502.24* CEQ regulations also require that, "Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency action, rather than justifying decisions already made." *40 C.F.R. 1502.2(g)*

The policy behind NEPA is to ensure environmental considerations are integrated into agency planning (*40 C.F.R. §1501*), and that the public be informed in agency planning decisions ("NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are

taken....Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." *40 C.F.R. §1500.1(b)* (emphasis added). "NEPA ensures the agency...will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience." *Idaho Sporting Congress v. Thomas*, 1998 WL 89066 (9th Cir. (Idaho)). *Citing Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989). NEPA's disclosure goals are "to insure the agency has fully contemplated the environmental effects of its actions and to insure the public has sufficient information to challenge the agency (*Idaho Sporting Congress v. Thomas*, 1998 WL 89066 (9th Cir. (Idaho)). *Citing Inland Empire Public Lands Council v. United States Forest Service*, 88 F.3d 754, 758 (9th Cir. 1996)." The flaws in the EA and DN identified in this protest violate the requirement of FLPMA, NEPA, APA, and agency regulations. The Protesting Parties are willing to meet with the State Director to discuss the issues raised in this Protest, in order to attempt to resolve them, and to ensure that these areas of BLM land are managed in a way that complies with federal law. Amending the geothermal lease stipulations in the Gunnison Resource Area Approved Resource Management Plan based on this faulty environmental analysis is arbitrary, capricious, and an abuse of discretion.

REQUEST FOR RELIEF:

The EA and DN fail to meet their legal requirements as laid out in the Statement of Reasons section. Therefore the decision must be withdrawn, as it is not based on high quality information and analysis, is not well-informed, and clearly errs in its assumptions and analyses. If the BLM chooses to issue a new decision, they must first conduct NEPA in accordance with CEQ NEPA regulations at 40 CFR § 1502.9 and prepare a thorough, rigorous, accurate, non-arbitrary analysis and assessment of impacts. If the Gunnison Resource Area Approved Resource Management Plan is to be amended with stricter stipulations to protect the Gunnison sage-grouse they must be based on the best available science that will ensure leasing of these parcels will not contribute to the current decline of the this species.

Further, we request that:
1) That the BLM prepare an Environmental Impact Statement due to this major federal action's significant affects on the human environment.
2) That the BLM conduct further analysis using the best available science about the Gunnison sage grouse and properly analyze the direct, indirect and cumulative effects of this project.
3) That the BLM adequately analyze the potential effectiveness of lease stipulations and other mitigation measures.
4) that the BLM include a lease stipulation that prohibits surface disturbance within 4 miles of leks without provision for waiver, modification and exception.
5) That new information about the Gunnison sage-grouse is considered to ensure

5) That new information about the Gunnison sage-grouse is considered to ensure conservation of this species.
6) That BLM avoid deferring analysis that can be conducted now until later in the process.
7) That BLM broaden the purpose and need and analyze an alternative that conserves all core/priority habitat and that maximizes conservation of sagebrush.
8) That BLM adhere to the sage-grouse policies announce in the various Instructional Memorandum.
9) That BLM add stipulation that preserves their right to apply additional protective measures at later stages, even if the bird is not listed, and the measures preclude development (based on analysis of impacts at later stages and emerging science).
10) That BLM conduct analysis of the entire planning area covered by the RMP they are attempting to amend.

RESPECTFULLY SUBMITTED this __22nd___ Day of April, 2011.

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Attachment 2

APPEAL OF DECISION OF THE GRAND MESA-UNCOMPAHGRE-GUNNISON FOREST SUPERVISOR

Center for Native Ecosystems, et at.

APPELLANT

v.

Forest Supervisor

RESPONDENT

DATED this 28th day of March, 2011

NOTICE OF APPEAL

On February 4, 2011, Forest Supervisor Charles S. Richmond signed the Decision Notice

("DN") for the Gunnison Geothermal Lease Nomination COC-73584 Environmental Assessment ("EA"). This is a Notice of Appeal of that decision pursuant to 36 C.F.R. Part 215. Center for Native Ecosystems (CNE), WildEarth Guardians, and Colorado Wild have members who enjoy the Gunnison sage-grouse and the habitat affected by this leasing decision. Appellants submitted scoping comments and comments to the proposed EA with dozens of documents and research findings to be considered for this NEPA process as it was developed. This appeal is timely pursuant to 36 C.F.R. § 215.14.

Appellants will demonstrate that the Forest Supervisors' decision is arbitrary and capricious and not in accordance with the legal requirements of federal statutes and regulations. Consequently, Appellant requests that the DN be withdrawn, a proper and defensible NEPA process be conducted and a new decision issued that protects our public resources.

THE APPELLANTS

Center for Native Ecosystems works to conserve and recover the native species and ecosystems of the Greater Southern Rockies using the best available science. Center for Native Ecosystems and the undersigned organizations are very concerned about the potential impacts of the proposed geothermal leasing and subsequent geothermal energy development on the Gunnison sage-grouse and other wildlife species.

Colorado Wild is a non-profit organization formed in 1998 to protect, preserve, and restore the native plant and animals of the Southern Rocky Mountains, focusing its efforts on habitat protection in the forested high country. We have approximately 650 members throughout Colorado and in other states. We regularly and systematically review proposed projects and plans for Colorado's national forests and some and regulations proposed for the national forest system.

WildEarth Guardians is a Santa Fe, New Mexico-based nonprofit organization with offices in Denver and Phoenix, and more than 4,500 members throughout the American West. WildEarth Guardians is dedicated to protecting and restoring the wildlife, wild places, and wild rivers of the American West. WildEarth Guardians has members throughout the American West, including Colorado, that utilize and enjoy for recreation, aesthetics, and wildlife viewing, the area that will be affected by the proposed decision to allow leasing of land in the Gunnison Basin for geothermal development. WildEarth Guardians and its members will be harmed if the Forest Service moves forward with the project as proposed due to its impacts to wildlife.

We generally advocate for development of renewable energy sources, and recognize the importance of developing geothermal resources in Colorado. However, as with any industrial development, geothermal energy production and transmission can negatively impact rare and imperiled wildlife and plant species and compromise the health of ecosystems. Thus, the development of renewable resources will not be appropriate everywhere, and will require careful consideration of the tradeoffs between the benefits of renewable energy development and potential impacts on rare and imperiled species

of renewable energy development and potential impacts on rare and imperiled species and other sensitive resources at sites of proposed development. When leasing lands for renewable energy development, and siting renewable energy facilities, public land management agencies should avoid key habitat for rare and imperiled species. Agencies should also avoid and minimize impacts to ecosystem health and important habitat for less sensitive wildlife and plant species. Public land management agencies should also ensure that such developments consider the need to protect and restore connectivity. Finally, public land agencies should provide for public involvement at all stages of the process of approving renewable energy development.

CNE and the undersigned organizations have a long-standing interest in the conservation of Gunnison sage-grouse, Gunnison prairie dog, Canada lynx, and other sensitive species. Many of our members regularly visit Gunnison sage-grouse habitat and seek opportunities to view Gunnison sage-grouse. The elaborate courtship display of Gunnison sage-grouse is one of the most captivating wildlife watching experiences in North America. The Waunita lek is the only place where the public can view the courtship display of Gunnison sage-grouse. Many of our members have visited the Waunita lek to enjoy watching the courtship dance of the Gunnison sage-grouse, and the surrounding area to view Gunnison sage-grouse habitat and the many other species that share sagebrush uplands inhabited by sage-grouse, as well as other plants and wildlife on public lands managed by both the Forest Service and Bureau of Land Management in the area. We intend to return to this area regularly in the future. CNE and Wild Earth Guardians are part of the coalition of organizations that filed a petition asking the U.S.

Fish and Wildlife Service (FWS) to protect the Gunnison sage-grouse under the Endangered Species Act. CNE was also a part of the coalition that filed a petition asking the FWS to give the Gunnison prairie dog ESA listing status. CNE and the undersigned organizations also regularly participate in public land management decisions on Forest Service and Bureau of Land Management Lands that affect Gunnison sage-grouse and other sensitive wildlife and plant species.

CNE has invested significant time, resources and effort at each stage of this process by providing considerable input of research, analysis, and agency reports. Although we brought to the decision-maker's attention a number of significant issues in the underlying assumptions of the analysis, as well as specific details of the process; our requests were not granted.

We incorporate by reference all of the points raised in our comments as they apply to the following appeal points.

STATEMENT OF REASONS

The FS has acted arbitrarily and capriciously and abused its discretion for the following reasons:

a. The Forest Service has failed to consider the best available science in its EA.

The decision is based on information in the EA that does not represent the best available

science regarding the Gunnison sage-grouse. The Forest Service is required to operate under the best available science standard when implementing projects within a forest plan. *Ecology Center, Inc. v. United States Forest Service*, 451 F.3d 1183, 1190 (10th Cir. 2006).

The FS tiered their EA to the Final PEIS for Geothermal Leasing in the Western U.S. (Geothermal PEIS). This document was created October, 2008. The FS also depends on the findings and recommendations in the *Gunnison Sage-grouse Rangewide Conservation Plan (RCP),* which was signed by the FS on April, 2005. These documents are outdated and do not represent the best available science that should be used in assessing the impacts of geothermal energy development on Gunnison sage-grouse. At the time of publication of the RCP, the conservation plan relied heavily on research on greater sage-grouse in developing conservation recommendations for Gunnison sage-grouse, due to a lack of adequate research on some aspects of Gunnison sage-grouse biology. This is appropriate because the two species are closely related. At the time of publication of the RCP, there was little research on the impacts of energy development on either species of sage-grouse. Since that time, a significant body of new peer-reviewed research on the impacts of energy development on greater sage-grouse has been published (see *CNE et al. comments on EA at 14-21*). There is still little or no information on the impacts of energy development on Gunnison sage-grouse. However, the findings of the research on the impacts of energy development on greater sage-grouse are likely applicable to Gunnison sage-grouse. Both species are highly sensitive to disruptions in their habitat and suffer from similar threats. In addition, significant

information on the status and probability of persistence of Gunnison sage-grouse populations has been cited in the EA, but has not been adequately considered in determining whether the geothermal development will result in significant adverse impacts on Gunnison sage-grouse. (Wisdom et al. in press, EA pg. 135).

The best available science suggests that the mitigation measures outlined in the Rangewide Conservation Plan, and adopted in the FS EA, may not be adequate to prevent significant adverse impacts of geothermal exploration and development on Gunnison sage-grouse. Indeed, this significant new information suggests that the viability of the Gunnison Basin population is already compromised, and that the proposed action will further contribute to a lower probability of persistence of the species. We detailed this significant new information in our comments on the EA. (*CNE EA comments at 14-21, 26-28*). The FS states that it has considered this significant new information (for e.g., see EA, response to comments pg. 261). However, it is clear that this is not the case, as the FS fails to: 1) cite the relevant conclusions from the recent research on the impacts of energy development on greater sage-grouse, 2) disclose adverse impacts that the recent science indicates are likely, 3) consider the recent science in analyzing the effectiveness of the proposed lease stipulations, and 4) consider the significance of potential adverse impacts in light of current low probability of persistence of the Gunnison sage-grouse populations. Specific examples of failure to consider significant new information are given in subsequent sections of this appeal and in the comments that we submitted previously. It is important to note that the BLM and CDOW have acknowledged that the range-wide conservation plan needs to be updated or supplemented to take into account a substantial body of new scientific information (personal communication, BLM State

Director Helen Hankins November 9, 2010; personal communication Jeff VerSteeg, December 1st 2010). The range-wide plan steering committee is planning to meet in the near future to discuss the need to update the range-wide conservation plan. The FS has improperly relied entirely on the Gunnison sage-grouse range-wide conservation plan in analyzing impacts and developing lease stipulations to conserve Gunnison sage-grouse in the face of geothermal development. The FS must consider significant new information and meet the best available science standard. If the FS has considered the body of recent research we submitted in our comments on the EA, and decided that it is not relevant in predicting impacts and developing lease stipulations and other mitigation measures, the FS must describe its rationale for this determination in detail, rather than simply asserting that it has considered the best available science.

b. The decision fails to adequately analyze the direct, indirect, and cumulative affects of leasing this parcel

NEPA dictates that FS take a "hard look" at the environmental consequences of a proposed action and the requisite environmental analysis "must be appropriate to the action in question." *Metcalf v. Daley*, 214 F.3d 1135, 1151 (9th Cir. 2000); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989). In order to take the "hard look" required by NEPA, FS is required to assess impacts that include: "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, *whether direct, indirect, or cumulative*." 40 C.F.R. § 1508.8 (emphasis added). "[C]umulative impact analysis must be

timely. It is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now." *Kern v. US. Bureau of land Management*, 284 F.3d 1062, 1075 (9th Cir. 2000). The FS failed to adequately analyze potential direct, indirect, and cumulative impacts of the proposed leasing on the Gunnison sage-grouse.

"In determining the scope of the required NEPA analysis, an agency must consider not only the proposed action, but also three types of related actions – 'connected actions', similar 'actions', and 'cumulative actions'. *40 C.F.R. 1508.25(a).* "Cumulative actions" are those" which when viewed with other proposed actions have cumulatively significant impacts." *Id. at 1508.25 (a)(2).* Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. 40 C.F.R. 1508.27 (b)(7). It is not appropriate to defer consideration of cumulative impacts when meaningful consideration can be given now. *See; Neighbors of Cuddy Mountain v. United States Forest Service,* 137 F.3d 1372, 1380 (9th Cir. 1998); *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312-1313 (9th Cir. 1990)

The scope of the FS analysis of indirect and cumulative impacts on Gunnison sage-grouse is inappropriately narrow, and the F.S. has avoided a finding of significance by breaking down the action into small component parts, failing to consider the impacts of cumulative actions, and deferring consideration of cumulative impacts to a later date, when meaningful consideration can be given now. The FS has failed to properly analyze direct, indirect, and cumulative affects in the following ways:

1. The FS failed to adequately analyze the indirect and cumulative impacts of reasonably foreseeable geothermal development on adjacent geothermal lease parcels on Bureau of Land Management, State Land Board, and Private lands, on Gunnison sage-grouse. In addition, the FS failed to adequately analyze indirect and cumulative impacts that will extend beyond the boundaries of these lease parcels, and outside of the boundaries of the FS cumulative effects analysis area for Gunnison sage-grouse. These indirect and cumulative impacts include: impacts associated with 1) large-scale avoidance of energy development infrastructure by Gunnison sage-grouse, 2) roads used to access the parcels, 3) construction, upgrade and maintenance of transmission lines, 4) potential for facilitation of the spread of West Nile Virus, noxious weeds and fire, 5) cumulative impacts of past, present and reasonably foreseeable activities on the quality and quantity of sagebrush vegetation and sage-grouse habitat on lands adjacent to the FS parcel, 5) impacts to Waunita lek and consequences for lek viewing opportunities, and 6) overall consequences of geothermal development on the Gunnison Basin sage-grouse population. These impacts are reasonably foreseeable impacts and the FS has the information needed to conduct a meaningful analysis of these impacts at the current time. In addition, the FS must explicitly consider the large body of recent peer-reviewed research that was provided as part of our comments on the EA (*CNE EA comments at 14-21, 26-28)*, in its analysis of the above impacts.

2. The F.S. fails to adequately analyze the impacts of behavioral avoidance of energy development infrastructure. The FS notes that sage-grouse may avoid using suitable habitat adjacent to transmission lines, pipelines and roads (EA pg. 136). However, the FS does not disclose that sage-grouse are likely to avoid using otherwise suitable habitat adjacent to other

types of energy development structures, including wells, the geothermal plant, substations, etc. In addition, the FS does not disclose the amount of suitable habitat that is likely to be avoided adjacent to energy development structures, or the magnitude of the population level impact that can result from behavioral avoidance of energy development infrastructure in otherwise suitable habitat. As a consequence, the FS underestimates the potential adverse impacts of energy development infrastructure on Gunnison sage-grouse. For example, the FS does not include information from recent peer-reviewed research relevant to predicting the magnitude of impact that may result from behavioral avoidance of energy development infrastructure. Naugle et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding populations (*see citation and discussion in our comments on the EA at 16*). In addition, Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day (*see citation and discussion in our comments on the EA at 19*). This information is not included in the EA, though it is obviously relevant to predicting impacts of the proposed project on sage-grouse, and determining the likely effectiveness of lease stipulations, and was provided to the FS in our previous comment letters.

In addition, the FS fails to discuss the potential population level consequences of behavioral avoidance of energy development and other cumulative impacts of energy development. For example, recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003,

Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al. 2009, *see citation and discussion in our comments on the EA at 15-16*) The potential for these types of impacts is not disclosed in the EA, although it is obviously relevant to understanding the impacts of geothermal energy development activities on Gunnison sage-grouse populations, and was provided to the FS in our comments on the EA.

3. The FS fails to adequately analyze the indirect and cumulative impacts of increased use of existing roads and construction of new roads for geothermal energy development on Gunnison sage-grouse. There are existing roads that are outside of the cumulative effects analysis area for impacts to Gunnison sage-grouse in the FS EA, that are likely to receive substantial increases in traffic volume as a consequence of geothermal development on the FS parcel. These roads travel through important sage-grouse habitat (including breeding, brood rearing, and wintering habitat). In some cases, these roads are within 1.9 miles of Gunnison sage-grouse leks. Given that: 1) increases in traffic that exceed 1 vehicle per day on roads within 1.9 miles of leks have been shown to result in declines in male lek attendance (Holloran et al. 2005, *see citation in our comments on the EA at 15, 37-38*), 2) sage-grouse may avoid suitable nesting, brood rearing, and wintering habitat in proximity to roads (see citations in our comments on the EA), and 3) increased traffic can cause sage-grouse mortality due to collision (EA pg. 136); it is critical to consider how an increase in traffic on these roads may impact Gunnison sage-grouse populations. But, the FS has not analyzed the potential impacts of increased traffic on these roads on Gunnison sage-grouse populations.

The discussion of impacts of roads in the EA is limited to a couple of lines stating that roads may result in fragmentation, and increased mortality, and that grouse may avoid roads (EA pg. 136). There is no discussion of the location of roads that will be used to access the project relative to sage-grouse leks or other seasonal sage-grouse habitats. There is no discussion of important potential adverse impacts of such roads, and there is no discussion of the consequences of such impacts to the Gunnison sage-grouse population. The FS may expect that timing limitations restricting human disturbance during critical seasons will limit impacts of existing roads. However, timing limitations do not apply to operation and maintenance activities, and FS will not be able to enforce timing limitations on roads that cross lands that are not owned and managed by the FS. Thus FS must provide an adequate analysis of the potential cumulative impacts of increased traffic on existing roads likely to be used to access the project area. This analysis should not be deferred to later stages of the permitting process, as it is straightforward to predict which existing roads are most likely to be used to access the lease parcels, and to predict the likely impacts of increased traffic on these roads. Meaningful analysis of this issue is possible at the current time, and thus cannot legally be deferred to a later date.

In addition, geothermal development may require development of new permanent and temporary roads within BLM, State Land Board and Private Parcels. There is no restriction on surface occupancy within 4 miles of Gunnison sage-grouse leks on these parcels. There is only a stipulation on surface occupancy within 0.6 miles of a lek, which is subject to exception, modification and waiver. Timing limitations aimed at preventing disturbance on these roads do not apply to routine operation and maintenance activities. (See BLM EA at http://www.blm.gov/co/st/en/fo/gfo/geothermal_lease_nomination.html) Thus, new permanent and temporary roads could be constructed within Gunnison sage-grouse seasonal

habitats in proximity to active leks on BLM, State Land Board and Private Parcels. It is important to note that roads could be constructed on these parcels within 4, 1.9 and 0.6 miles of active leks. The best available science indicates that construction of roads within each of these distances is predicted to have significant adverse impacts. The FS has not adequately analyzed the cumulative effects of potential road construction that may occur on adjacent BLM, State Land Board and Private geothermal parcels. The FS analysis assumes that all road construction will occur on the FS parcel, where surface occupancy is prohibited (with provision for waivers, exceptions, and modifications) within 4 miles of active leks. If road construction instead occurs on adjacent BLM, State Land Board and Private Parcels, where there is no restriction on surface occupancy within 4 miles of a lek, the cumulative impacts of new permanent and temporary road construction on Gunnison sage-grouse will be much more significant than the FS anticipates in its EA. The FS must analyze the potential cumulative impacts of new permanent and temporary roads within BLM, State Land Board and Private Parcels. Meaningful analysis of this issue is possible at the current time, and thus cannot legally be deferred to a later date.

4. The FS has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines that will be needed if geothermal development occurs in the area. The reasonably foreseeable development scenario projects that five miles of new transmission line will be constructed during the utilization stage to convey geothermal energy produced on the parcels to end users (EA pg. 43-44). This new transmission line will need to be connected to a new or existing transmission line (outside of the FS cumulative effects analysis area for Gunnison sage-grouse), that can handle the electrical output of the

geothermal power plant. At a minimum this would require upgrade of an existing transmission line (outside of the FS cumulative effects analysis area for Gunnison sage-grouse), and may require construction of a new line. The FS does not adequately analyze the potential indirect and cumulative impacts of transmission line construction, upgrade, and maintenance on Gunnison sage-grouse, either within or outside of the lease parcel. The best available science suggests that construction of new transmission lines, and upgrade and maintenance of existing transmission lines, can have negative impacts on Gunnison sage-grouse. The F.S. acknowledges in the EA that transmission lines can: 1) cause sage-grouse mortality due to collisions with lines, 2) facilitate raptor predation by increasing perch sites for raptors, 3) cause sage-grouse to avoid otherwise suitable habitat in proximity to transmission lines, and 4) result in direct loss of habitat and human disturbance.

The FS assumes that the provision restricting surface occupancy within 4 miles of Gunnison sage-grouse leks, will prevent significant adverse impacts associated with development of five miles of transmission line on the FS lease parcel (EA pg. 242). However, the FS does not disclose the impacts that may result from construction of five miles of transmission line on the lease parcel if waivers, modifications or exceptions are granted to the NSO stipulation within 0.6-0.4 miles of leks.

In addition, the five miles of new transmission line may be constructed on the BLM lease parcels. There is no restriction on surface occupancy within 4 miles of Gunnison sage-grouse leks on these parcels. There is only a stipulation on surface occupancy within 0.6 miles of a lek, which is subject to exception, modification and waiver. Timing limitations aimed at preventing disturbance on these roads do not apply to routine operation and maintenance activities. (See BLM EA at 63-64; found at http://www.blm.gov/co/st/en/fo/gfo/geothermal

lease_nomination.html). Thus, powerline construction and upgrades may occur in occupied sage-grouse habitat and in proximity to Gunnison sage-grouse leks, on the BLM, private and State Land Board lease parcels. The FS has not adequately analyzed the cumulative effects of potential transmission line construction that may occur on adjacent BLM, State Land Board and Private geothermal parcels. The FS analysis assumes that all transmission line construction will occur on the FS parcel, where surface occupancy is prohibited (with provision for WEMs) within 4 miles of active leks. If transmission line construction also occurs on adjacent BLM, State Land Board and Private Parcels, where there is no restriction on surface occupancy within 4 miles of a lek, the cumulative impacts on Gunnison sage-grouse will be much more significant than the FS anticipates in its EA. The FS must analyze the potential cumulative impacts of construction of 5 miles of new transmission lines within BLM, State Land Board and Private Parcels. Meaningful analysis of this issue is possible at the current time, and thus cannot legally be deferred to a later date.

In addition, the FS has failed to adequately analyze the potential impacts of construction, upgrade and maintenance of transmission lines on lands outside of the FS cumulative effects area for Gunnison sage-grouse. Existing and new power lines that may be used to transport electricity from the plant to end users, will pass through occupied habitat and in proximity to sage-grouse leks located outside of the FS cumulative effects area for Gunnison sage-grouse. Construction, upgrade and maintenance of these lines, and associated adverse impacts on Gunnison sage-grouse populations, constitute reasonably foreseeable cumulative impacts of geothermal leasing. At the current time, it is possible to disclose locations of existing transmission lines likely to be used for transport of electricity from the plant, determine whether such lines can currently handle the amount of energy projected to be produced by the

plant, determine whether these lines will need to be upgraded, or whether new lines are required, and predict the cumulative impacts of construction, upgrade and maintenance of these lines on Gunnison sage-grouse. Thus, meaningful analysis of this issue is possible at the current time. Transmission lines may result in cumulative adverse impacts to a larger proportion of the overall Gunnison Basin population than is considered in this EA, and FS must analyze these potential impacts.

5. The FS has failed to adequately analyze the potential indirect and cumulative impacts of the potential for the facilitation of the spread of West Nile Virus due to sump pits which may provide short-term breeding grounds for mosquitoes.

6. The FS has failed to adequately analyze the potential for the project to result in the spread of weeds outside of the FS cumulative effects analysis area for Gunnison sage-grouse, or the potential cumulative impacts of increased risk of fire associated with the geothermal development.

7. The FS inappropriately limited its analysis of the cumulative impacts of activities that will alter sagebrush vegetation to activities on FS lands, rather than considering the cumulative impacts of removal and alteration of sagebrush vegetation on the entire area that will be impacted by geothermal development (including adjacent private, BLM and State Land Board lands that will be leased for geothermal development).

8. The EA has failed to disclose the potential cumulative impacts of geothermal development in the area on the Waunita lek, and thus public opportunities to view this lek. The Waunita lek is the only place the public has the opportunity to observe the mating ritual of the

lek is the only place the public has the opportunity to observe the mating [illegible] Gunnison sage-grouse. If this lek is lost as a result of leasing and development, this opportunity will be lost. The FS must analyze how the public will be affected by the potential loss of a natural experience.

9. The EA has failed to disclose the overall magnitude of cumulative impacts on the Gunnison sage-grouse population. The EA discloses that four active leks are within 4 miles of the FS parcel. "Using the population estimate formula from the Rangewide Conservation Plan, a minimum total population estimate for these four leks is 231 birds which accounts for 6.3% of the Gunnison Basin Population. *EA at 135.* The BLM EA states that 18% of the Gunnison Basin population of Gunnison sage-grouse lives within 4 miles of the project area. *BLM EA at 51.* An explanation of how the population would be impacted by the cumulative effects of leasing on both federal parcels is necessary to determine the level of impact on the environment. This analysis must include full consideration of all of the indirect and cumulative impacts discussed above. In addition, this analysis must disclose why the potential loss of this large proportion of the Gunnison Basin population does not constitute a significant adverse impact, particularly in light of the fact that recent research suggests that the Gunnison Basin population has a low probability of persistence even at its current size. (Wisdom et al. in press, EA pg. 135). The FS has discounted the magnitude of potential environmental consequences of the proposed action by failing to consider the cumulative impacts of geothermal development on adjacent BLM and State Land Board parcels, and by disclosing only the consequences of development on the FS parcel. The FS must consider the combined effects of leasing of parcels on both federal ownerships, either in

an EIS that includes an adequate cumulative effects analysis, or in an EIS that assesses the impacts of geothermal development on both FS and BLM lease parcels.

c. The FS has failed to adequately analyze the effectiveness of the lease stipulations and other mitigation measures in the Environmental Assessment, and the determination that lease stipulations and other mitigation measures will prevent significant impacts to Gunnison sage-grouse is arbitrary and capricious.

A complete discussion of steps that can be taken to mitigate adverse environmental impacts is an important ingredient of the NEPA process. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989). "Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Id.* In recognition of the importance of a discussion of mitigation measures, Council on Environmental Quality (CEQ) regulations "require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c)." *Id. at 352*. When a proposed action will result in impacts to resources, the Agency is obligated to describe what mitigating efforts it could pursue to off-set the damages that would result from the proposed action. *See 40 C.F.C. § 1502.16(h) (2009)* (stating that an EIS "shall include discussions of . . . [m]eans to mitigate adverse environmental impacts"). "Mitigation must 'be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1154 (9th Cir. 1996). (quoting *Robertson v. Methow*

Valley Citizens Council, 490 U.S. 332, 353 (1989)). The Ninth Circuit explained that fair evaluation requires agencies to "analyze[] the mitigation measures in detail [and] explain how effective the measures would be. A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." *Nw. Indian Cemetery Protective Ass'n v. Peterson*, 764 F.2d 581, 588 (9th Cir. 1985), rev'd on other grounds, 485 U.S. 439 (1988).

In *Davis v. Mineta*, the Tenth Circuit found that federal agencies did not comply with NEPA when they relied on the possibility of mitigation measures in issuing a FONSI. According to the court, "[m]itigation measures may be relied upon to make a finding of no significant impact only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal. As a general rule, the regulations contemplate that agencies should use a broad approach in defining significance and should not rely on the possibility of mitigation as an excuse to avoid the EIS requirement." *Davis v. Mineta*, 302 F.3d 1104, 1125 (10th Cir. 2002)

The FS must evaluate the effectiveness of the mitigation measures used in geothermal leasing with the best available science. "The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." *40 C.F.R. § 1500.1(b) (2009)*. "For this reason, agencies are under an affirmative mandate to 'insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements[,] identify any methodologies used and . . . make explicit reference by footnote to the scientific and

other sources relied upon for conclusions[.]'" *Envtl. Def. v. U.S. Army Corps of Eng'rs*, 515 F. Supp. 2d 69, 78 (D.D.C. 2007) (citing *40 C.F.R. § 1502.24 (2009)*). If there is scientific uncertainty NEPA imposes the mandatory duties to: (1) disclose the scientific uncertainty; (2) complete independent research and gather information if no adequate information exists unless costs are exorbitant or the means of obtaining the information are not known; and (3) evaluate the potential, reasonably foreseeable impacts in the absence of relevant information. *See 40 C.F.R. § 1502.22 (2009)*.

The FS determined that the proposed action will not result in significant impacts to Gunnison sage-grouse that require an EIS. This determination is predicated on the assumption that lease stipulations will prevent significant adverse impacts to Gunnison sage-grouse.

The FS proposes to apply a 'No Surface Occupancy' stipulation (NSO) that prevents development in mapped Gunnison sage-grouse habitat within 4.0 miles of Gunnison sage-grouse leks. This provision will be subject to Waiver, Exception and Modification (WEMs) between 0.6 and 4.0 miles of a lek. No WEMs will be considered within a 0.6 miles of leks. The NSO stipulations do not apply to operations and maintenance activities. (EA pg. 18).

The FS fails to disclose significant adverse impacts that may result from the proposed action if WEM's are allowed within the 0.6-4.0 mile buffer around sage-grouse leks.

The FS acknowledges that occupied sage-grouse habitat within the 0.6-4.0 mile buffer of

leks may be impacted by geothermal development (EA pg. 138), and that this could result in reductions in habitat quality and quantity and disturbance/displacement of individuals due to human activity. However, the FS fails to provide an adequate analysis of all of the impacts that could result from allowing WEMs within the 0.6 mile-4.0 mile buffer around leks, and fails to disclose the potential for significant adverse impacts. Allowing WEMs within the 0.6-4.0 mile buffer of leks is likely to lead to declines at the four active sage-grouse leks within a 4-mile buffer around the project area, and further contribute to a lower probability of persistence for the Gunnsion sage-grouse.

The FS applies a NSO stipulation within 4.0 miles of a lek on the basis of research that shows that approximately 81% of all breeding, summer, fall and winter seasonal locations were within 4 miles of the lek of capture, and that 80% of hens nest and raise broods in suitable habitats within 4 miles of the hen's lek of attendance (RCP and EA pg. 134). Thus, the intent of the 4.0 mile NSO stipulation is to protect 81% of the habitat used by a population from a given lek, and 80% of the nests of birds from a given lek in a given breeding season (Note that 19% of seasonal habitat locations and 20% of nests were located outside of the 4 mile buffer). The 0.6 mile buffer is aimed at protecting the area used by male sage-grouse during the breeding season. The Rangewide Conservation Plan defines 'lek habitat' as an area within 0.6 miles of an active lek, based on several studies of daytime movements of adult male Greater sage-grouse during the breeding season (no similar data is available for Gunnison sage-grouse) (GSG RCP). In addition, 23% of Gunnison sage-grouse nests (GSG RCP, App. J. Fig. 1), and 27.5% of seasonal habitat locations occurred within 0.6 miles of the lek of capture in the Gunnison Basin. Thus, the 0.6 mile NSO stipulation

protects only 27% of the habitat used by a population from a given lek and 23% of the nests of birds from a given lek in a given breeding season from direct loss of habitat due to geothermal activities.

Therefore, if WEMs are granted for the 4 mile NSO buffer, then 73% of the habitat used by a population at a given lek, and more than 77% of the nests of birds from a given lek, would be in areas where direct loss of occupied seasonal habitat could occur as a consequence of geothermal activities, including nesting, brood rearing and wintering habitat. The impacts of direct loss of nesting habitat in these areas may be particularly devastating given that recent research on greater sage-grouse suggests that: 1) nest success is a key vital rate in determining whether a population declines or grows (nest success explains 31% of population growth,Walker and Naugle, in press, Doherty 2008, *see citation in our comments on the EA at 37-38*); 2) predation risk is reduced when females dispersed nests widely (Holloran and Anderson 2005, Doherty 2008, *see citation in our comments on the EA at 37-38*); and 3) nests spaced more closely to one another had lower nest success, while nest success was greater the farther the nest occurred from a lek (Holloran and Anderson 2005, Doherty 2008, *see citation in our comments on the EA at 37-38*). This suggests that nests at greater distances from the lek may have disproportionate potential importance for population recruitment. In addition, it suggests that geothermal development that results in loss of nesting habitat could have additional indirect impacts, by increasing the numbers of nests in the remaining habitat, thereby increasing predation and reducing nest success. Direct loss of brood rearing habitat may reduce survival of young. Loss of winter habitat may result in reduced overwinter survival. The FS does not disclose any of these potential significant adverse effects that could result from allowing WEMs of the NSO requirement between a 0.6 mile buffer and a 4.0 mile buffer around Gunnison sage-grouse leks; nor does it estimate how

loss of this amount of habitat/number of nests would influence the likelihood of persistence of the four active leks whose 4 mile buffers overlap with the lease parcel.

In addition, though the FS briefly acknowledges that effects from geothermal activities will extend beyond the footprint of ground disturbance (EA pg. 136), it does not provide an adequate analysis of such effects (see section on failure to adequately analyze impacts), nor does it explain how the stipulations attached to the lease will prevent significant adverse impacts from effects that extend beyond the footprint of ground disturbance.

The FS limits its cursory analysis of the impacts of granting WEMs to the 4 mile NSO around leks on Gunnsion sage-grouse. The FS fails to consider what direct reductions in the quality and quantity of habitat that may result from removal of sagebrush vegetation, and disturbance/displacement of individuals due to human activity, will result from geothermal exploration and development of the lease. The FS analysis does not account for a number of additional types of indirect and cumulative impacts that are likely to result in significant adverse impacts, which would not be reduced to insignificances by the stipulations attached to the lease. This is due to a failure to consider significant new information that was not available at the time of publication of the Gunnison sage-grouse rangewide conservation plan (*see citation in our comments on the EA at 37-38*). This information constitutes the best available science.

Recent research suggests that "sage-grouse populations decline in response to energy development when birds behaviorally avoid infrastructure in one or more seasons (Doherty et al. 2008), and when cumulative impacts of development negatively affect reproduction or

survival (Aldridge and Boyce 2007) or both (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, and Holloran et al. 2007). Avoidance of energy development reduces the distribution of sage-grouse and may result in population declines if density dependence, competition or displacement into poor-quality habitat lowers survival or reproduction among displaced birds (Holloran and Anderson 2005, Aldridge and Boyce 2007)." (Naugle et al., *see citation in our comments on the EA at 37-38*)

It is critical to note that the above impacts are not limited to impacts that result from reductions in sagebrush vegetation and human disturbance directly in the vicinity of the area of development. Naugle et al. (2009), reviewed a number of studies on the impacts of energy development on greater sage-grouse, and found that siting energy development facilities within 3.9 miles of a lek results in measureable impacts on sage-grouse leks and breeding populations (*see citation in our comments on the EA at 37-38*). Holloran (2005) reported declines in male greater sage-grouse lek attendance within 1.9 miles of a well or haul road with a traffic volume exceeding one vehicle per day (see citation in our comments on the EA).

The FS has not addressed the potential indirect and cumulative impacts of avoidance of energy development infrastructure. The proposed action could eventually result in construction of a number of energy development structures (e.g. wells, a plant, transmission lines etc.), construction of new roads, and substantial increases in traffic on existing roads.

If WEMs of the 4.0 mile buffer are granted, then energy development structures could be sited within 3.9 miles of four active Gunnison sage-grouse leks. Thus, it is reasonable to expect that significant impacts on sage-grouse leks and breeding populations will result from

reasonably foreseeable geothermal development on the lease parcel. Neither the 0.6 mile buffer nor any other mitigation at the project stage is likely to reduce this type of impact to insignificance.

Similarly, if WEMs are approved, new roads with substantial traffic volumes could be constructed within 1.9 miles of active leks, resulting in declines in male lek attendance. In addition, the NSO restriction does not apply to existing roads or "routine operation and maintenance activities". Further, the seasonal timing limitations aimed at preventing human disturbance near leks during the breeding season, do not apply to "routine operation and maintenance activities". It is certainly conceivable that "routine operations and maintenance" activities will result in traffic volumes that exceed 1 vehicle per day on roads located within 1.9 miles of active leks, resulting in declines in male lek attendance. In fact, in their comments on the EA the Colorado Division of Wildlife ("CDOW") stated, "Based on our experience with other types of fluid mineral development, CDOW is concerned that the lessee may consider large scale operations that can disrupt and displace wildlife during critical time periods as "routine operations and maintenance." CDOW goes on to request a clearer definition of "routine operations and maintenance". The FS responded that, "Routine operations and maintenance have been defined in the EA as "any non-emergency, regularly scheduled activity that is required to preserve ongoing production and maintain existing equipment and facilities to an adequate level of service." The FS response does not give the reader a clear idea of the level of activity that will occur as a consequence of "routine operation and maintenance activities", and the FS does not disclose the likely impacts of "routine operation and maintenance activities" on Gunnison

sage-grouse populations. Neither the 0.6 mile NSO buffer or any other mitigation at the project stage is likely to reduce the impact of high traffic volumes within 1.9 miles of active leks, to insignificance.

Though application of a 0.6 mile NSO buffer is expected to prevent direct loss of a small proportion (27%) of habitat associated with each lek, there is no reason to believe that it will prevent significant impacts on the four active leks due to direct loss of 73% of the habitat associated with each lek (including nesting, brood rearing, and wintering habitat), impacts on leks and breeding populations associated with the placement of energy development structures within 3.9 miles of active leks, declines in lek attendance associated with traffic exceeding 1 vehicle per day within 1.9 miles of leks, and the direct and indirect impacts associated with construction of 5 miles of new transmission line and improvement of existing lines. The FS provides no rationale describing how the 0.6 mile buffer will minimize these likely impacts to significance.

The FS states that, the NSO stipulation identified for the 0.6-4.0 mile buffer could still allow for geothermal development due to WEMs, but requires that all efforts are made to avoid sage-grouse habitat. However, avoidance of direct disturbance of habitat will not prevent the types of indirect and cumulative impacts of infrastructure discussed above. For example, even if structures such as wells are not placed directly within sage-grouse habitat, they may still result in measurable impacts to sage-grouse leks and breeding populations if they are located within 3.9 miles of a lek. The FS goes on to state that, if avoidance is not possible, the above stipulations and the Rangewide Conservation Plan will be used in consultation with CDOW and USFWs to minimize and mitigate impacts. The FS also states that, "if WEMs are allowed, site specific impacts will be analyzed prior to permitting with mitigation

developed in consultation with CDOW and USFWS to minimize impacts." However, the agency cannot rely on broad generalizations and vague references to possible future mitigation measures in making a finding of no significant impact. Rather, the agency is required to detail any mitigation measures that are relied upon to achieve a finding of no significant impact, and provide a detailed description of the mitigation measures that will be undertaken, and a detailed analysis of the effectiveness of such measures. This analysis must be done at the leasing stage, because once the parcel is leased, the agency is constrained in additional mitigation measures that can be applied, as any measures at that stage must be consistent with lease rights granted.

In addition, the application of the lease stipulations described above on Forest Service lands will not prevent significant cumulative impacts to sage-grouse due to geothermal development on adjacent BLM, State Land Board and Private Parcels. There will be no restriction on surface occupancy within 4 miles of leks applied to geothermal development on adjacent BLM, State Land Board and Private lands that are also being considered for leasing. The BLM proposes to apply a NSO restriction within 0.6 miles of Gunnison sage-grouse leks. This 0.6 mile NSO is subject to waiver, exception and modification. There are six active leks within 4 miles of the BLM lease parcel. (*See BLM EA at 55-56*; found at: http://www.blm.gov/co/st/en/fo/gfo/geothermal_lease_nomination.html). Thus, direct loss of 73% of the habitat associated with each of six active leks is possible as a consequence of geothermal development on BLM lands. In addition, if the BLM's 0.6 mile NSO buffer is waived, this could result in direct loss of up to 100% of the habitat associated with six active leks, which would result in a loss of 18% of the Gunnison Basin population (See

http://www.blm.gov/co/st/en/fo/gfo/geothermal_lease_nomination.html). The FS does not analyze the likely cumulative effects of geothermal development on adjacent lease parcels, and such an analysis would make it clear that the FS lease stipulations and other mitigation measures described in the FS EA, will not prevent significant cumulative impacts of geothermal leasing on Gunnison sage-grouse.

Finally, FS has not provided an adequate analysis of mitigation measures that may be applied at later stages of the geothermal development process (those not included as stipulations on the lease). For example, the FS states that raptor deterrents can be installed on transmission line poles as a BMP to reduce the likelihood of them being used as perch sites. However, the FS does not disclose that recent research indicates that raptor perch deterrents may be ineffective (*see citation in our comments on the EA at 37-38*), or that significant negative impacts may result from behavioral avoidance of transmission lines, regardless of whether raptors are deterred from perching on the lines. Many agencies now require burial of powerlines constructed within sage-grouse habitat. We provided this information to the FS in our previous comments on the EA at page 11. The FS does not provide an adequate analysis of whether raptor perch deterrents will effectively mitigate impacts of transmission lines to insignificance. The analysis of other mitigation measures described in the EA is similarly lacking.

d. The Forest Service should have prepared an Environmental Impact Statement due to the affects of this leasing on the Gunnison sage-grouse.

The FS should have prepared an Environmental Impact Statement ("EIS") analyzing the leasing of these parcels. In addition, the FS should have either considered the impacts of

geothermal development on Bureau of Land Management (BLM) lease parcels in its analysis of cumulative impacts in an EIS; or considered the geothermal leasing proposed on adjacent FS and BLM parcels to be connected actions and prepared a joint BLM/FS EIS that considered the impacts of leasing and subsequent development on both parcels.

NEPA requires federal agencies to prepare an EIS for all "major Federal actions significantly affecting the quality of the human environment...." *42 U.S.C.§ 4332(2)(C).* "[C]ourts have uniformly held that NEPA's EIS procedure applies where the federal government grants a lease." *City and County of Denver By and Through Bd. of Water Com'rs v. Bergland*, 517 F.Supp. 155, 200 (D.Colo. 1981). "CEQ regulations require that "connected" or "closely related" actions "be discussed in the same impact statement." *40 C.F.R. § 1508.25(a)(1)*, and that "significance cannot be avoided by terming an action temporary or breaking it down into small component parts." *40 CFR 1508.27(b)(7).*"One of the primary reasons for requiring an agency to evaluate "connected actions" in a single EIS is to prevent agencies from minimizing the potential environmental consequences of a proposed action (and thus short-circuiting NEPA review) by segmenting or isolating an individual action that, by itself, may not have a significant environmental impact." *Citizens' Committee to Save Our Canyons v. U.S. Forest Service*, 297 F.3d 1012, 1028 (10th Cir. 2002).

The FS determination that actions resulting from the decision in question do not constitute major Federal actions significantly affecting the quality of the human environment, and that an EIS is therefore not required, is arbitrary and capricious. There are a number of flaws in the rationale outlined in the FS Decision Notice (DN) for the above determination.

First, the conclusion that "no short or long term significant impacts are expected as a result of the decision in a local context" (DN pgs. 8, 9), is arbitrary and capricious. As discussed previously in this appeal, the proposed leasing and subsequent geothermal development is likely to result in short and long-term significant impacts on the local Gunnison sage-grouse population.

Second, the conclusion that "no short or long term significant impacts on affected interests are expected as a result of this decision in the regional context" (DN pgs. 8,9) is also arbitrary and capricious. There will be significant impacts on those that have an interest in conservation of the Gunnison sage-grouse, and in opportunities to view the Gunnison sage-grouse. The Waunita lek is the only location in the region where the public has an opportunity to view the Gunnison sage-grouse. The FS EA does not adequately disclose potentially significant direct, indirect and cumulative impacts to the persistence of the population that uses this lek, and therefore does not adequately analyze the potentially significant impact of loss of the only location where the public can view the Gunnison sage-grouse in the region.

The conclusion that "no negative impacts to society as a whole" (DN pgs. 8,9) are

expected is also arbitrary and capricious. As established elsewhere in this appeal, the cumulative impacts of the proposed leasing and subsequent geothermal development, may substantially reduce the probability of persistence of the Gunnison sage-grouse population in the Gunnison Basin, and thereby substantially increase the risk of extinction of the species. Society as a whole will be negatively impacted by the loss of this species.

Further, the conclusions that 1) adverse impacts of the proposed action have been disclosed, 2) adverse effects are of small scale and focused geographically and in duration, and that 3) none are severe enough to be considered significant (DN pg. 9) are arbitrary and capricious for the reasons outlined previously in this appeal. We have established that the proposed action is likely to result in significant adverse impacts on Gunnison sage-grouse that have not been adequately considered in the FS EA. Failure to consider these impacts renders the above conclusions arbitrary and capricious.

In addition, the statement that the area of the decision has not been identified by any source as an ecologically critical area (DN pgs. 9,10) is arbitrary and capricious. Our comments on the FS EA clearly establish that the area is ecologically critical due to its significance as key habitat for the globally critically imperiled Gunnison sage-grouse. *(comments on the EA at 3-8).*

In addition, the effects of the proposed action on Gunnison sage-grouse are highly controversial. There is scientific controversy and uncertainty regarding: the likely

impacts of the proposed action on Gunnison sage-grouse, the likely efficacy of lease stipulations and other mitigation measures applied to minimize impacts, and the degree to which the proposed project is likely to contribute to local and regional population declines. In addition, there is scientific and philosophical controversy regarding what the target population size should be for the Gunnison Basin population in order to ensure long-term persistence of this population, and over whether areas of Gunnison sage-grouse habitat on public lands should be set aside as reserves that are free from development. Scientists recommend holistic management approaches including conserving existing habitats and populations, combined with restoring habitat to maintain population persistence (Wisdom et al. in press, EA pg. 135). The proposed action is not consistent with these recommendations, and thus there is substantial uncertainty and controversy regarding whether the proposed action will contribute to the risk of loss of the Gunnison Basin population and extinction of the species. The conclusion that the effects of the proposed action are not highly controversial (DN pg. 10) is arbitrary and capricious.

Further, there is substantial uncertainty regarding how geothermal development will impact Gunnison sage-grouse, and the proposed action involves unique or unknown risks to Gunnison sage-grouse. The effects of energy development (and geothermal development in particular) on Gunnison sage-grouse have never been studied. Some predictions regarding impacts can be made from what is known about Gunnison sage-grouse biology and from understanding of research on the impacts of other types of energy development on greater sage-grouse. However, it is not known how impacts of geothermal development to Gunnison sage-grouse may differ based on potential differences in their level of sensitivity to impacts, differences between geothermal

development and other types of development (e.g. oil and gas) whose impacts have been better studied, etc. In addition, there are unique risks associated with allowing development in habitat for a population that has already declined to the point where it's long-term probability of persistence is low, even without any further reduction in numbers (Wisdom et al, in press, EA pg. 135). The conclusion that the possible effects of the proposed action are not highly uncertain, and do not involve unique or unknown risks (DN pg. 10), is arbitrary and capricious.

The determination that the proposed action will not result in cumulatively significant impacts (DN pg. 11) is arbitrary and capricious for the reasons outlined previously in our comments and in this appeal.

For the reasons outlined above, the actions resulting from the decision in question constitute major Federal actions significantly affecting the quality of the human environment, and an EIS is required.

Finally, the leasing of the FS parcels and the BLM parcels are connected actions which should be considered jointly in a combined BLM/FS EIS. The nominated parcel consisted of 3,765 acres of FS lands, 4,586 acres of BLM land, and 400 acres of private land with federal mineral estate. The total federal land proposed for leasing in these EAs is 8,351 acres. The leasing of these two parcels are connected actions since the entirety of both parcels was nominated to BLM. BLM and FS failed to analyze the affects of

leasing an 8,351 acre parcel on the human environment. The cumulative effects section of the EA does not adequately analyze the total impacts of leasing the combined parcels. Preparing separate EAs for the BLM and FS parcels failed to give an accurate analysis of the proposed leasing and anticipated development of this sensitive land. Analyzing smaller parcels allowed these agencies to give the appearance that leasing would not significantly affect the human environment. This expressly violates 40 CFR 1508.27(b)(7). An EIS is necessary to determine how leasing the whole 8,351 acres will affect the human environment.

e. The Environmental Assessment failed to consider sufficient alternatives to the proposed action

Section 102 (2) (C) of NEPA requires investigation and evaluation of reasonable alternatives to the proposed action that will accomplish the intended purpose. In the EA, FS considered only two alternatives: a no-action alternative and the proposed action. NEPA, however, requires the BLM to consider a much broader range of alternatives. 42 U.S.C. § 4332(2)(C)(iii); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228-29 (9th Cir. 1988). This requirement has been described as the "heart" and "linchpin" of the environmental review by the courts and the Council on Environmental Quality, respectively. *See Monroe County Conservation Council v. Volpe*, 472 F.2d 693, 697-98 (2d Cir. 1972); 40 C.F.R. § 1502.14. Agencies must "rigorously explore" all reasonable alternatives to the proposed action and "[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." *40 C.F.R. § 1502.14(a)*. "What is required is information sufficient to permit a reasoned choice of

alternatives so far as environmental aspects are concerned." *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972).

The BLM analyzed 5 separate alternatives in their geothermal leasing EA. BLM analyzed: 1) a proposed alternative, 2) a no action: lease with existing stipulations alternative, 3) a leasing with existing and additional NSO stipulations for all Gunnison sage-grouse leks and for mapped summer-fall habitat alternative, 4) a leasing with exiting and additional NSO stipulations for all occupied Gunnison sage-grouse habitat alternative, and 5) a close to leasing alternative. FS failed to rigorously explore all reasonable alternatives. CNE's comments requested FS to analyze: 1) no leasing in occupied Gunnison sage-grouse habitat until a land use plan revision has considered whether this area should be set-aside from energy development 2) leasing at alternate sites outside of occupied Gunnison sage-grouse habitat where there is geothermal potential, and 3) a range of other mitigating factors to ensure the protection of the Gunnison sage-grouse. *CNE comments to EA at 3.* The range of other mitigating factors alternatives should have analyzed larger non-waivable buffers around leks and greater levels of protection for seasonal habitat to determine if the project is feasible with further protections for the Gunnison sage-grouse. The FS final EA states that the agency eliminated further alternatives from detailed study. *FS EA at 27.* The FS completely failed to analyze leasing with more stringent stipulations to protect the Gunnison sage-grouse. The purpose of NEPA is to determine if this project could move forward while adequately protecting the sensitive environment where it is being placed. In sum, the EA has not thoroughly analyzed alternatives that are

sufficient to constitute full consideration of the impacts of the leasing and potential development, and adequate alternatives to adequately minimize and mitigate impacts.

f. The Forest Service violated NEPA by deferring environmental analysis until later in the process.

Analysis of environmental impacts should not be deferred until the application for permit to drill stage. NEPA analysis must be conducted prior to a federal action that would result in an "irreversible and irretrievable commitment of resources." *Mobile Oil Corp. v. F.T.C.*, 562 F.2d 170, 173 (2d. Cir. 1977). Doing otherwise "would frustrate the fundamental purpose of the National Environmental Policy Act . . . which is to ensure that federal agencies take a 'hard look' at the environmental consequences of their actions, early enough so that it can serve as an important contribution to the decision making process." *Sierra Club v. Bosworth*, 510 F.3d 1016, 1026 (9th Cir. 2007). In a more recent Tenth Circuit case the court stated that "assessment of all 'reasonably foreseeable' impacts must occur at the earliest practicable point, and must take place before an 'irretrievable commitment of resources' is made." *N.M. ex rel Richardson v. BLM*, 565 F.3d 683, 717-18 (10th Circuit 2009).

Analysis and surveys of these parcels should be conducted at the first instance possible and that is the leasing stage. Once a lease is granted resources are already committed to the development process, it will be more difficult for FS to ensure proper protections for the human environment once leases are issued. Biological resource surveys should also be conducted now to determine the occurrence of rare or threatened species on these parcels.

This is even more appropriate when, as here, the FS knows these types of species are present.

We have previously described a number of potential direct, indirect and cumulative impacts of the proposed project that have not been adequately analyzed in the EA. It is currently possible for FS to provide meaningful analysis of these impacts, and such analysis cannot legally be deferred to future analysis at later stages of the process of permitting geothermal development in the area in question.

g. The FS failed to properly ensure the viability of the Gunnison sage-grouse

According to Forest Service ("FS) policy, the FS "must develop conservation strategies for those sensitive species whose continued existence may be negatively affected by the Forest Plan or a proposed project." FSM 2670.45. These strategies must contain quantifiable objectives, and must be adopted prior to implementation of projects that would adversely impact that species habitat. FSM 2622.01, 2670.45. FS has failed to develop conservation strategies for the Gunnison sage-grouse. These best management practices must be based on the best available science to ensure conservation of the species. For the reasons outlined previously in this appeal FS has failed to ensure the viability of the Gunnison sage-grouse.

CONCLUSIONS

The APA prohibits an agency from acting in an arbitrary and capricious fashion. Fair and honest procedures are also an element of complying with NEPA (40 C.F.R. 1502.1). To assure that a fair discussion occurs, agencies are required to obtain high quality

information, including accurate scientific analysis (40 C.F.R.1500.1 (b)). The regulations are very explicit that: Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements (40 C.F.R. 1502.24). CEQ regulations also require that: Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency action, rather than justifying decisions already made (40 C.F.R. 1502.2(g)).

The policy behind NEPA is to ensure environmental considerations are integrated into agency planning (40 C.F.R. §1501), and that the public be informed in agency planning decisions ("NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken....Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. §1500.1(b) (emphasis added). "NEPA ensures the agency ...will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience." *Idaho Sporting Congress v. Thomas*, 1998 WL 89066 (9th Cir. (Idaho)). *Citing Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989). NEPA's disclosure goals are "to insure the agency has fully contemplated the environmental effects of its actions and to insure the public has sufficient information to challenge the agency (*Idaho Sporting Congress v. Thomas*, 1998 WL 89066 (9th Cir. (Idaho)). *Citing Inland Empire Public Lands Council v. United States Forest Service*, 88 F.3d 754, 758 (9th Cir. 1996)." The flaws in the EA and DN identified in this appeal violate the requirement of NFMA, NEPA, APA, and the Forest Plan and agency

regulations. Appellant is willing to meet with the Regional Forester or the Forest Supervisor to discuss the issues raised in this Appeal, in order to attempt to resolve them, and to ensure that these areas of the Forest are managed in a way that complies with federal law.

REQUEST FOR RELIEF

Pursuant to 36 CFR 215.14(b)(6), we hereby request the following relief from the Appeals Deciding Officer on these issues.

The EA and DN fail to meet their legal requirements as laid out in the Statement of Reasons section. Therefore the decision must be withdrawn, as it is not based on high quality information and analysis, is not well-informed, and clearly errs in its assumptions and analyses. If the FS chooses to issue a new decision, they must first be instructed to conduct NEPA in accordance with CEQ NEPA regulations at 40 CFR § 1502.9 and prepare a thorough, rigorous, accurate, non-arbitrary analysis and assessment of impacts.

Further, we request the following relief:
1) That the FS prepare an Environmental Impact Statement due to this major federal action's significant affects on the human environment.
2) That the FS conduct further analysis using the best available science about the Gunnison sage grouse and properly analyze the direct, indirect and cumulative effects of this project.

3) That the FS adequately analyze the potential effectiveness of lease stipulations and other mitigation measures.
4) that the FS include a lease stipulation that prohibits surface disturbance within 4 miles of leks without provision for waiver, modification and exception, and that the FS apply NSO stipulations and timing limitations to "operation and maintenance activities".
5) That analysis of this leasing proposal consider a wide range of alternatives as mandated by NEPA.
6) That new information about the Gunnison sage-grouse be considered to ensure conservation of this species
7) That FS avoid deferring analysis that can be conducted now until later in the process.

RESPECTFULLY SUBMITTED this __28th___ Day of March, 2011.

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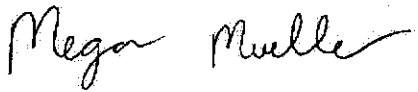

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Attachment 4

Serial Number	Species/Habitat Value	Original Parcel Acres	Acres Habitat Affecte
COC73584	Ecoregion Portfolio TNC 2001	3784	2372
COC73584	Elk Winter Concentration Area CDOW 2010	3784	1428
COC73584	Lynx Analysis Unit BLM & FS 2008	3784	3768
COC73584	Lynx Habitat Other SW CO USFS	3784	648
COC73584	Lynx Potential Habitat CDOW 2006	3784	2622
COC73584	Mule Deer Critical Winter Range CDOW 2010	3784	189
COC73584	Mule Deer Severe Winter Range CDOW 2010	3784	189
COC73584	Riparian Landcover GAP	3784	55
COC73584	Bald Eagle Winter Concentration CDOW 2010	3784	131
COC73584	Colorado State Wildlife Areas CDOW 2010	3784	2
COC73584	Gunnison Sage-grouse Hist Habitat CDOW 2010	3784	3784
COC73584	Gunnison Sage-grouse Lek Sites COGCC 2008	3784	54
COC73584	Gunnison Sage-grouse Overall Range CDOW 2010	3784	3775
COC73584	Gunnison Sage-grouse Production Area CDOW 2010	3784	3518
COC73584	Gunnison Sage-grouse Winter Range CDOW 2010	3784	1219
COC73584	Lynx Denning and Winter Habitats SW CO USFS	3784	1388
COC73584	Pot. Cons. Areas L4 (External) Higher Biodiversity Significance CNHP 2010	3784	3775
COC73584	Roadless Areas - Citizens Inventory SRCA 2003	3784	3223
COC73584	American Wigeon Habitat Modeled SWREGAP	3784	6
COC73584	Black Bear Human Conflict Area CDOW 2010	3784	178
COC73584	Black Bear Overall Range CDOW 2010	3784	3784
COC73584	Elk Overall Range CDOW 2010	3784	3784
COC73584	Elk Summer Range CDOW 2010	3784	3784
COC73584	Elk Winter Range CDOW 2010	3784	1958

COC73584	Elk Winter Range CDOW 2010	3784	1958
COC73584	Geese Production Area CDOW 2010	3784	180
COC73584	Lesser Scaup Habitat Modeled SWREGAP	3784	7
COC73584	Mallard Habitat Modeled SWREGAP	3784	13
COC73584	Mountain Lion Overall Range CDOW 2010	3784	3784
COC73584	Mule Deer Overall Range CDOW 2010	3784	3784
COC73584	Mule Deer Summer Range CDOW 2010	3784	3784
COC73584	Mule Deer Winter Range CDOW 2010	3784	1292
COC73584	Northern Leopard Frog Habitat Modeled SWREGAP	3784	4
COC73584	Northern Pintail Habitat Modeled SWREGAP	3784	6
COC73584	Old Spanish National Historic Trail NPS	3784	2262
COC73584	Pronghorn Overall Range CDOW 2010	3784	1240
COC73584	Pronghorn Winter Range CDOW 2010	3784	290
COC73584	River Otter Habitat Modeled SWREGAP	3784	3445
COC73584	Veery Habitat Modeled SWREGAP	3784	34
COC73584	Wildland Network Design High Use SREP	3784	383
COC73584	Wolf Habitat Modeled SWREGAP	3784	3784
COC73585	Ecoregion Portfolio TNC 2001	4581	4581
COC73585	Elem. Occ. High Precision Comm., Montane Riparian Forests CNHP 2011	4581	0
COC73585	Elem. Occ. High Precision Comm., Montane Riparian Forests CNHP 2011	4581	3
COC73585	Elk Severe Winter RangeCDOW 2010	4581	2229
COC73585	Elk Winter Concentration Area CDOW 2010	4581	4535
COC73585	Lynx Analysis Unit BLM & FS 2008	4581	1126
COC73585	Lynx Habitat Other SW CO USFS	4581	0
COC73585	Lynx Potential Habitat CDOW 2006	4581	264
COC73585	Mule Deer Critical Winter Range CDOW 2010	4581	3917

COC75185	Elk Winter Range CDOW 2010	248	248
COC75185	Moose Overall Range CDOW 2010	248	248
COC75185	Mountain Lion Overall Range CDOW 2010	248	248
COC75185	Mule Deer Overall Range CDOW 2010	248	248
COC75185	Mule Deer Summer Range CDOW 2010	248	248
COC75185	River Otter Habitat Modeled SWREGAP	248	248
COC75185	Veery Habitat Modeled SWREGAP	248	1
COC75185	Wolf Habitat Modeled SWREGAP	248	248
COC75186	Black Bear Fall Concentration CDOW 2010	624	461
COC75186	Colorado River Cutthroat Trout Watershed CDOW 2010	624	624
COC75186	Lynx Habitat Other NE CO USFS	624	0
COC75186	Lynx Linkage Modeled SREP/CNE 2009	624	623
COC75186	Riparian Landcover GAP	624	78
COC75186	Columbia Sharp-tailed Grouse Winter Range CDOW 2010	624	624
COC75186	Greater Sage-grouse Lek Sites 4 Mile Buffer COGCC 2008	624	12
COC75186	Wildland Network Design Core Conservation Areas SREP	624	624
COC75186	Columbia Sharp-tailed Grouse Overall Range CDOW 2010	624	624
COC75186	Black Bear Overall Range CDOW 2010	624	624
COC75186	Elk Migration Patterns CDOW 2010	624	82
COC75186	Elk Overall Range CDOW 2010	624	624
COC75186	Elk Summer Range CDOW 2010	624	624
COC75186	Elk Winter Range CDOW 2010	624	624
COC75186	Lynx Habitat Unsuitable NE CO USFS	624	0
COC75186	Moose Overall Range CDOW 2010	624	553
COC75186	Mountain Lion Overall Range CDOW 2010	624	624
COC75186	Mule Deer Overall Range CDOW 2010	624	624

COC75186	Mule Deer Summer Range CDOW 2010	624	624
COC75186	River Otter Habitat Modeled SWREGAP	624	589
COC75186	Wolf Habitat Modeled SWREGAP	624	624
COC75187	Boreal Toad Current Range CDOW 2010	2270	1671
COC75187	Colorado River Cutthroat Trout Watershed CDOW 2010	2270	2270
COC75187	Ecoregion Portfolio TNC 2001	2270	672
COC75187	Elk Production Area CDOW 2010	2270	2270
COC75187	Lynx Analysis Unit BLM & FS 2008	2270	2026
COC75187	Lynx Potential Habitat CDOW 2006	2270	2026
COC75187	Pot. Cons. Areas L4 (External) Lower Biodiversity Significance CNHP 2010	2270	120
COC75187	Riparian Landcover GAP	2270	58
COC75187	Colorado State Wildlife Areas CDOW 2010	2270	0
COC75187	Columbia Sharp-tailed Grouse Winter Range CDOW 2010	2270	517
COC75187	Roadless Areas - Citizens Inventory SRCA 2003	2270	1
COC75187	Wildland Network Design Core Conservation Areas SREP	2270	2270
COC75187	Wildland Network Design Core Heart of the West - Wild Utah update	2270	434
COC75187	Columbia Sharp-tailed Grouse Overall Range CDOW 2010	2270	2270
COC75187	American Wigeon Habitat Modeled SWREGAP	2270	4
COC75187	Black Bear Overall Range CDOW 2010	2270	2270
COC75187	Black Bear Summer Concentration Area CDOW 2010	2270	2029
COC75187	Elk Migration Patterns CDOW 2010	2270	42
COC75187	Elk Overall Range CDOW 2010	2270	2270
COC75187	Elk Summer Concentration Area CDOW 2010	2270	2270
COC75187	Elk Summer Range CDOW 2010	2270	2270
COC75187	Elk Winter Range CDOW 2010	2270	17
COC75187	Mallard Habitat Modeled SWREGAP	2270	14

COC75190	Elk Production Area CDOW 2010	1039	365
COC75190	Elk Severe Winter RangeCDOW 2010	1039	11
COC75190	Elk Winter Concentration Area CDOW 2010	1039	73
COC75190	Golden Eagle Active Nest Sites COGCC 2008	1039	46
COC75190	Greater Sage-grouse Medium Priority Habitat LSFO BLM 2007	1039	11
COC75190	Mule Deer Linkage Modeled SREP/CNE 2009	1039	1039
COC75190	Pot. Cons. Areas L4 (External) Lower Biodiversity Significance CNHP 2010	1039	18
COC75190	Riparian Landcover GAP	1039	73
COC75190	Columbia Sharp-tailed Grouse Winter Range CDOW 2010	1039	1039
COC75190	Wildland Network Design Core Heart of the West - Wild Utah update	1039	196
COC75190	Columbia Sharp-tailed Grouse Overall Range CDOW 2010	1039	1039
COC75190	Black Bear Overall Range CDOW 2010	1039	1039
COC75190	Black Bear Summer Concentration Area CDOW 2010	1039	343
COC75190	Elk Migration Patterns CDOW 2010	1039	26
COC75190	Elk Overall Range CDOW 2010	1039	1039
COC75190	Elk Resident Population Area CDOW 2010	1039	955
COC75190	Elk Summer Concentration Area CDOW 2010	1039	336
COC75190	Elk Summer Range CDOW 2010	1039	1039
COC75190	Elk Winter Range CDOW 2010	1039	1039
COC75190	Mallard Habitat Modeled SWREGAP	1039	2
COC75190	Mountain Lion Overall Range CDOW 2010	1039	1039
COC75190	Mule Deer Overall Range CDOW 2010	1039	1039
COC75190	Mule Deer Summer Range CDOW 2010	1039	1039
COC75190	Mule Deer Winter Range CDOW 2010	1039	69
COC75190	River Otter Habitat Modeled SWREGAP	1039	517
COC75190	Wolf Habitat Modeled SWREGAP	1039	1039