THE WILDERNESS SOCIETY

FRIENDS of NEVADA WILDERNESS

Delivered by hand

Bureau of Land Management
Nevada State Office
1340 Financial Boulevard
Reno, NV 89502-7147

Re: Protest of June 2018 oil and gas lease sale

To Whom It May Concern:

Please accept and fully consider this timely protest of BLM Nevada's June 2018 lease sale. This protest challenges BLM's Environmental Assessment (EA), DOI-BLM-NV-B020-2018-0017-EA, and the agency's decision to proceed with the sale of new leases located in the Battle Mountain District. We specifically protest the following parcels:

For lands with wilderness characteristics:

NV-18-06-107	NV-18-06-130	NV-18-06-061
NV-18-06-110	NV-18-06-131	NV-18-06-062
NV-18-06-111	NV-18-06-136	NV-18-06-063
NV-18-06-115	NV-18-06-138	NV-18-06-067
NV-18-06-116	NV-18-06-139	NV-18-06-068
NV-18-06-118	NV-18-06-142	NV-18-06-069
NV-18-06-119	NV-18-06-143	NV-18-06-070
NV-18-06-128	NV-18-06-151	NV-18-06-071
NV-18-06-129	NV-18-06-059	

For greater sage-grouse:

NV-18-06-166	NV-18-06-010	NV-18-06-020
NV-18-06-001	NV-18-06-011	NV-18-06-021
NV-18-06-002	NV-18-06-012	NV-18-06-022
NV-18-06-003	NV-18-06-013	NV-18-06-023
NV-18-06-004	NV-18-06-014	NV-18-06-024
NV-18-06-005	NV-18-06-015	NV-18-06-025
NV-18-06-006	NV-18-06-016	NV-18-06-026
NV-18-06-007	NV-18-06-017	NV-18-06-027
NV-18-06-008	NV-18-06-018	NV-18-06-048
NV-18-06-009	NV-18-06-019	NV-18-06-049

NV-18-06-050	NV-18-06-116	NV-18-06-145
NV-18-06-051	NV-18-06-117	NV-18-06-146
NV-18-06-052	NV-18-06-118	NV-18-06-147
NV-18-06-053	NV-18-06-119	NV-18-06-148
NV-18-06-054	NV-18-06-121	NV-18-06-149
NV-18-06-055	NV-18-06-122	NV-18-06-150
NV-18-06-056	NV-18-06-125	NV-18-06-151
NV-18-06-057	NV-18-06-126	NV-18-06-152
NV-18-06-058	NV-18-06-127	NV-18-06-153
NV-18-06-069	NV-18-06-135	NV-18-06-154
NV-18-06-071	NV-18-06-136	NV-18-06-155
NV-18-06-097	NV-18-06-137	NV-18-06-156
NV-18-06-105	NV-18-06-138	NV-18-06-157
NV-18-06-111	NV-18-06-139	NV-18-06-158
NV-18-06-112	NV-18-06-140	NV-18-06-159
NV-18-06-113	NV-18-06-142	NV-18-06-160
NV-18-06-114	NV-18-06-143	NV-18-06-162
NV-18-06-115	NV-18-06-144	

Interests of the Protesting Parties

The Wilderness Society ("TWS") has a long-standing interest in the management of Bureau of Land Management lands in Nevada and engages frequently in the decision-making processes for land use planning and project proposals that could potentially affect wilderness-quality lands and other important natural resources managed by the BLM in Nevada. TWS members and staff enjoy a myriad of recreation opportunities on BLM-managed public lands, including hiking, biking, nature-viewing, photography, and the quiet contemplation in the solitude offered by wild places. Founded in 1935, our mission is to protect wilderness and inspire Americans to care for our wild places.

Friends of Nevada Wilderness ("FNW") is dedicated to preserving all qualified Nevada public lands as wilderness, protecting all present and potential wilderness from ongoing threats, educating the public about values of- and need for- wilderness, and improving the management and restoration of wild lands. Incorporated in 1984, FNW today has 7,000 supporters and over 800 paid members who are passionate about protecting BLM-managed wild lands for recreation, scientific study, and to maintain healthy ecosystems for wildlife.

Authorization to File This Protest

Nada Culver is authorized to file this protect on behalf of The Wilderness Society and its members and supporters as Senior Counsel and Director of The Wilderness Society's BLM Action Center.

Kirk Peterson is authorized to file this protest on behalf of Friends of Nevada Wilderness as the organization's Inventory Coordinator.

Statement of Reasons

I. National Environmental Policy Act (NEPA) Violations

A. BLM has failed to analyze impacts to inventoried lands with wilderness characteristics.

BLM has existing inventoried lands with wilderness characteristics (LWC) in the Battle Mountain District, which overlap with the proposed lease parcels, which the agency has failed to include in the environmental impact analysis in this EA. The only reference to lands with wilderness characteristics in the EA is as follows: "A wilderness characteristics inventory is in progress. In the interim, lands with wilderness characteristics will be managed for multiple use where not designated otherwise." EA, p. 15. This statement ignores the fact that in 2013, BLM released a LWC report which identified the Heart Hills, Castle Rock 1, and Castle Rock 2 units as lands with wilderness characteristics. These are inventoried public lands resources which must be analyzed in NEPA documents such as this EA.

In response to our comments that BLM must analyze impacts to these inventoried wilderness resources, the EA states:

> Although an inventory process was started in 2013, no decision has been signed and the process is still ongoing. In the interim, lands with wilderness characteristics will be managed for multiple use where not designated otherwise.

EA, p. 174. In fact, the LWC reports were signed by Acting Field Manager Tim Coward in 2013. *See* Exhibit 1. Therefore, the decision has been signed, and BLM must therefore analyze impacts to these LWC units in this EA in accordance with NEPA.

NEPA is our "basic national charter for the protection of the environment." 40 C.F.R. § 1500.1 NEPA achieves its purpose through "action forcing procedures. . . requir[ing] that agencies take a hard look at environmental consequences." *Id.*; *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (citations omitted). This includes the consideration of best available information and data, as well as disclosure of any inconsistencies with federal policies and plans.

NEPA requires federal agencies to consider "any adverse environmental effects which cannot be avoided." 42 U.S.C. § 4332(C)(ii). Effects that must be considered 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.

Federal agencies must comply with NEPA before there are "any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." 42 U.S.C. § 4332(C)(v); *see also* 40 C.F.R. §§ 1501.2, 1502.5(a) *Ore. Natural Desert Ass'n v. BLM*, 531 F.3d 1114, 1132-33 (9th Cir. 2008) (requiring BLM to identify and evaluate wilderness values during NEPA analyses). Federal courts have held that site-specific analysis is required prior to issuing oil and gas leases where there is surface that is not protected

by no-surface occupancy stipulations (NSO) and where there is reasonable foreseeability of environmental impacts. *See e.g., New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 718 (10th Cir. 2009); *Pennaco Energy, Inc. v. United States DOI*, 377 F.3d 1147, 1160 (10th Cir. 2004). This is because oil and gas leases confer "the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold," subject to stipulations and other laws, and therefore would constitute an "irreversible and irretrievable commitment of resources." *New Mexico ex rel. Richardson*, 565 F.3d at 718; 40 C.F.R. § 3101.1-2; *see also Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988) (agencies are to perform hard look NEPA analysis "before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values").

BLM's total failure to analyze the potential impacts on BLM-inventoried lands with wilderness characteristics in the Battle Mountain District in the EA violates NEPA.

B. BLM has failed to respond to significant new information submitted by the public regarding lands with wilderness characteristics.

The proposed lease parcels overlap with the following citizen-inventoried LWC units, which were submitted to BLM by Friends of Nevada Wilderness in 2013-2016:

- Goblin Knobs
- Confusion Hills
- North Pancake II
- North Antelope III
- Sulphur Springs

That inventory information meets the minimum standards for review of new information set forth in BLM Manual 6310:

i. a map of sufficient detail to determine specific boundaries of the area in question;

ii. a detailed narrative that describes the wilderness characteristics of the area and documents how that information substantially differs from the information in the BLM inventory of the area's wilderness characteristics; and

iii. photographic documentation.

BLM Manual 6310 at .06(B)(1)(b). *See* Exhibit 2. When BLM receives information that meets these minimum standards, the agency is directed to review the information "as soon as practicable," "make the findings available to the public," and "retain a record of the evaluation and the findings as evidence of the BLM's consideration." *Id.* at .06(B)(2).

BLM has not responded to the citizen inventory information since it was submitted. The inventory information constitutes significant new information about the affected environment that BLM is required to consider in this EA.

The decision to ignore public input on affected wilderness resources contravenes the "hard look" requirement of NEPA. *See* 42 U.S.C. § 4332(2)(C). Numerous courts have applied the hard look mandate to overturn agency decisions that ignored substantive, relevant wilderness information provided by the public, including citizen-submitted wilderness inventories. *See, e.g.*, *Or. Natural Desert Ass'n v. Rasmussen,* 451 F. Supp. 2d 1202, 1211-13 (D. Ore. 2006) (holding that BLM violated the hard-look requirement of NEPA when it dismissed a citizen-submitted inventory "[w]ith a broad brush"); *SUWA v. Norton*, 457 Supp. 2d 1253, 1263-65 (D. Utah 2006) ("...Utah BLM ignored significant new information...information provided by the Southern Utah Wilderness Alliance...presented a textbook example of significant new information about the affected environment (the wilderness attributes and characteristics...)"); *Biodiversity Conservation Alliance*, 183 IBLA 97, 2013 IBLA Lexis *1, *28-*29 (2013) (rejecting a claim that BLM violated the hard-look requirement where BLM "specifically evaluated citizens' wilderness proposals [so that the citizens' proposals had] become administratively final...").

By completely ignoring the significant new information submitted by Friends of Nevada Wilderness, BLM is failing to take the requisite "hard look" at how the sale of the parcels listed in Exhibit 1 would affect wilderness resources in the Battle Mountain District as required by NEPA.

BLM must therefore defer leasing these parcels until the agency has updated its inventory for these areas in response to the significant new information submitted to the agency by Friends of Nevada Wilderness.

C. BLM has failed to evaluate a reasonable range of alternatives.

NEPA generally requires the lead agency for a given project to conduct an alternatives analysis for "any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(2)(E). The regulations further specify that the agency must "rigorously explore and objectively evaluation all reasonable alternatives" including those "reasonable alternatives not within the jurisdiction of the lead agency," so as to "provid[e] a clear basis for choice among the option." 40 C.F.R. § 1502.14. This requirement applies equally to EAs and EISs. *Davis v. Mineta*, 302 F.3d 1104, 1120 (10th Cir. 2002); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 122829 (9th Cir. 1988).

The range of alternatives is the heart of a NEPA document because "[w]ithout substantive, comparative environmental impact information regarding other possible courses of action, the ability of [a NEPA analysis] to inform agency deliberation and facilitate public involvement would be greatly degraded." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d at 708. That analysis must cover a reasonable range of alternatives, so that an agency can make an informed choice from the spectrum of reasonable options. An EA offering a choice between leasing every parcel nominated, and leasing nothing at all, does not present a reasonable range of alternatives. *See TWS v. Wisely*, 524 F. Supp. 2d 1285, 1312 (D. Colo. 2007) (BLM violated NEPA by failing to consider "middle-ground compromise between the absolutism of the outright leasing and no action alternatives"); *Muckleshoot Indian Tribe v. US Forest Serv.*, 177 F.3d 800, 813 (9th Cir. 1999) (NEPA analysis failed to consider reasonable range of alternatives where it "considered only a no action alternative along with two virtually identical alternatives").

In our comments on the EA, we proposed several alternatives which BLM should have evaluated in the revised EA, including:

- An alternative to protect wilderness resources from oil and gas impacts, through deferring lease parcels in lands with wilderness characteristics and/or offering those parcels with NSO stipulations. A "rule of reason" is used to determine if an adequate range of alternatives have been considered; this rule is governed by two guideposts: (1) the agency's statutory mandates; and (2) the objectives for the project. *New Mexico ex rel. Richardson*, 565 F.3d at 708. Here, there is no doubt that BLM's legal mandates under the Federal Land Policy and Management Act (FLPMA) and NEPA require it to fully consider the protection of wilderness values.

- An alternative that defers leasing the proposed parcels until BLM demonstrates that these are "lands…which are known or believed to contain oil or gas deposits…" 30 U.S.C. § 226(a). As discussed later in these comments, the EA provides no evidence that the proposed parcels contain oil or gas deposits, as required by the Mineral Leasing Act (MLA). *Ibid.*; *see also Vessels Coal Gas, Inc.*, 175 IBLA 8, 25 (2008) ("It is well-settled under the MLA that competitive leasing is to be based upon reasonable assurance of an existing mineral deposit."). Consistent with the MLA and BLM's multiple use mandate, BLM should not issue leases unless and until BLM has shown that the area is known to contain resources that have the potential to be developed.

- An alternative that defers leasing the proposed parcels until production in Nevada is on par with other western states. According to BLM data, at least 50% of federal oil and gas leases are in production in Colorado, New Mexico, Utah and Wyoming. Nevada, by contrast, has 6% of leases in production.[1] BLM should evaluate an alternative to not issue new leases until 50% of federal oil and gas leases are in production in the state to ensure "reasonable diligence" requirements are being met under the MLA. 30 U.S.C. § 187. This would also be a fiscally responsible alternative because leases in low potential areas generate minimal to no revenue but can carry significant cost in terms of resource use conflicts. Leases in low potential areas are most likely to be sold at or near the minimum bid of $2/acre, or non-competitively, and they are least likely to actually produce oil or gas and generate royalties.[2] This has proved to be true in Nevada, where federal oil and gas lease sales have generated just $0.23 per acre offered in bonus bids over the past 3 years, compared to other western states which generate hundreds or even thousands of dollars per acre offered. *See* below chart and Exhibit 2.

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[1] https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/oil-and-gas-statistics

[2] Center for Western Priorities, "A Fair Share" ("Oil Companies Can Obtain an Acre of Public Land for Less than the Price of a Big Mac. The minimum bid required to obtain public lands at oil and gas auctions stands at $2.00 per acre, an amount that has not been increased in decades. In 2014, oil companies obtained nearly 100,000 acres in Western states for only $2.00 per acre. . . .Oil companies are sitting on nearly 22 million acres of American lands without producing oil and gas from them. It only costs $1.50 per year to keep public lands idle, which provides little incentive to generate oil and gas or avoid land speculation.").

Nevada Sale[3]	Acres Offered	Bonus Bids
Mar. 2015	25,882	$30,496
June 2015	256,875	0
Dec. 2015	3,641	0
Mar. 2016	50,416	0
June 2016	74,661	$24,740
Mar. 2017	115,970	$74,780
June 2017	195,614	$29,440
Sept. 2017	3,680	$33,120
Dec. 2017	388,697	$66,978
Total	**1,115,436**	**$259,554 ($0.23/acre offered)**

- An alternative that defers leasing in Priority and/or General Habitat Management Areas, consistent with BLM's obligation under FLPMA and the binding land use plan to "prioritize" oil and gas leasing outside of those habitats. This obligation is explained more fully in section II.A of these comments.

D. BLM failed to evaluate direct, indirect and cumulative impacts to greater sage-grouse habitat.

The EA does not include adequate analysis of potential impacts on greater sage-grouse habitat to support BLM's decision to proceed with offering the lease parcels for sale. With these comments, we are submitting and incorporating by reference a report from Dr. Matt Holloran addressing the inadequacy of the agency's analysis. *See* Exhibit 3. A full environmental impact statement (EIS) is required to assess the cumulative impacts from selling these parcels in combination with the numerous other recent and planned lease sales in Nevada and other states. *See id.*

BLM attempts to defer impact analysis to the development stage, due to the fact that it is not presently known which lease parcels will be purchased and what operations would be proposed. EA, p. 3. However, BLM also acknowledges that once a lease is issued, "the lessee retains certain irrevocable rights." *Id.*, p. 13. As confirmed in *Richardson*, leasing constitutes an "irreversible and irretrievable commitment of resources." Therefore, BLM must analyze impacts at the lease sale stage.

Furthermore, BLM must evaluate applying additional stipulations to leases in greater sage-grouse habitat to preserve the agency's ability to protect habitat at the development stage. The EA indicates that "NDOW expressed concern that even with timing stipulations applied, if the Monitor Valley area were developed into oil production, persistence and viability of its lek complex and subpopulation would be likely compromised." *Id.*, p. 30. This is because, according to NDOW, these areas contain "habitats of particular [including] Little Fish Lake Valley, with 14 active, pending or historic leks throughout the proposed parcel group; and Monitor Valley, which supports a high concentration of leks and sage grouse that comprise a

[3] All data obtained from BLM (https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/nevada) and EnergyNet (https://www.energynet.com/govt_listing.pl).

substantial portion of the statewide population." *Id.*, p. 29 (emphasis added). Yet, in response to this concern and the larger overlap with PHMA and GHMA, BLM simply says that it "cannot apply stipulations beyond those specified by the GRSG Plan Amendment. . . ." *Id.*

In fact, BLM does have authority to attach new stipulations at the leasing stage to protect other resource values. For example, in *Yates Petroleum Corporation*, 174 IBLA 155 (2008), the Interior Board of Land Appeals (IBLA) affirmed BLM's authority to revise conditions of approval (COAs) for applications for permit to drill (APDs) to increase the stipulated seasonal buffers around sage-grouse leks from 2 to 3 miles, based on updated scientific information demonstrating previously conditioned smaller buffers as inadequate (looking at WAFWA studies). The IBLA based its conclusions in Section 6 of the standard oil and gas lease terms, which provides that leases are subject to "reasonable measures" as needed to "minimize adverse impacts" to other resource values not otherwise addressed at the time of leasing. Thus, it follows that if BLM has the authority to adopt new, protective measures at the permitting stage, then it clearly does at the leasing stage, provided those measures are adequately evaluated in the relevant NEPA document.

The IBLA has also required that BLM consider additional protective measures when a need exists for the agency to do so. In *William P. Maycock, et al.*, 177 IBLA 1 (March 16, 2009), the IBLA found that when the agency "acknowledges the validity of the more recent research that demonstrates that [previous] mitigation measures are not as effective as originally anticipated" the BLM is obligated to consider that a 2-mile seasonal buffer would not reduce the impacts of oil and gas drilling to insignificance. The BLM was required to reassess the potential mitigation measures included in the COAs prior to approving APDs. As a result, the BLM clearly has the legal *authority* to impose reasonable measures on existing and future leases and is *required to consider* the need for such measures.

In other sales, BLM has exercised its authority (or fulfilled its obligation) to attach new stipulations at the lease sale stage:

- New Mexico July 2012 Lease Sale: "One new stipulation has also been developed to protect resources within the 6 nominated parcels in the District. Those resource conflicts consist of areas that contain suitable Chihuhua scurfpea habitat." EA at 6.

- New Mexico July 2013 Lease Sale: "Three new stipulations are being identified, the first LC-51 CSU, is to protect resources such as playas and alkali lakes within areas that contain these features. The stipulation would prohibit surface disturbance within up to 200 meters of the outer edge of a playa or alkali lake, to protect the ecological and physical integrity of these features. . . . The second new stipulation is LC-52 CSU, to protect resources such as the floodplains within areas that contain these features. The stipulation would prohibit surface disturbance within up to 200 meters of the outer edge of 100 year floodplains, to protect the ecological and physical integrity of those floodplains. . . . The third new stipulation is LC-53 CSU, to protect private surface that is being used for cultivation. The stipulation would exclude surface disturbing activities associated with oil and gas development from occurring

in areas used for cultivation. The BLM may consider on an individual application basis, an exception to this stipulation if the surface owner signs an agreement with the lessee or operator allowing the proposed surface-disturbing activity within the cultivated area. Each application submitted to the BLM must include a copy of any agreement signed by the surface owner." EA at 7-8.

- Wyoming February 2012 Lease Sale: "The addition of 2,454 acres to the NSO onsite protection for two Patten Creek sites (48PL32/68) (1,506 acres) and one for Hell Gap site (48GO305) (948 acres) is warranted, as these acres have been determined, in consultation with Wyoming State Historic Preservation Officer (SHPO), as listed on or eligible for the National Register of Historic Places. This stipulation will be applied to parcel WY-1202-65." EA at 26.

Furthermore, as discussed below, BLM has an added duty beyond considering new stipulations to "prioritize" leasing outside of important sage-grouse habitats, such as those found in Little Fish Lake and Monitor valleys.

BLM's authority to protect greater sage-grouse habitat from oil and gas impacts will be more limited at the APD stage than at the leasing stage; therefore, BLM must analyze impacts in this EA and consider mitigation for those impacts such as applying more protective stipulations. Furthermore, if BLM argues that the agency cannot apply more protective lease stipulations, then it is even more critical that the agency consider not issuing leases in PHMA and GHMA at all.

II. Federal Land Policy and Management Act (FLPMA) Violations

A. BLM failed to prioritize leasing outside of greater sage-grouse habitats.

BLM has not prioritized leasing outside of sage-grouse habitat, as required by the Record of Decision (ROD) and Approved Resource Management Plan Amendments for the Great Basin Region and Nevada and Northeastern California Approved Resource Management Plan Amendment (ARMPA). Under the Great Basin ROD, BLM must:

> prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs. This is to further limit future surface disturbance and encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and as such protect important habitat and reduce the time and cost associated with oil and gas leasing development by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation.

ROD at 1-23.

The Nevada and Northeastern California ARMPA echoes this directive, including the following objective:

> Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG.

Nevada and Northeastern California ARMPA, p. 2-28 (emphasis added).

FLPMA requires that lease sale decisions comply with their governing land use plans. *See* FLPMA § 302(a), 43 U.S.C. § 1732(a) ("The Secretary shall manage public lands…in accordance with land use plans developed by him under section 1712 of this title…"); *see also* 43 C.F.R. § 1610.5-3(a) (48 Fed. Reg. 20,368 (May 5, 1983)) ("All future resource management authorizations and actions…shall conform to the approved plan."). Commenting on these provisions, the Supreme Court said,

> The statutory directive that BLM manage "in accordance with" land use plans, and the regulatory requirement that authorizations and actions "conform to" those plans, prevent BLM from taking actions inconsistent with the provisions of a land use plan.

Norton v. Southern Utah Wilderness Alliance, 542 U.S. 55, 68 (2004). Thus, it is clear that BLM must abide by the ROD and ARMPA in this lease sale. BLM's leasing decisions, not just its development decisions, must comply with the ROD and ARMPA ("Priority will be given to leasing . . . of fluid mineral resources . . . outside of PHMA and GHMA.").

In the EA, BLM has not even cited the "prioritization" requirement from the ROD and ARMPA, let alone made any attempt at complying with the requirement. In response to comments that BLM should consider deferring leases in sage-grouse habitat in compliance with the prioritization requirement, the EA states:

> See BLM IM 2018-026, which was issued December 27, 2017 with its stated purpose "to ensure consistency, certainty, and clarity when implementing an objective in the [GRSG Plan Amendments] to prioritize oil and gas leasing outside of GRSG habitat, while continuing to move forward expeditiously with oil and gas leasing and development, yet providing protections for GRSG and GRSG habitat management areas."

EA, p. 167. To the extent IM 2018-026 can be read as purporting to remove any requirement to limit leasing in sage-grouse habitat management areas, and the requirement to prioritize leasing outside those areas, it is inconsistent with the ROD and ARMPA.[4] The entire point of the

[4] While this lease sale is governed by the 2015 Nevada and Northeastern California ARMPA, which contains a clear and binding requirement to "prioritize" leasing outside of important grouse habitat, it is worth noting that the draft amendment to the ARMPA proposed on May 4, 2018 retains and in no way modifies that requirement. *See* Nevada and Northeastern California Draft RMP Amendment and EIS at

prioritization objective is to limit development and surface disturbance in important sage-grouse habitat—not simply to order BLM's administrative paperwork. Nor is the prioritization requirement satisfied by "encourag[ing] lessees to voluntarily prioritize leasing" outside habitat management areas. IM 2018-026. The prioritization objective applies to BLM's decisions about where to offer leases—not the business choices of companies with no stewardship obligations—and it is binding on the agency.

With these comments, we are submitting and incorporating by reference a report from Dr. Matt Holloran addressing the importance of prioritization of leasing and development outside habitat. *See* Exhibit 3. Dr. Holloran's report looks to the manner in which the ARMPA requires prioritizing leasing and development outside PHMAs and GHMAs, in addition to protective stipulations for leases that are offered. Dr. Holloran's report further concludes that by disregarding the prioritization requirement, BLM is failing to protect sage-grouse habitat at the landscape level required by the ARMPA.

Further, the U.S. Fish & Wildlife Service (FWS) specifically identified the prioritization requirement as one of the new "regulatory mechanisms" that allowed it to determine that sage-grouse did not warrant an ESA listing. *See* Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List Greater Sage-Grouse (Centrocercus urophasianus) as an Endangered or Threatened Species, 80 Fed. Reg. 59,858 59,981 (Oct. 2, 2015) ("The Federal Plans prioritize the future leasing and development of nonrenewable-energy resources outside of sage-grouse habitats."). By ignoring this requirement in the context of this and other oil and gas lease sales, BLM is undermining FWS's determination and moving sage-grouse closer to a listing.

BLM's failure to undertake the mandatory "prioritization" analysis is especially egregious, given that proposed parcels overlap with "habitats of particular value" that the Nevada Department of Wildlife (NDOW) believes "would likely be compromised" by leasing and development. EA, p. 29-30. According to the EA,

> [t]he Assessment Area includes several parcels having PHMA, GHMA and OHMA habitat mapped under the GRSG Plan Amendment, as described under Regulatory Framework above (Figure 5). Available data indicate that nesting, brooding, summer, and winter habitat occurs not only in PHMA and GHMA, but also in many areas of OHMA. NDOW indicates that habitats of particular value include Little Fish Lake Valley, with 14 active, pending or historic leks throughout the proposed parcel group; and Monitor Valley, which supports a high concentration of leks and sage grouse that comprise a substantial portion of the statewide population. The Monitor Valley habitats are fairly contiguous and without many human disturbances, qualities that are essential in the management of sage grouse habitat. Parcel 013 is near a large (i.e. high male attendance) lek.

ES-6 (including "Prioritization of fluid mineral leases outside of PHMA and GHMA" in a list of "Issues and Resources Not Carried Forward for Additional Analysis").

Id., p. 29. Yet BLM ignores its authority and duty to prioritize leasing outside of PHMA and GHMA, which is set forth clearly in the ROD and ARMPA. BLM can and must do more at this stage, including by deferring parcels in PHMA and GHMA.

BLM clearly must apply the prioritization objective from the ROD and ARMPA to this lease sale when parcels are proposed in or near PHMA and GHMA, and explain how its leasing decision complies with that mandate. BLM has failed to do so.

Leasing constitutes an irreversible and irretrievable commitment of resources, and in addition a lease gives a lessee the right to develop oil and gas. Form 3100-11 and 43 C.F.R. § 3101.1-2. Thus, it is clear that leasing has tangible impacts that cannot be ignored if BLM is to meet the commitment to prioritize leasing outside of sage-grouse habitats.

B. The proposed action conflicts with FLPMA's multiple use mandate.

Under FLPMA, BLM is required to manage the public lands on the basis of multiple use and sustained yield. 43 U.S.C. § 17732 (2012). In recognition of the environmental components of the multiple use mandate, courts have repeatedly held that under FLPMA's multiple use mandate, development of public lands is not required, but must instead be weighed against other possible uses, including conservation to protect environmental values. *See, e.g., New Mexico ex rel. Richardson*, 565 F.3d at 710 ("BLM's obligation to manage for multiple use does not mean that development *must* be allowed. . . . Development is a possible use, which BLM must weigh against other possible uses — including conservation to protect environmental values, which are best assessed through the NEPA process."); *Rocky Mtn. Oil & Gas Ass'n v. Watt*, 696 F.2d 734, 738 n.4 (10th Cir. 1982) ("BLM need not permit all resource uses on a given parcel of land.").

The EA notes that oil and gas leasing is "an acceptable use of the public lands under FLPMA" and that "BLM is required by law to consider leasing of nominated areas if leasing is in conformance with the applicable BLM land use plan." EA, p. 4. Both of these statements are true, and reinforce that BLM is not required to offer lands for lease but has the discretion to decide which lands to offer through this NEPA process. Neither the MLA, FLPMA nor any other statutory mandate requires that BLM must offer public lands and minerals for oil and gas leasing that are nominated for such use, even if those lands are allocated as available to leasing in the governing land use plan.

In fact, the MLA is structured to facilitate actual production of federal minerals, and thus its faithful application should discourage leasing of low potential lands. The MLA directs BLM to hold periodic oil and gas lease sales for "lands…which are known or believed to contain oil or gas deposits…" 30 U.S.C. § 226(a). These sales are supposed to foster responsible oil and gas development, which lessees must carry out with "reasonable diligence." 30 U.S.C. § 187; *see also* BLM Form 3100-11 § 4 ("Lessee must exercise reasonable diligence in developing and producing…leased resources."). The purpose and need section in the EA implicates this requirement, stating: "Offering parcels for competitive lease sale provides for orderly development of fluid mineral resources under BLM's jurisdiction." EA, p. 2. However, as demonstrated below, BLM Nevada's oil and gas leasing program caters almost exclusively to speculative leasing, leading to an utterly disorderly and ineffective process that fosters

essentially no development of fluid mineral resources and therefore does not carry out the provisions or intention of the MLA or FLPMA.

The EA provides no evidence that the proposed parcels contain oil or gas deposits, as required by the MLA. 30 U.S.C. § 226(a); *see also Vessels Coal Gas, Inc.*, 175 IBLA 8, 25 (2008) ("It is well-settled under the MLA that competitive leasing is to be based upon reasonable assurance of an existing mineral deposit."). In fact, there is abundant evidence to the contrary – that the lands encompassed by the parcels are wholly lacking in marketable oil and gas resources. For example, the EA states that "no new oil fields have been developed in the [Tonopah Field Office] since 1997," and that "The recent exploration and development history provides a basis for estimating a low development potential for oil and gas disturbance that might indirectly result from the June 2016 Competitive Oil and Gas Lease Sale." EA, p. 147. Similarly in the Mount Lewis Field Office, the EA states that "an average of less than one exploration well was drilled per year between the years of 1980 and 2003," and that since 2003 BLM has authorized only four exploration wells all of which have been plugged, leading BLM to conclude: "The potential for oil and gas exploration and production in the MLFO can also be considered low." EA, p. 148. Thus, the EA contains no "reasonable assurance" that the proposed leases actually contain oil or gas deposits that would support a leasing decision under the MLA.

Leasing in low potential areas, like those in this sale, gives preference to oil and gas development at the expense of other uses because the presence of leases can limit BLM's ability to manage for other resources, in violation of FLPMA's multiple use mandate. In the recently finalized Colorado River Valley Resource Management Plan, for example, BLM decided against managing lands for protection of wilderness characteristics in the Grand Hogback LWC unit based specifically on the presence of oil and gas leases, even though the leases were non-producing:

> The Grand Hogback citizens' wilderness proposal unit contains 11,360 acres of BLM lands. All of the proposed area meets the overall criteria for wilderness character…There are six active oil and gas leases within the unit, totaling approximately 2,240 acres. None of these leases shows any active drilling or has previously drilled wells. The ability to manage for wilderness character would be difficult. If the current acres in the area continue to be leased and experience any development, protecting the unit's wilderness characteristics would be infeasible…

Proposed Colorado River Valley RMP (2015), p. 3-135. The presence of leases can also limit BLM's ability to manage for other important, non-wilderness values, like renewable energy projects. *See, e.g.,* Proposed White River Resource Management Plan, p. 4-498 ("Areas closed to leasing…indirectly limit the potential for oil and gas developments to preclude other land use authorizations not related to oil and gas (e.g., renewable energy developments, transmission lines) in those areas.").

In offering the leases involved in this sale, BLM runs a similar risk of precluding management decisions for other resources in the Battle Mountain District, which has an RMP revision on the horizon. As described in the EA and public comments on this lease sale, the proposed leases overlap areas with wilderness qualities, important water resources, sensitive species habitat, and

other important public lands resources. The area also has almost no history of successful oil and gas exploration and development or potential for future successful development. In prioritizing leasing of low potential lands, BLM is violating FLPMA's multiple use mandate and improperly elevating oil and gas leasing above other multiple uses.

Conclusion

We hope to see BLM complete needed analysis and fully comply with applicable law and guidance prior to proceeding with leasing the protested parcels.

Sincerely,

Nada Culver, Director and Senior Counsel
BLM Action Center
The Wilderness Society
1660 Wynkoop Street, #850
Denver, CO 80202
303-225-4635
nada_culver@tws.org

Kirk Peterson, Inventory Coordinator
Friends of Nevada Wilderness
PO Box 9754
Reno, NV 89507
(775) 324-7667
kirk@nevadawilderness.org

Exhibits

1. BLM signed inventories for the Heart Hills, Castle Rock 1, and Castle Rock 2 LWC units
2. Friends of Nevada Wilderness LWC inventories previously submitted to the Battle Mountain District
3. Report by Dr. Matthew J. Holloran addressing potential effect to sage-grouse from the June 2018 oil and gas lease sale, and CV for Dr. Holloran.

EXHIBIT 1

FORM 1

Castle Rock #1

Documentation of BLM Wilderness Characteristics Inventory Findings from Previous Inventory on Record

1. Is there existing BLM wilderness characteristics inventory information on all or part of this area?

No _____(Go to Form 2)Yes ✓ (If yes, and if more than one area is within the area, list the unique identifiers for those areas.):

a) **Inventory Source:** 1980 NV Intensive Wilderness Inventory

b) **Inventory Area Unique Identifier(s):** NV-060-130 (Castle Rock)

c) **Map Name(s)/Number(s):** Warm Springs 1:100,000

d) **BLM District(s)/Field Office(s):** Battle Mountain District/Tonopah Field Office

2. BLM Inventory Findings on Record:

Existing inventory information regarding wilderness characteristics (if more than one BLM inventory area is associated with the area, list each area and answer each question individually for each inventory area):
Inventory Source: 1980 NV Intensive Wilderness Inventory

Area Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No
060-130	22,300	Yes	No	No	No

FORM 2

Castle Rock #1

Current Conditions: Presence or Absence of Wilderness Characteristics

Area Unique Identifier NV-060-120 Acreage 20,783
(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).

In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

Yes ✓ No _____
Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc.): Area is bounded on all sides by maintained graded or paved roads. Prior boundary issues with original inventory have been resolved by pulling boundary out to county roads.

(2) Does the area appear to be natural?
Yes ✓ No _____ N/A _____
Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities): Central area of unit shows little sign of human activity. Very little evidence of grazing ~~even~~. Some historic mining activity in spots along boundary, but it does not detract from naturalness of entire unit.

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?

Yes ✓ No _____ N/A _____

NOTE:

* Additional information, field notes, etc, are available in project files located in Tonopah Field Office.

* Friends of Nevada Wilderness - citizen proposed area. FNW files are also on file at TFO & in DFS digital storage.

Description (describe the area's outstanding opportunities for solitude):
Layers of mountains and cathedral rocks offer outstanding ~~seclu~~ seclusion and solitude. Area seems to go on forever with topographic and vegetative screening by pinyon - juniper vegetation.

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

Yes ✓ No _____ N/A_____

Note: If "No" is checked for both 3 and 4 the area does not have wilderness characteristics; check "NA" for question 5.

Description (describe the area's outstanding opportunities for primitive and unconfined recreation): hiking geologic study, bouldering / canyon exploring. Area invites a hiker/explorer to go further into area and see what's over the next ridge, and the next.

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?

Yes ✓ No _____ N/A_____

Description: archeologic - lithic scatter is abundant; geologic interest; historic mining activity.

Summary of Analysis* Castle Rock #1

Area Unique Identifier: NV-060-120

Summary
Results of analysis:
(Note: explain the inventory findings for the entirety of the inventory unit. When wilderness characteristics have been identified in an area that is smaller than the size of the total inventory unit, explain why certain portions of the inventory unit are not included within the lands with wilderness characteristics (e.g. the inventory found that certain parts lacked naturalness).

1. Does the area meet any of the size requirements? ✓ Yes ___ No

2. Does the area appear to be natural? ✓ Yes ___ No ___ N/A

3. Does the area offer outstanding opportunities for solitude or a primitive and unconfined type of recreation? ✓ Yes ___ No ___ N/A

4. Does the area have supplemental values? ✓ Yes ___ No ___ N/A

Check one:

✓ The area, or a portion of the area, has wilderness characteristics and is identified as lands with wilderness characteristics.

___ The area does not have wilderness characteristics.

Prepared by (team members):

B Anderson ORP
E. Aoky ORP
J. Kinsner Arch
T. Anderson GBI 5/20-21/2013

(Name, Title, Date)

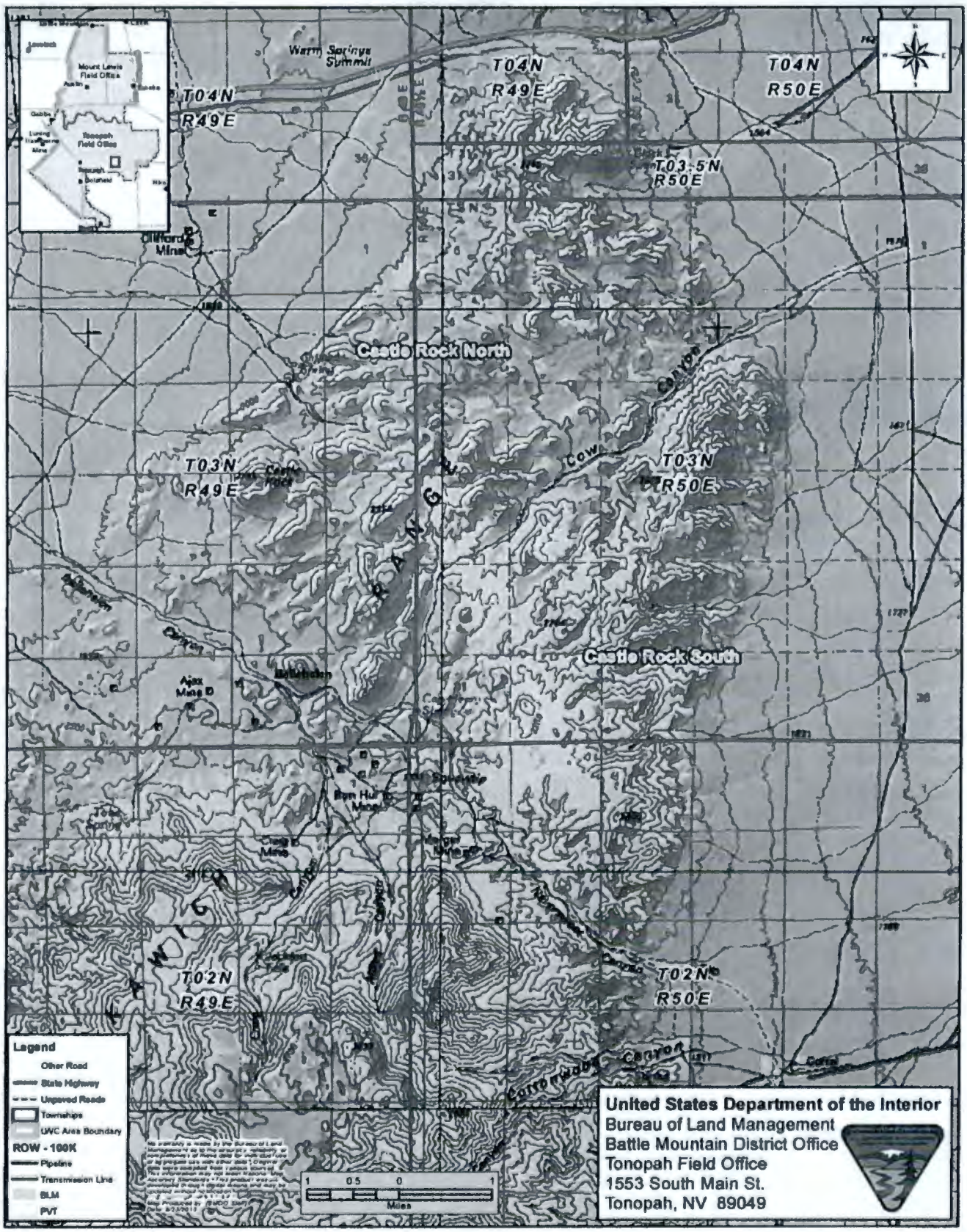
Reviewed by (District or Field Manager):

* This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.

Name: Tim Coward **Title:** Acting Field Mgr.

Date: 9/5/13

CASTLE ROCK
Lands with Wilderness Characteristics



FORM 1

Castle Rock #2

Documentation of BLM Wilderness Characteristics Inventory Findings from Previous Inventory on Record

1. Is there existing BLM wilderness characteristics inventory information on all or part of this area?

No _____(Go to Form 2)**Yes** ✓ (If yes, and if more than one area is within the area, list the unique identifiers for those areas.):

a) Inventory Source: 1980 NV Intensive Wilderness Inventory

b) Inventory Area Unique Identifier(s): NV-060-120 (East Hawick)

c) Map Name(s)/Number(s): Worm Springs 1:100,000

d) BLM District(s)/Field Office(s): Battle Mountain District/Tonopah Field Office

2. BLM Inventory Findings on Record:

Existing inventory information regarding wilderness characteristics (if more than one BLM inventory area is associated with the area, list each area and answer each question individually for each inventory area):
Inventory Source: 1980 NV Intensive Wilderness Inventory

Area Unique Identifier	Sufficient Size? (Yes)/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No
060-120	18,100	Yes	NO	NO	NO

FORM 2 Castle Rock #2

Current Conditions: Presence or Absence of Wilderness Characteristics

Area Unique Identifier NV-060-120 Acreage 18,785
(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).

In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below).

Yes ✓ No _____

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc.): Boundary is maintained county roads on east and north/west portions. The south/west boundary is formed by partially grown in primitive route a portion of which forms north boundary of Kawich WSA.

(2) Does the area appear to be natural?

Yes ✓ No _____ N/A _____

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities): Unit is quite natural with native vegetation and little/no evidence of modern man. Some historic mining activity in some areas.

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?

Yes ✓ No _____ N/A_____

NOTE :

* Additional information, field notes, etc., are available in project file kept in Tonopah Field Office.
* Friends of Nevada Wilderness - citizen proposed area. FNW files are also on file at TFO and in DFS digital storage.

Description (describe the area's outstanding opportunities for solitude):
Deep canyons and dense vegetation on south side. bounded by WSA here also. Easy to get lost in this area and experience outstanding solitude. North portions remote & rolling with layers of topographic and vegetative screening.

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

Yes ✓ No _____ N/A_____

Note: If "No" is checked for both 3 and 4 the area does not have wilderness characteristics; check "NA" for question 5.

Description (describe the area's outstanding opportunities for primitive and unconfined recreation): hiking, exploring, canyoneering. Area invites hiker to explore deeper into area and discover what it offers. Outstanding opportunities for primitive and unconfined recreation

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?

Yes ✓ No _____ N/A_____

Description: geology, archeology, historic mining evidence & artifacts.

Summary of Analysis*

Area Unique Identifier: NV-060-130 Castle Rock #2

Summary

Results of analysis:

(Note: explain the inventory findings for the entirety of the inventory unit. When wilderness characteristics have been identified in an area that is smaller than the size of the total inventory unit, explain why certain portions of the inventory unit are not included within the lands with wilderness characteristics (e.g. the inventory found that certain parts lacked naturalness).

1. Does the area meet any of the size requirements? ✓ Yes ___ No

2. Does the area appear to be natural? ✓ Yes ___ No ___ N/A

3. Does the area offer outstanding opportunities for solitude or a primitive and unconfined type of recreation? ✓ Yes ___ No ___ N/A

4. Does the area have supplemental values? ✓ Yes ___ No ___ N/A

Check one:

✓ The area, or a portion of the area, has wilderness characteristics and is identified as lands with wilderness characteristics.

___ The area does not have wilderness characteristics.

Prepared by (team members):

B. Andersen ORP
E. Arky ORP
J. Kinsner Arch
T. Andersen GBT 3/20-21/2013

(Name, Title, Date)

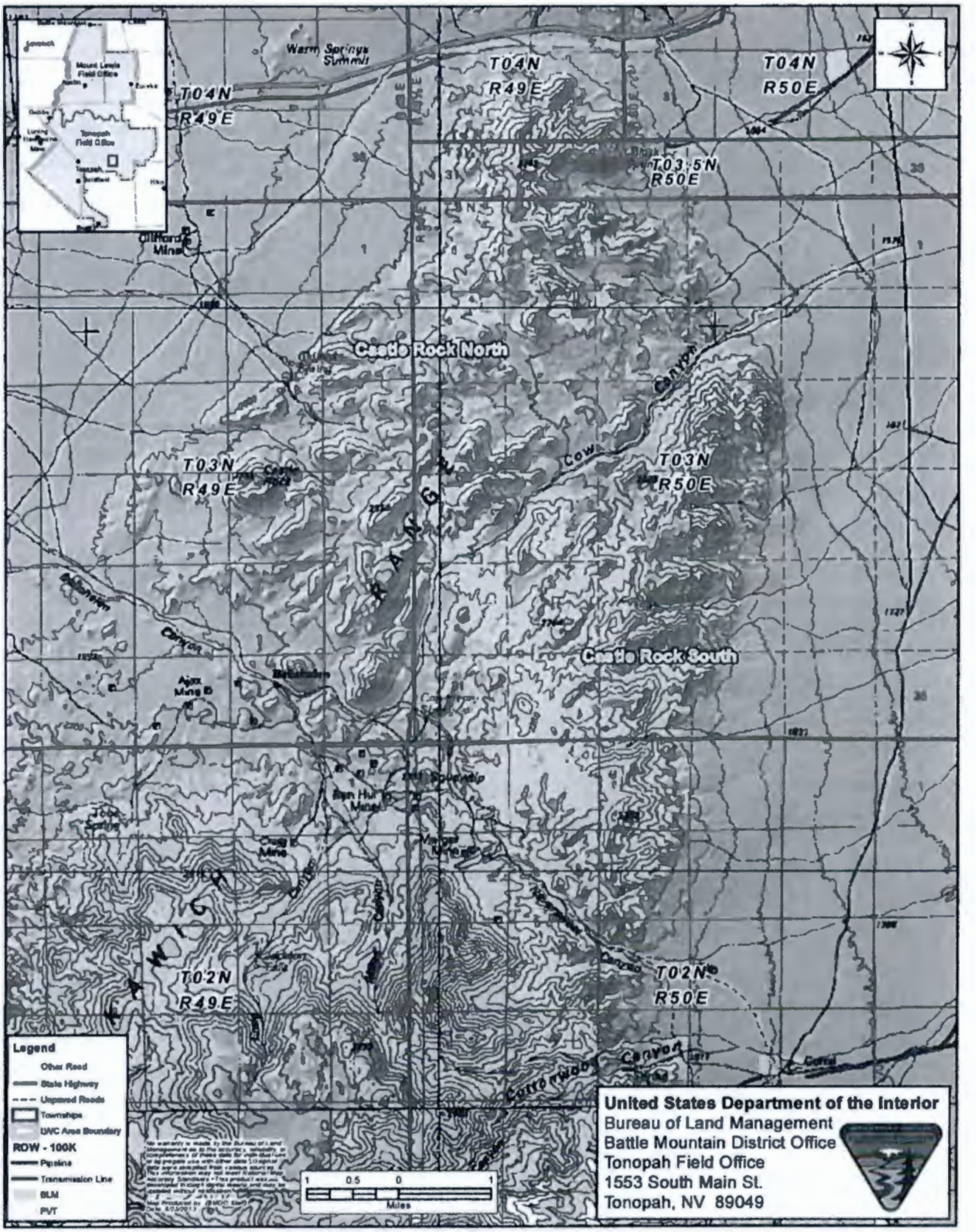
Reviewed by (District or Field Manager):

* This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.

Name: Tim Coward **Title:** Acting Field Mgr.

Date: 9/5/13

CASTLE ROCK
Lands with Wilderness Characteristics



Heart Hills

FORM 1

Documentation of BLM Wilderness Characteristics Inventory Findings from Previous Inventory on Record

1. Is there existing BLM wilderness characteristics inventory information on all or part of this area?

No _____(Go to Form 2)**Yes** ✓ (If yes, and if more than one area is within the area, list the unique identifiers for those areas.):

a) Inventory Source: 1980 NV Intensive Wilderness Inventory

b) Inventory Area Unique Identifier(s): NV-060-192 Slanted Buttes

c) Map Name(s)/Number(s): Mt. Jefferson 1:100,000

d) BLM District(s)/Field Office(s): Battle Mtn/Tonopah F.O.

2. BLM Inventory Findings on Record:

Existing inventory information regarding wilderness characteristics (if more than one BLM inventory area is associated with the area, list each area and answer each question individually for each inventory area):
Inventory Source: 1980 NV Int. Wilderness Inv.

Area Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No
NV-060-192	23,900	Yes	No	No	No

FORM 2 Heart Hills

Current Conditions: Presence or Absence of Wilderness Characteristics

Area Unique Identifier OR-060-192 Acreage 30,548 (base on FNW proposal)
(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).

In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

Yes ✓ No _____

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc.): The area as proposed by FNW is bounded by maintained roads on all sides. After BLM inventory & field checking southeastern triangle and north eastern triangle were illiminated to return boundary to original 1984 inventory boundary. SW corner boundary now allotment fence and 2 track. Northeast boundary is a travelable route.

(2) Does the area appear to be natural?

Yes ✓ No _____ N/A _____

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities): Southeastern portion of proposed area is not natural as it is cut off by grazing allotment fence. Remaining area is natural. A small bit of historic disturbance exists on south portion; otherwise area is natural

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?

Yes ✓ No _____ N/A_____

NOTE

* Addition information, field notes, maps, etc. are on file at Tonopah Field Office

* Friends of Nevada Wilderness - Citizen Proposed area. FNW ~~files~~ files are also on file at TFO.

Description (describe the area's outstanding opportunities for solitude):
Remote and silent. Good topographic and vegetative screening. A person feels alone here. Many Peak background to the west adds to feeling of solitude.

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

Yes ✓ No _____ N/A _____

Note: If "No" is checked for both 3 and 4 the area does not have wilderness characteristics; check "NA" for question 5.

Description (describe the area's outstanding opportunities for primitive and unconfined recreation): outstanding opportunities for back-country exploration, hiking and scrambling in canyons and unique geologic features (i.e. the Needles)

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?

Yes ✓ No _____ N/A _____

Description: geologic study, scenic surroundings to north and west.

Summary of Analysis*

Area Unique Identifier: NV-060-192 Heart Hills

Summary

Results of analysis:

(Note: explain the inventory findings for the entirety of the inventory unit. When wilderness characteristics have been identified in an area that is smaller than the size of the total inventory unit, explain why certain portions of the inventory unit are not included within the lands with wilderness characteristics (e.g. the inventory found that certain parts lacked naturalness).

1. Does the area meet any of the size requirements? ✓ Yes ___ No

2. Does the area appear to be natural? ✓ Yes ___ No ___ N/A

3. Does the area offer outstanding opportunities for solitude or a primitive and unconfined type of recreation? ✓ Yes ___ No ___ N/A

4. Does the area have supplemental values? ✓ Yes ___ No ___ N/A

Check one:

✓ The area, or a portion of the area, has wilderness characteristics and is identified as lands with wilderness characteristics.

___ The area does not have wilderness characteristics.

Prepared by (team members):

B. Anderson ORP

T. Anderson GBI 3/19/2013

(Name, Title, Date)

Reviewed by (District or Field Manager):

* This form documents information that constitutes an inventory finding on wilderness characteristics. It does not represent a formal land use allocation or a final agency decision subject to administrative remedies under either 43 CFR parts 4 or 1610.5-3.

Name: Tim Coward **Title:** Acting Field Manager, TFO

Date: 9/5/13

HEART HILLS
Lands with Wilderness Characteristics

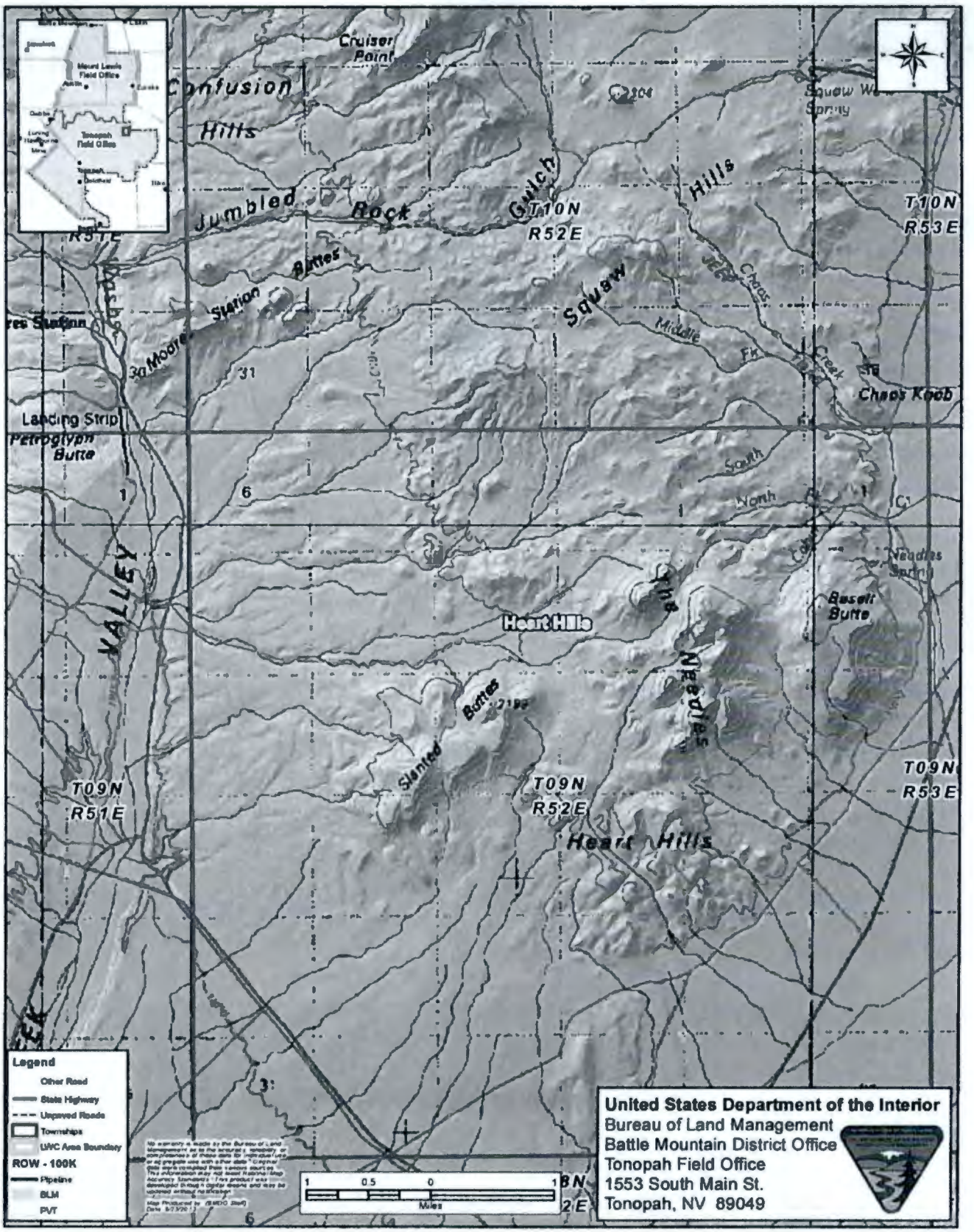


EXHIBIT 2

Friends of Nevada Wilderness LWC Inventory

Sulphur Springs

WILDERNESS CHARACTERISTICS INVENTORY
INVENTORY AREA EVALUATION (FORM 2)

Current Conditions: Presence or Absence of Wilderness Characteristics
Area Unique Identifier: **Sulphur Springs (NV-060-543)** Acreage: **29,916**

(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).
In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

YES
Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc): **The east boundary follows the Saddler Brown road and steps-in in places to exclude private property and associated development. The southern boundary follows the Bailey Pass Road. The west boundary is complex. The southern portion of the west boundary follows a route from the Bailey Pass Road north to the historic Prince of Wales Mine. Here, the boundary steps around the main mining disturbances then continues in a north westerly direction nearly to State route 278. The west boundary continues north on a minor route parallel to State Route 278 to the eastern side of the private property at Chimney Springs. From here the west boundary steps eastward following a mix of minor routes and arbitrary lines to exclude the historic mining disturbances associated with Old Whalen Mining district. The west boundary joins a substantial route, which parallels the base of the mountains north of the Old Whalen Mine. This route continues north, west of Bald Mountain and through Bald Mountain Well. This west boundary route ends at Telegraph Canyon Road. The north boundary of the unit is formed by Telegraph Canyon Road.**

(2) Does the area appear to be natural?
YES

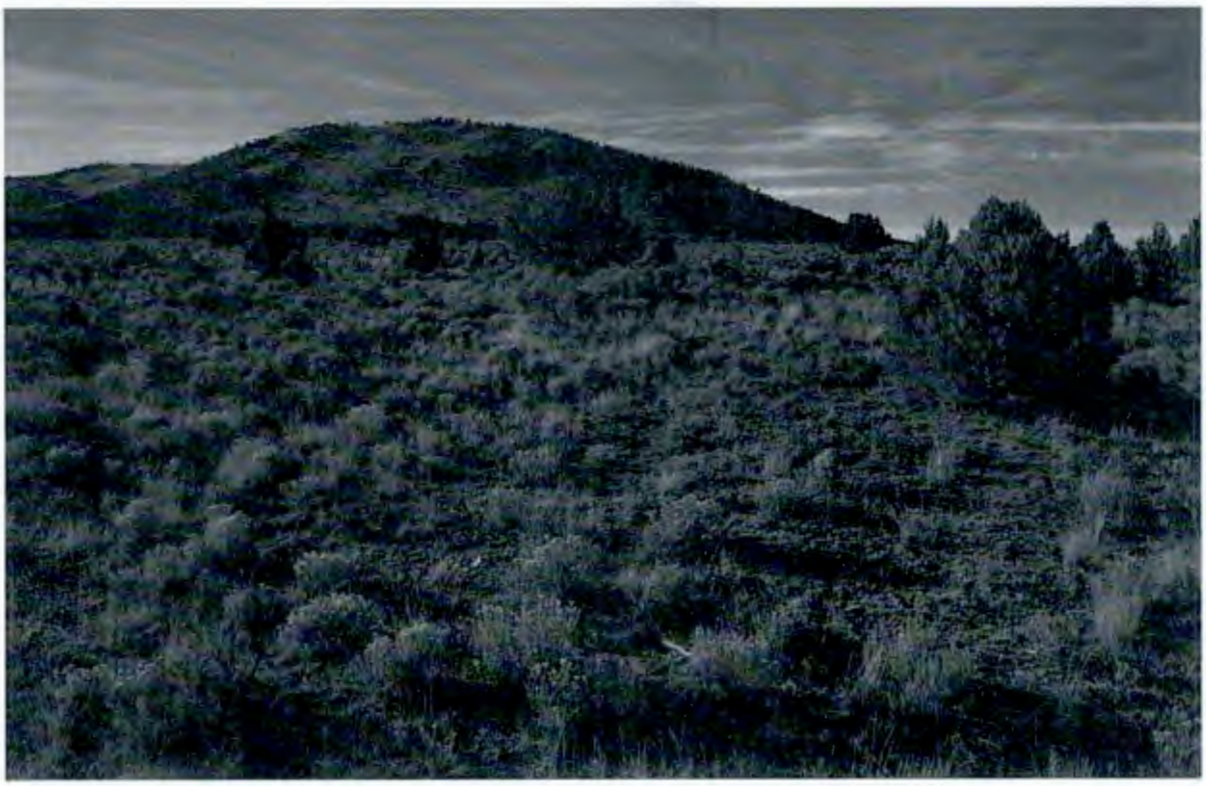
Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities):

This area is predominantly natural and controlled by wild forces. All of the unit as described by the FNW inventory is comprised of public lands administered by the BLM. The core of the unit is consists of a 13-mile limestone backbone of the Sulphur Springs Range. This rugged range towers to an elevation over 8000 feet and is heavily covered by a dense pinion/juniper woodland. Craggy limestone outcrops and cliffs can be found throughout the unit and impenetrable thickets of mountain mahogany can be found associated with the limestone formations. Bitter brush is also found throughout the unit. The volcanic intrusion of Bald Mountain creates a striking contrast with the limestone landscape and provides soils more conducive to sagebrush meadows. Other volcanic intrusions create the rolling foothills on both the east and west margins of the unit. These lower elevations include scattered stands of pinion/juniper interspaced with sagebrush, rabbit brush, and a host of grass lands comprised of squirrel tail, rice grass, great basin wild rye, and crested wheat grass. Several springs within or adjacent to the unit provide critical water resources for wildlife. Wildlife is abundant here, as evidenced by ample scat and other signs. Mule deer is the predominate herbivore, while smaller animals are also plentiful. Reptiles, rodents, and predators all exist here in this rich ecosystem. Birds of prey roost in the many cliffs and rocks, and can often be seen soaring high above. Ravens and other members of the jay family are frequent visitors. Smaller sage and pinyon habitat birds nest here as well. This unit provides sage grouse habitat. Several recent fires have burnt along the lower, northwestern flank of the unit. The 2013 FNW inventory of this unit found that the entirety of the unit appears to be affected primarily by the forces of nature.

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?
YES

Description (describe the area's outstanding opportunities for solitude): **Dense stands of pinion and juniper found scattered throughout the canyons and the aprons of this unit provide outstanding opportunities for solitude and for finding secluded spots. The convoluted terrain of the rugged backbone of this unit combines with nearly 2000 feet of vertical relief adds a deeper dimension to the outstanding opportunities for solitude in this unit. The highest elevations rise far above the surrounding roads and valleys and provide seclusion in craggy rock outcrops and among stands of mountain mahogany. Out here one gets a sense that they are truly alone. It is quiet except for wind through the hills and the occasional call of animals. This is truly a remote and isolated place.**

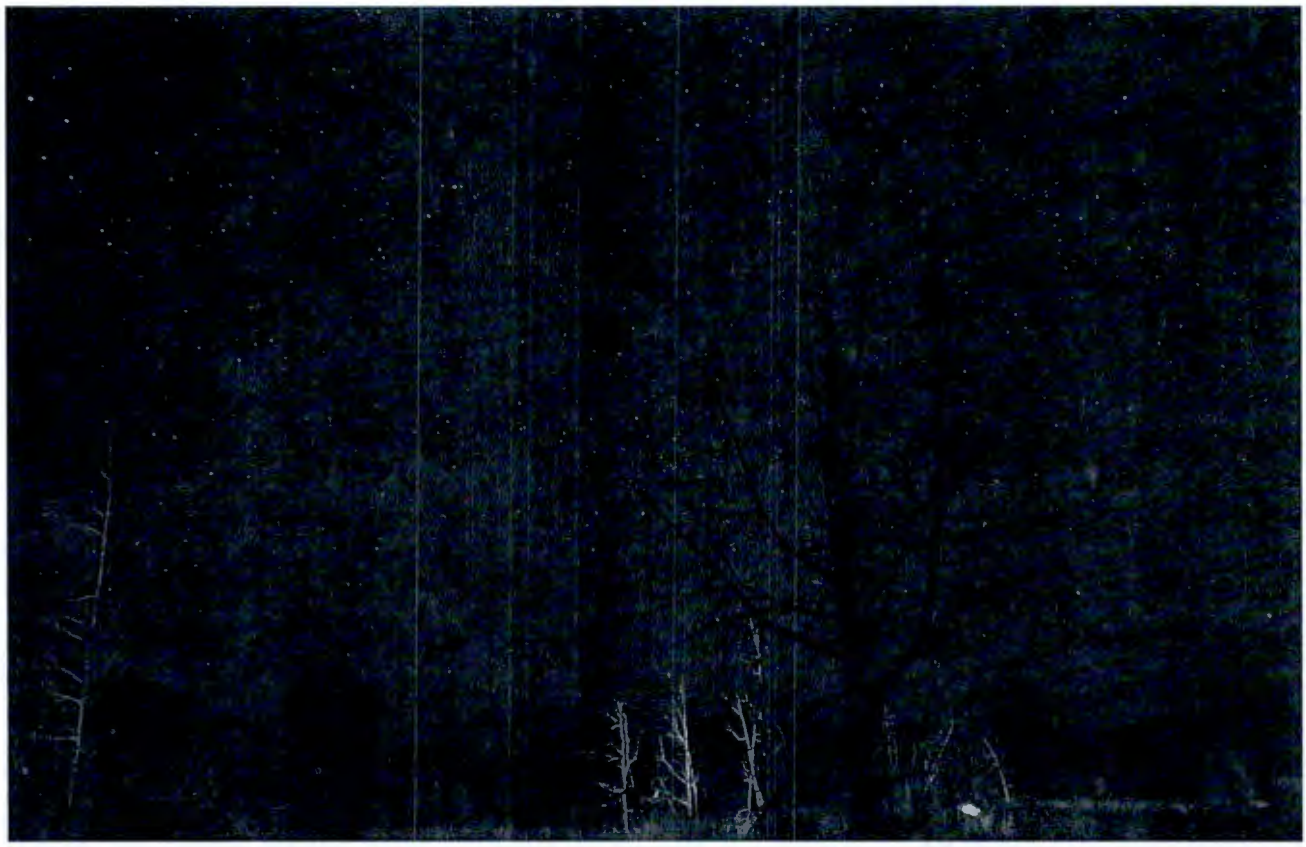


(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?
YES

Description (describe the area's outstanding opportunities for primitive and unconfined recreation):
This unit offers outstanding opportunities for primitive and unconfined recreation. Nearly every inch of this unit is accessible to the visitor with the determination and skills to traverse trackless wilderness. Hiking and backpacking the rugged 13 mile crest of this unit provides a challenging and outstanding opportunity primitive and unconfined recreation. Many birds and wildlife are present as well, providing opportunities for viewing and excellent hunting. Mule deerand chukar are some of the animals available for game. Rock scrambling routes abound in the solid limestone canyons, ridges, and along the crest of the unit. Here the rock is firm and has plentiful holds. Rock alcoves and shallow caves present opportunities for shelter and exploration. Other activities include: cross country skiing; snowshoeing; orienteering, landscape painting and sketching; rock scrambling; hiking; ; backpacking; rock hounding; geological sight-seeing, bird watching; primitive camping; horseback riding, hunting, and nature studies. The 2015 FNW Inventory found this area has outstanding opportunities for primitive and unconfined recreation in hiking, exploration, and photography. The 2013 FWN Inventory also found that this area has a wide diversity of recreational opportunities.

This unit is within one of the darkest regions of the United States. The opportunities for star gazing and night sky photography are truly outstanding. The 2015 FNW inventory found that

this unit offers outstanding opportunities for primitive and unconfined recreation in a variety of different activities.



(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?
YES

Description:
The wildness, remoteness, and natural integrity of this unit provide unparalleled opportunities for studies in natural history, geology, and ecology. The limestone ridges of the unit provide outstanding examples of sedimentary geological structures. The limestone and volcanic contact zones within the unit provide rockhounds with the opportunity to study the mineral assemblages and associated mineral intrusions.

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

CITIZEN NAME: **Sulphur Springs**
BLM UNIT NAME: **Sulphur Springs** BLM UNIT NUMBER: **NV-060-543**

Narrative documentation of how the Citizen-Submitted information substantially differs from the information in the BLM inventory of the area's wilderness characteristics (as per BLM Manual 6310; .06; B; 1; b; ii.)

The only information from the BLM that Friends of Nevada Wilderness (FNW) could locate about the wilderness characteristics for this unit were found in the BLM 1979 Initial Inventory Decisions. The BLM information within that 1979 document is summarized below.

NOTE: Upon reviewing the BLM 1979 Initial Inventory Decisions, FNW found several inconsistencies within the descriptions. The Introduction states: *"[t]he intent of the initial phase of the wilderness inventory is to eliminate from further wilderness consideration those lands that beyond doubt clearly lack wilderness characteristics."* Although the purported intention of this document is to make decision about wilderness characteristics that are *"beyond doubt,"* the methodology used by the BLM raises serious doubts. The 1979 Decisions also states that the *"beyond doubt"* determination used by the BLM is based on eliminating *"...lands that nearly everyone can agree do not have wilderness values. Very little field work and written documentation were required to verify that these lands are definitely lacking wilderness qualities."* Furthermore, the 1979 document states: *"[t]his document includes a summary of public comments received for each area in the State, and explains whether or not the comments changed our original recommendation."* Both of these methodologies rely on preconceived notions and subjective opinion.

Although this may have been a valid approach in 1979, it is not in alignment with the scientific-based FLMPA mandate to [Sec. 201. [43 U.S.C. 1711] (a) ..."prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values," and (c)(2) "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences." Nor is abiding by the 1979 approach and decision in the best interest of current BLM Manual 6310 Guidelines.

SUMMARY OF BLM 1979 INITIAL INVENTORY DECISION for NV-060-543

UNIT NUMBER *NV-060-543* **NAME** *Sulphur Springs*

PUBLIC LAND ACREAGE *35,800*

ORIGINAL RECOMMENDATION: *Area to be intensively inventoried.*

SUMMARY OF PUBLIC COMMENT RECEIVED: *Of 11 comments received, six disagreed noting roads or intrusions. Five comments supported the recommendation.*

FINAL DECISION: *35,800 acres will be dropped from further wilderness consideration.*

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

RATIONALE: *In response to public comments that were verified by a field check, the Bureau has decided that the area clearly lacks wilderness characteristics and should be dropped from further wilderness consideration.*

FNW FINDINGS for NV-060-543

CHARACTERISTICS INVENTORIED:

1. Size: The BLM 1979 Initial Inventory Decisions documented Unit 543 as being 35,800 acres. The 2015 FNW Inventory is smaller and describes this roadless area as 29,916 acres. The 2015 FNW inventory eliminated areas with human disturbances that would detract for the wilderness characteristics of the unit. The FNW Inventory also found several of the posited "roads" within the unit failed to meet the criteria for "a road" under BLM Manual 6310 guidelines. (See Appendix C: Route Analysis for more information on routes and boundaries.)

2. Naturalness: The BLM 1979 Initial Inventory Decisions did not discuss the naturalness of the unit. The Initial Inventory did state, however, that the public comments *"noting roads or intrusions"* that *"were verified by a field check"* provided the Bureau with the bases for dropping the area from further wilderness consideration. The Bureau then stated that these impacts led to their decision that *"the area clearly lacks wilderness characteristics."* The 2015 FNW inventory found that after defining boundaries that effectively eliminated roads and human disturbances, 29,916 contiguous acres of this unit appeared to be affected primarily by natural processes. (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the naturalness of this unit.)

3. Outstanding Opportunities for:

A. Solitude: The BLM 1979 Initial Inventory Decisions did not discuss the opportunities for solitude within this unit. The 2015 FNW inventory of this unit found multiple outstanding opportunities for solitude throughout the unit. The basis for this finding of solitude is included within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for solitude on the current BLM Manual 6310 guidelines. The most significant changes in these current guidelines since the initial decisions were made is: *"[a]n area can have wilderness characteristics even though every acre within the area may not meet all the criteria. The boundary should be determined largely on the basis of wilderness inventory roads and naturalness rather than being constricted on the basis of opportunity for solitude or primitive and unconfined recreation."*

B. Primitive and Unconfined Type of Recreation: The BLM 1979 Initial Inventory Decisions did not discuss the opportunities for primitive and unconfined recreation within this unit. The 2015 FNW inventory of this unit found both outstanding opportunities in several primitive and unconfined types of recreation and a diversity of recreational opportunities within the unit. The basis for these findings of primitive and unconfined type of recreation is included within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for primitive and unconfined type of recreation on the current BLM Manual 6310 guidelines. One of the more significant changes in these current guidelines since the initial decisions were made is: *"[t]he presence of water is not essential for an outstanding primitive recreation opportunity."*

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

FNW is providing the BLM with New Information about Unit NV-060-543:
The wilderness characteristics generated from the FNW 2015 Inventory for the unit substantially differ from the information in the BLM 1979 Initial Inventory Decisions on the area's wilderness characteristics. Under current 6310 guidelines, FNW recommends that this unit should be re-considered for LWC status.


Sulphur Springs Lands with Wilderness Characteristics
29,915 acres
N
W
E
S
External Routes
Section Lines
Sulphur Springs LWC
Route Description
Open Route
Unconstructed Two-track/Unreclaimed mining
0
0.475
0.95
1.9
2.85
3.8
Miles

Friends of Nevada Wilderness LWC Inventory

North Pancake II

WILDERNESS CHARACTERISTICS INVENTORY
INVENTORY AREA EVALUATION (FORM 2)

Current Conditions: Presence or Absence of Wilderness Characteristics
Area Unique Identifier: **North Pancake II (NV-060-194)** Acreage: **28,452**

(If the inventory area consists of subunits, list the acreage of each and evaluate each separately). In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

YES
Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc): **The boundaries of this LWC are very straightforward and easily defined. The northwestern boundary follows a small road from Etcheverria Well (BLM 6241), which traverses alluvial plains and parallels the mountain foothills across Big Sand Springs Valley. This road gradually bends south and then east around the mountain block, intersecting another route near the unit's southwest corner. From the here the southern boundary follows a minor route (BLM 6243) east, until an intersection at a cattle tank just a few miles north of highway 6. From here the boundary heads north following a bladed road (BLM 6244), which crosses a small pass and descends into Big Round Valley. The road crosses the valley, and also becomes the western boundary for the neighboring North Pancake III unit. The boundary road continues north over another small pass, and descends towards Wood Canyon. At another intersection along the northern extent of this flat, the northern boundary is encountered. This boundary follows a bladed route west over a small pass and back to Etcheverria Well. In places, the northern boundary is very washed out and nearly impassable. This road also serves as the southern boundary for neighboring South Pancake LWC. If the road continues to deteriorate and is not maintained, it is highly likely that these units could be joined. (For more information on the boundaries of this unit, see the GIS information and Route Analysis section of the 2015 FNW Inventory report for this unit.)**

(2) Does the area appear to be natural?
YES

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities):

The 2015 FNW Inventory found this until to be natural in appearance and predominately controlled by the forces of nature. Most of the unit is incredibly dry and has low vegetation, but also has relatively tall mountains. And while these peaks and hills are volcanic in nature, they do not form the expansive mesas seen to the south. Instead, these hills are steep sided and rise to dramatic points which stand high above the surrounding desert flats. The mountains within this unit tower above to over 2000 feet above Big Sand Springs Valley to the west. This expansive and empty valley is filled with sage and large washes, and composes part of the LWC. In general, the topography within the unit consists of a central mountain core, which protrudes westward into the valley. These craggy volcanic hills fall away on all sides, with alluvial deposits, large washes, and barren flats marking the extents of this area. The eastern side of the unit contains small hills and bluffs which connect to the surrounding mountains via a few low passes. Still, these hills are broken by several small valleys, and the general idea of a central mountain core remains true. The northeastern corner of the LWC contains a large sage flat which drains towards Wood Canyon, and the southeastern extent sits within the scenic flats of Big Round Valley. Hills within the eastern portion of the unit are also more rolling, and generally less dramatic. In contrast, the western side of the unit is very sharp, with deep gullies and many cliffs punctuating the landscape. The western part of the area also contains the unit's highest point, an unnamed mountain standing 8039 feet tall.

The majority of the unit is very wild, controlled by powerful natural forces and unhampered by man's intervention. The harsh winds of the desert have played a large role in shaping this landscape, and continue to do so. Hardy vegetation covers the hills, withstanding the dust and powerful winds. What little water falls quickly erodes the exposed hillsides, leaving plenty of rock and a barren landscape. Large washes, deep gullies, and extensive alluvial fans are all that remain as evidence to the presence of this scarce resource. Sagebrush is most prevalent across this region, carpeting the lands with a grey green hue. Rabbit brush can be found amongst some of the wetter washes and gullies, with great basin wild rye, and other grasses occasionally mixed in. Saltbush, greasewood, and other barren shrubs can occasionally be found here as well. In general, vegetation is low and scrubby within the unit, playing a minor role in the overall landscape. The most notable plant is a large serviceberry bush, resembling a small tree, which stands out within this desolate region. This bush clings to water within a small draw on the northeastern side of the unit, where an intermittent spring may occasionally flow. Its anomalous size can be easily spotted for many miles, and is the most interesting plant within the unit. A very small open woodland of pinion and juniper can be found atop the mountains in the southeastern part of the unit.

A few hardy desert animals survive in this harsh climate. These beasts are typical to the great basin, and are likely able to survive in many different environments. Small rodents and reptiles are most common, including jackrabbits, mice, lizards, and snakes. Larger mammals also live here, with antelope and mule deer occasionally seen roaming the hills, and coyotes heard in the evening and at night. The rocky hills of this unit also provide excellent wet-season, transitional habitat for bighorn sheep. A variety of birds exist here as well, including both sage birds and larger predators. Golden eagles, hawks, and other majestic birds can be spotted circling high above the lands, searching for a meal.

Overall, these lands contain few human intrusions. Those that do exist are generally faint and minor, seeing little use. The remote nature of this LWC, combined with a lack of human use, has allowed many of these disturbances to fade into the desert landscape. This is a testament to the pristine nature of this area, and the power these natural forces. Nonetheless, there are still a few intrusions worth mentioning. These mostly exist along the northern side of the unit. The northern boundary road itself has several historic routes, which can be barely discerned amongst the sage. These are worth noting because they were once bladed, but today appear abandoned and revegetated. The most major intrusion is a longer route which cuts south into the area from the northern border to provide access to two cattle watering developments. These developments consist of tanks, which must be filled by truck and associated troughs. The route has been bladed up to the second tank, but beyond that it becomes an unused, rough two track. This track continues south for about a mile, eventually terminating at an intermittent spring and the aforementioned lone serviceberry tree. Historic ruins sit nearby, consisting of a very old rock structure and some minor digs. The final intrusion originates west of Etcheverria Well, a route which appears to have once been constructed. This route has not been used for years, however, and has the appearance of a two-track heading into the unit. This track splits, with one fork petering out amongst the sage, and the other heading to what appears to be a very old oil-exploration drill site. Both routes are highly overgrown and hardly recognizable. These routes and the associated drill site do not affect the naturalness of these lands. (For more information on these routes, see the Route Analysis forms include with this 2015 FNW Inventory report.)

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?
YES

Description (describe the area's outstanding opportunities for solitude): **Located in a remote part of Nevada and full of expansively rugged terrain, this LWC provides many outstanding opportunities for solitude. An extensive alluvial fan system that comprises the western portion of the unit provides an experience of solitude created by space alone. Visitors who venture into this areas will quickly vanish into the sheer scale of the unit. The core of the unit consists of a rugged and rocky spine of the Pancake Range dissected by competing drainage courses. This creates a labyrinth of washes and canyons twisting and turning in unexpected directions. The convoluted nature of these core unit drainages provide outstanding opportunities for solitude. This is a desolate and quiet region, which sees little human use. Silence is pressing throughout the lands, and the wind blows in a haunting fashion. This is the kind of place that outlaws would hide in, evading capture for weeks or months at time. One could wander this landscape for days without signs of other humans. It is hard to imagine that there are many other places which offer the outstanding qualities of solitude that these mountains do.**

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?

YES

Description (describe the area's outstanding opportunities for primitive and unconfined recreation):
This unit offers outstanding opportunities for primitive and unconfined recreation. Nearly every inch of this unit is accessible to the visitor with the determination and skills to traverse trackless wilderness. This is desert recreation at its best. The unit is dry and devoid of permanent water. The one spring within the unit appears to be decades dry. Primitive recreation users face the additional challenge of carrying their own water and planning multiple day trips with conservation of every drop of this precious resource in mind. Opportunities for recreation are numerous here, with exploration and adventure to be had. The rugged peaks and hills of this landscape invite hikers and climbers, providing alluring views in all directions. Several other destinations exist within the unit, including old ruins, interesting canyons, and seeking out the isolated stand of pinion/juniper hidden high in the mountains. In addition, this would be an excellent area to explore on horseback. Rolling terrain and expansive sage flats would be enjoyable to ride across, with many routes available for adventure. Camping opportunities are also great within the unit, found amongst the many flats and desolate reaches of this area. The unit is rich with volcanic geologic formations. Colorful, older rhyolitic formations in the northern part of the unit and small outcrops of red rock on the eastern alluvial combine with several isolated patches of ash and lava from the more recent volcanic activity in the adjacent Lunar Crater and testify to the fiery nature of this unit. Careful examination of the unit will reveal remnants of the sedimentary rocks that comprised this region long before the volcanic epoch. These resources provide outstanding opportunities for geologic sightseeing. The mining history of the unit provides opportunities for rockhounds seeking interesting mineral specimens and unique rock samples. Photographers and artists will find outstanding opportunities for inspiration and subjects in the constantly shifting shadows, shapes, and compositions created by the numerous rock formations. Winter hiking and snowshoeing provide the unit with a white mantle that presents an entirely different landscape from the hotter, dryer summer months. Wildlife in the unit includes pronghorn, coyotes, jackrabbits, cottontails, lizards, and rodents providing visitors with the opportunity to spot, discover, and track these elusive creatures. Ravens, eagles, hawks, and numerous seasonal song birds provide opportunities for bird watching activities.

One could stay for quite a while, enjoying the tranquility and haunting solitude this region provides. Other recreational opportunities include hunting, wildlife viewing, rock hounding, running, rock climbing, and rock scrambling. Burro packing provides a visitor with a remarkable opportunity to explore a truly wild area and to make a living-history connection with the challenges faced by early Nevada explorers and prospectors. This unit is within one of the darkest regions of the United States. The opportunity for star gazing, and night sky photography are truly outstanding. The 2012 FNW inventory found that the Pancake North II unit offers outstanding opportunities for primitive and unconfined recreation in a variety of different activities.

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?
YES

Description:
This unit shows many signs of historical use. These include remnants of old stone structures, historic trash, and many antique water jugs. This area also exhibits areas of lithic scatter and prehistoric human use. It is fascinating to think that people attempted to eke out an existence in these desolate lands over the eons. In addition, the proximity of this parcel to its neighboring LWCs provides a large and more substantial natural landscape. In conjunction with each other, this is a massive and unique undisturbed piece of the Great Basin.

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

CITIZEN NAME: **North Pancake II**
BLM UNIT NAME: **North Pancake II** BLM UNIT NUMBER: **NV-060-194**

Narrative documentation of how the Citizen-Submitted information substantially differs from the information in the BLM inventory of the area's wilderness characteristics (as per BLM Manual 6310; .06; B; 1; b; ii.)

The 2015 FNW Inventory looked at an area that included most of Unit 194. The most current information from the BLM that Friends of Nevada Wilderness (FNW) could locate about the wilderness characteristics for this unit was found in the BLM 1980 Proposed Wilderness study Areas (Intensive Wilderness Inventory). This BLM information document is summarized below.

SUMMARY OF BLM 1980 PROPOSED WILDERNESS STUDY AREAS (Intensive Wilderness Inventory)
UNIT NUMBER: NV-060-194 **UNIT NAME:** North Pancake II

AREA DESCRIPTION: The North Pancake II unit is within the Pancake Range in Nye County, Nevada. This unit has an irregular oval shape, about six miles long by eight miles wide. It is a series of low mountains dissected by several shallow drainages. The entire area is covered by plants of the sage community.

CHARACTERISTICS INVENTORIED:

1. Size: The unit includes 26,400 acres of roadless public land.

2. Naturalness: 26,400 acres were found to be in a natural condition.

3. Outstanding Opportunities for:

A. Solitude: The roadless and natural portion of the area does not possess an outstanding opportunity for solitude because the peaks are relatively low and would afford the user with an unrestricted field of vision. Canyons are shallow and generally extend less than two miles. Topographic features combined with the vegetative characteristics do not offer enough natural screening so that a user could effectively avoid the sights and sounds of man.

B. A Primitive and Unconfined Type of Recreation: The area does not offer an outstanding opportunity for a primitive and unconfined type of recreation. Minimal opportunities for camping, horseback riding, and hiking are present within the unit. Other recreational activities such as hunting and collecting rocks and minerals are not feasible.

4. Supplemental Values: No ecological, geological, or other features of scientific, educational, scenic, or historical value were noted.

ORIGINAL RECOMMENDATION:
Zero acres are recommended for Wilderness Study Area status. 26,400 acres should be dropped from further wilderness consideration.

SUMMARY OF PUBLIC COMMENTS: BLM received one specific comment on this unit, noting other resource values. Also received were 2,288 general comments stating, the unit meets the wilderness criteria.

FINAL DECISION:
Zero acres are designated as Wilderness Study Area. 26,400 acres are dropped from further wilderness consideration.

RATIONALE FOR DECISION: Even though comments were received both supporting and opposing WSA designation, the evidence available to the Bureau indicates the area does not possess the necessary criteria for WSA designation.

FNW FINDINGS for NV-060-(194)

CHARACTERISTICS INVENTORIED:

1. Size: The BLM 1980 Proposed Wilderness Study Areas (Intensive Wilderness Inventory) documented Unit 194 as being 26,400 acres. The 2015 FNW Inventory describes this roadless area as 28,452 acres. (See Appendix C: Route Analysis and GIS data for more information on routes and boundaries.)

2. Naturalness: The BLM 1980 Proposed Wilderness study Areas (Intensive Wilderness Inventory) stated that 26,400 acres of Unit 194 were *"found to be in a natural condition."* The 2015 FNW Inventory found that many routes marked on maps and in GIS route layers are erroneous and do not exist on the ground. These routes should be confirmed by field checking before they are used as a basis for making management decisions. The 2015 FNW Inventory found all 28,452 acres of this unit, as described, appear to be affected primarily by natural processes. (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the naturalness of this unit.)

3. Outstanding Opportunities for:

A. Solitude: The BLM 1980 Proposed Wilderness Study Areas (Intensive Wilderness Inventory) stated, for Unit 194, that *"the area does not possess an outstanding opportunity for solitude because the peaks are relatively low and would afford the user with an unrestricted field of vision. Canyons are shallow and generally extend less than two miles. Topographic features combined with the vegetative characteristics do not offer enough natural screening so that a user could effectively avoid the sights and sounds of man."* This reasoning for not finding opportunities for solitude within this unit by the 1980 BLM Inventory reflects a bias against and lack of understanding for desert outstanding opportunities for solitude. It is worth noting that even a 20-foot deep canyon, free of vegetation can produce numerous secluded spots for primitive recreation users. The 2015 FNW inventory of this unit found multiple outstanding opportunities for desert-style solitude and secluded spots throughout the unit. The basis for this FNW finding of solitude is included within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for solitude on the current BLM Manual 6310 guidelines. Two of the more significant changes in these current guidelines since the initial decisions were made are: *"[o]utstanding opportunities for solitude can be found in areas lacking vegetation or topographic screening;"* and *"[a]n area can have wilderness characteristics even though every acre within the area may not meet all the criteria. The boundary should be determined largely on the basis of wilderness inventory roads and naturalness rather than being constricted on the basis of opportunity for solitude or primitive and unconfined recreation."* (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the solitude of this unit.)

B. Primitive and Unconfined Type of Recreation: The BLM 1980 Proposed Wilderness Study Areas (Intensive Wilderness Inventory) stated, for Unit 194, that the *"area does not offer an outstanding*

opportunity for a primitive and unconfined type of recreation." The 2015 FNW Inventory strongly disagrees with this finding and found the 1980 statement is a misrepresentation of the resources and terrain of the unit and is biased against desert-type recreation. The 2015 FNW inventory of this unit found both outstanding opportunities in several primitive and unconfined types of recreation and a multitude of recreational opportunities within the unit. The basis for these findings of primitive and unconfined type of recreation is included within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for primitive and unconfined type of recreation on the current BLM Manual 6310 guidelines. One of the more significant changes in these current guidelines since the initial decisions were made is: *"[a]n area can have wilderness characteristics even though every acre within the area may not meet all the criteria."* (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the primitive and unconfined recreational opportunities of this unit.)

4. Supplemental Values: The FNW 2015 Inventory strongly disagrees with the BLM 1980 of no supplemental values.

FNW is providing the BLM with New Information about Unit NV-060-194:
The wilderness characteristics generated from the FNW 2015 Inventory for the unit substantially differ from the information in the BLM 1980 Proposed Wilderness Study Areas (Intensive Wilderness Inventory) on the area's wilderness characteristics. Under current 6310 guidelines, FNW recommends that this unit should be re-considered for LWC status.


North Pancake II Lands with Wilderness Characteristics
28,452 acres
External Routes
Open Route
Unconstructed Two-track/Unreclaimed Mining
North Pancake II LWC
0
0.4
0.8
1.6
N
W
E
S

Friends of Nevada Wilderness LWC Inventory

North Antelope III

WILDERNESS CHARACTERISTICS INVENTORY
INVENTORY AREA EVALUATION (FORM 2)

Current Conditions: Presence or Absence of Wilderness Characteristics
Area Unique Identifier: **North Antelope III (NV-060-252 & 261)** Acreage: **31,827**

(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).
In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

YES
Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc): **The northwest boundary of this unit is defined by a well-developed route that follows Fenstermaker Wash over a low pass to connect through with Cockalorum Wash and the graded road on the western side of Little Smokey Valley. The southeast boundary is defined by the graded road on the western side of Little Smokey Valley. This southeast boundary steps in north of Cottonwood Creek to exclude an area of historic mining exploration from the unit. The northwest boundary follows a regularly-traveled route up Davis Creek, leaves the creek to pass near Kinkead Spring, crosses through Number Four Spring, then climbs to the crest of the range to intersect Ninemile Canyon route just north of Ninemile Peak and continues south to the private property adjacent to Mulligan Canyon. The southeast boundary skirts around the private property adjacent to Mulligan Canyon then follows a route down Mulligan Canyon, across a ridge to Wild Indian Spring, and then down Indian Canyon to the graded road on the west side of Little Smokey Valley. (See the shape files of the region included with this documentation for more information).**

(2) Does the area appear to be natural?
YES

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities):

North Antelope III offers a diversity of natural landscapes. Most of the west and north sides of this unit host areas of alluvial fans covered in a carpet of grasses, perennial herbs and low sagebrush. The higher elevations of these alluvial fans support a piñon-juniper woodland interspaced with sagebrush. The highest elevations of this unit reach over 9,000 feet. Throughout the piñon-juniper zone at mid elevations, high folded and volcanic mountains rise to nearly 9,000 ft and exhibit open sagebrush "balds." These highlands features pristine high desert montane zone, with sages, curl-leaf mountain mahogany, currant, serviceberry, prickly pear cactus, and native grasses. Throughout this unit many healthy springs provide habitat for high desert wildlife, including the Greater Sage Grouse. Animal species include: elk; mule deer; big horn sheep; pronghorn antelope; feral horses and burros; cougar; coyote; cottontail rabbit; jackrabbit; golden eagle; harrier, Swainson, Coopers and red tail hawk; northern kite; long eared and great horned

owl; kestrel and prairie falcon; sage grouse; sparrows; nuthatch; northern flicker; raven; Clarks nutcracker; horned lark; sage thrasher; horned, collared and sagebrush lizards. Volcanic tuff and rhyolite outcroppings occur throughout the unit. Colorful, bare volcanic hills on the eastern side of this unit add a classic desert component to this area. The entire unit appears to be affected primarily by the forces of nature.

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?
YES

Description (describe the area's outstanding opportunities for solitude): **North Antelope III contains outstanding opportunities for solitude. Located many miles from the nearest paved highway and town, the area is extremely remote and seldom visited. The extensive alluvial system in the northern and western parts of the unit provides multiple opportunities for visitors to wander through the undulating system of braided alluvial channels isolated from the sights and sounds of the outside world. This alluvial terrain offers an outstanding example of desert solitude. The dense stands of pinion and juniper in the middle elevations of the unit combine with deep and convoluted canyons to create virtually unlimited possibilities for visitors to find secluded spots. The highest points of the unit provide opportunities to seek solitude in secluded high-mountains, sagebrush meadows, and among the craggy summit outcrops of the range. These highlands provide outstanding opportunities for visitors to find solitude in wide-open spaces where they can be alone with nothing but unending vistas and the sky. From the high peaks, views stretch hundreds of miles to far distant ranges in central and eastern Nevada. All of these elements contribute to create outstanding opportunities for solitude and for finding secluded spots within the unit.**

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?
YES

Description (describe the area's outstanding opportunities for primitive and unconfined recreation): **This unit offers outstanding opportunities for primitive and unconfined recreation. Nearly every inch of this unit is accessible to the visitor with the determination and skills to traverse trackless wilderness. Those interested in geology will find the North Antelope III unit fascinating as well, with volcanic peaks, rimrock, and outcroppings to explore. The colorful eastern foothills of the unit provide opportunities for rock hounds to find attractive and interesting rock and mineral species Other activities include: cross country skiing; snowshoeing; landscape painting and sketching; rock scrambling; hiking; orienteering; backpacking; rock hounding; bird watching; primitive camping; horseback riding, hunting, and general sightseeing.**

This unit is within one of the darkest regions of the United States. The opportunities for star gazing and night sky photography are truly outstanding. The 2013 FNW inventory found that

this unit offers outstanding opportunities for primitive and unconfined recreation in a variety of different activities.

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?
YES

Description:
This area provides prime habitat for the Greater Sage Grouse. The wildness, remoteness, and natural integrity of this unit provide unparalleled opportunities for studies in natural history, geology, and ecology.

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

CITIZEN NAME: **North Antelope III**
BLM UNIT NAME: **Cockalolum Wash (Davis Canyon)** BLM UNIT NUMBER: **NV-060-252 (261)**

Narrative documentation of how the Citizen-Submitted information substantially differs from the information in the BLM inventory of the area's wilderness characteristics (as per BLM Manual 6310; .06; B; 1; b; ii.)

The only information from the BLM that Friends of Nevada Wilderness (FNW) could locate about the wilderness characteristics for this unit were found in the BLM 1979 Initial Inventory Decisions. The BLM information within that 1979 document is summarized below.

NOTE: Upon reviewing the BLM 1979 Initial Inventory Decisions, FNW found several inconsistencies within in the descriptions. The Introduction states: *"[t]he intent of the initial phase of the wilderness inventory is to eliminate from further wilderness consideration those lands that beyond doubt clearly lack wilderness characteristics."* Although the purported intention of this document is to make decision about wilderness characteristic that are *"beyond doubt,"* the methodology use by the BLM raises serious doubts. The 1979 also states that the *"beyond doubt"* determination used by the BLM is based on eliminating *"...lands that nearly everyone can agree do not have wilderness values. Very little field work and written documentation were required to verify that these lands are definitely lacking wilderness qualities."* Furthermore, the 1979 document states: *"[t]his document includes a summary of public comments received for each area in the State, and explains whether or not the comments changed our original recommendation."* Both of these methodologies rely on preconceived notions and subjective opinion instead of actually field-checking and on-the-ground documentation of wilderness characteristics for an area.

Over all, the 1979 findings show a bias for dropping areas from further wilderness inventory rather than conducting field work necessary to make an objective decision. Of the over 300 areas evaluated, 78% were initially not recommended for further inventory and 22% were initially recommended for further inventory. Of the areas not initially recommend for further study, only 2% had the decision reversed by public comment and/or BLM reevaluation in the 1979 decision. In contrast, of the areas initially recommended for further study, 40% were either entirely or partially dropped as a result of public comments, even though the majority of public comments were generally more supportive of further study and inventory. Of the 300+ areas evaluated, only 4 % actually mention BLM field checking to verify the public comments. The stated intent of the BLM 1979 Initial Decisions was to eliminate areas from further wilderness study utilizing a minimum of ground verification and field-checking. This study produced the results it intended.

Although this may have been a valid approach in 1979, it is not in alignment with the scientific-based FLMPA mandate to [Sec. 201. [43 U.S.C. 1711] (a*) ..."prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values,"* and (c)(2*) "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences."* Continuing to abide by the 1979 approach and decisions in 2016 is not in compliance with current BLM Manual 6310 Guidelines.

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

SUMMARY OF BLM 1979 INITIAL INVENTORY DECISIONS

UNIT NUMBER NV-060-252 **NAME Cockalorum Wash**
PUBLIC LAND ACREAGE 28,800

ORIGINAL RECOMMENDATION: Area to be intensively inventoried.

SUMMARY OF PUBLIC COMMENT RECEIVED: Five of the six comments received stated the area deserves further study; one comment noted roads or intrusions.

FINAL DECISION: 28,800 acres will be dropped from further wilderness consideration.

RATIONALE: Although public comments were received supporting the presence and absence of wilderness characteristics, the Bureau believes that the area clearly lacks wilderness characteristics and should be dropped from further wilderness consideration.

UNIT NUMBER NV-060-261 **NAME Davis Canyon**
PUBLIC LAND ACREAGE 2,800

ORIGINAL RECOMMENDATION: Area to be dropped from further wilderness consideration.

SUMMARY OF PUBLIC COMMENT RECEIVED: None received.

FINAL DECISION: 2,800 acres will be dropped from further wilderness consideration.

RATIONALE: Since no public comments were received, the Bureau has decided to continue its original recommendation.

FNW FINDINGS

CHARACTERISTICS INVENTORIED:
1. Size: The BLM 1979 Initial Inventory Decisions documented Unit 252 as being 28,800 acres and Unit 261 as being 2,800 acres. The 2013 FNW Inventory did not find any manmade disturbance or route that would justify separating Unit 252 from Unit 261 as separate inventory units. The 2013 FNW Inventory describes this combined unit as 31,827 acres, which is comparable to the two units as describe by the BLM. (See Appendix C: Route Analysis for more information on routes and boundaries.)

2. Naturalness: The BLM 1979 Initial Inventory Decisions did not discuss the naturalness of the unit. The 2013 FNW inventory found all 31,827 acres of this unit inventoried appeared to be affected primarily by natural processes. (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the naturalness of this unit.)

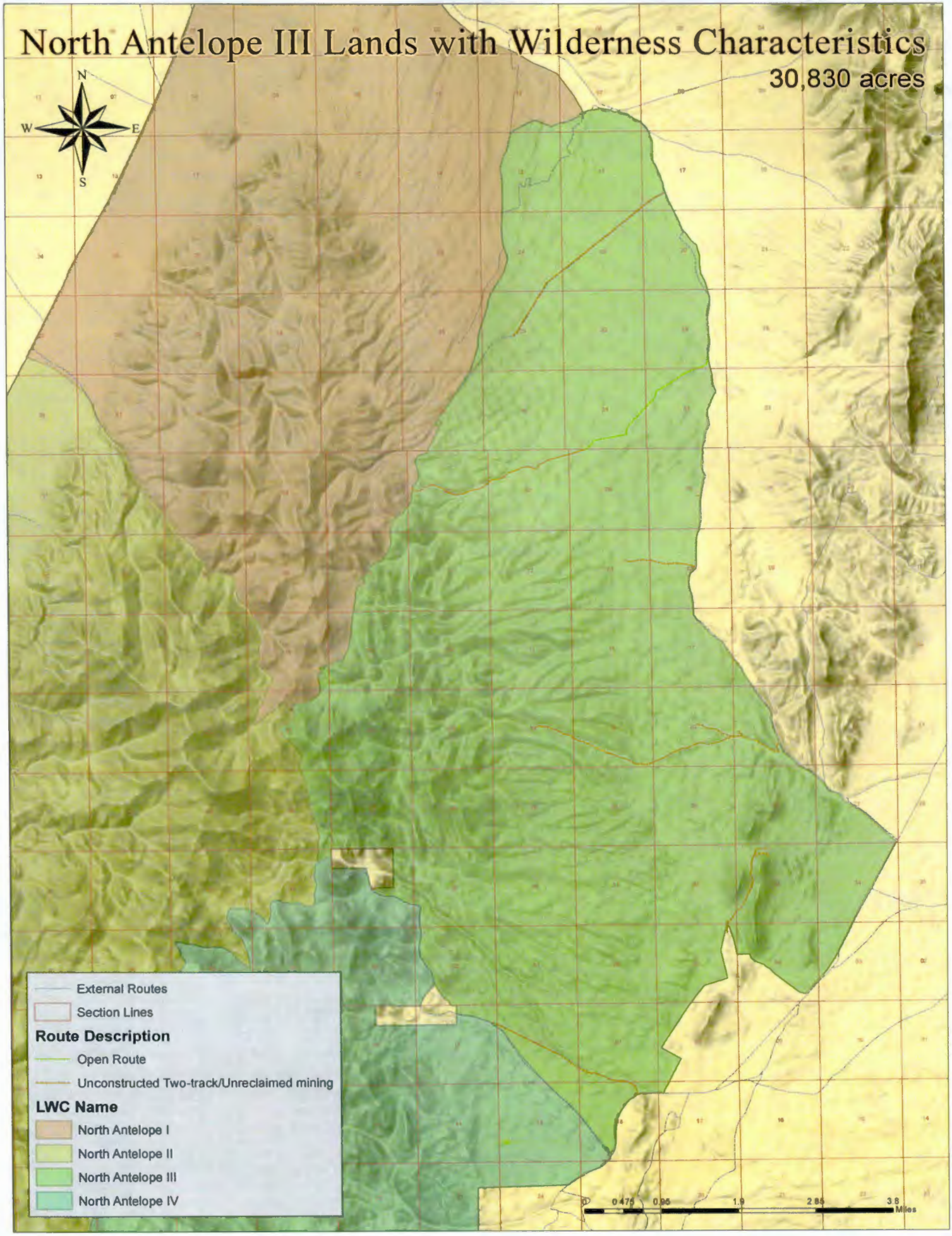
3. Outstanding Opportunities for:

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

A. Solitude: The BLM 1979 Initial Inventory Decisions did not discuss the opportunities for solitude within this unit. The 2013 FNW inventory of this unit found multiple outstanding opportunities for solitude throughout the unit. The basis for this finding of solitude is included within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for solitude on the current BLM Manual 6310 guidelines. Two of the more significant changes in these current guidelines since the initial decisions were made are: *"[o]utstanding opportunities for solitude can be found in areas lacking vegetation or topographic screening;"* and *"[a]n area can have wilderness characteristics even though every acre within the area may not meet all the criteria. The boundary should be determined largely on the basis of wilderness inventory roads and naturalness rather than being constricted on the basis of opportunity for solitude or primitive and unconfined recreation."*

B. Primitive and Unconfined Type of Recreation: The BLM 1979 Initial Inventory Decisions did not discuss the opportunities for primitive and unconfined recreation within this unit. The 2013 FNW inventory of this unit found both outstanding opportunities in several primitive and unconfined types of recreation and a diversity of recreational opportunities within the unit. The basis for these findings of primitive and unconfined type of recreation is include within the Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit. The FNW inventory based these findings for primitive and unconfined type of recreation on the current BLM Manual 6310 guidelines. One of the more significant changes in these current guidelines since the initial decisions were made is: "[t]he presence of water is not essential for an outstanding primitive recreation opportunity."

FNW is providing the BLM with New Information about Unit NV-060-252 and 261:
The wilderness characteristics generated from the FNW 2013 Inventory for the unit substantially differ from the information in the BLM 1979 Initial Inventory Decisions on the area's wilderness characteristics. Under current 6310 guidelines, FNW recommends that this unit should be reconsidered for LWC status.


North Antelope III Lands with Wilderness Characteristics
30,830 acres
N
W
E
S
External Routes
Section Lines
Route Description
Open Route
Unconstructed Two-track/Unreclaimed mining
LWC Name
North Antelope I
North Antelope II
North Antelope III
North Antelope IV
0.475
0.95
1.9
2.85
3.8
Miles

Friends of Nevada Wilderness LWC Inventory

Goblin Knobs

WILDERNESS CHARACTERISTICS INVENTORY
INVENTORY AREA EVALUATION (FORM 2)

Current Conditions: Presence or Absence of Wilderness Characteristics
Area Unique Identifier: **Goblin Knobs** Acreage: **61,069**

Goblin Knobs 2013 *K A Peterson*

(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).
In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

YES
Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc): **The north/northeast boundary of the unit is defined by Nv State Route 375. The east and south boundary is defined by a graded road that diverges west from SR 375 [at Sec 13; T3N; R52E] and connects through the north end of the Reveille Range to the Reveille Valley via the Lost Burro Mine area. The entire west boundary of the unit runs along the eastern side of the Reveille Valley Wash. (See the shape files of the region included with this documentation for more information).**

(2) Does the area appear to be natural?
YES

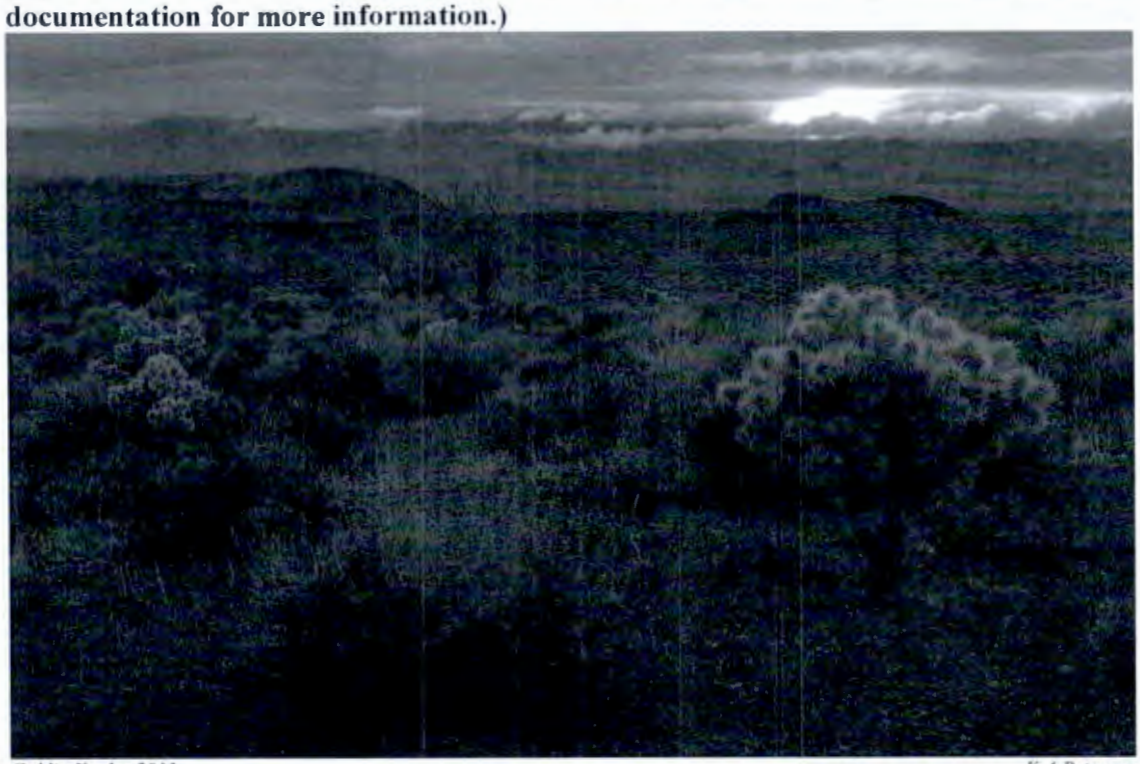
Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities):

Goblin Knobs offers an outstanding diversity of natural landscapes, from the towering rhyolitic ridges and spires of Streuben and Goblin Knobs, to the basalt dykes, sills, and lava flows in the core of the unit to the cactus alluvial plains on the eastern side to the ash-formed volcanic Goblin

Castle in the north. Each of these landscape presents unique ecosystems that support ever-changing variations of the northern desert steppe vegetation that characterizes the region. The area around the Goblin Knobs features supports juniper and cliffrose, extensive stands of cholla cacti follow the alluvial washes on the east side, and Mormon tea, native bunch grass and diminutive sagebrush characterize the volcanic tablelands. Atriplex plant communities characterize the lowest elevations of the unit as it plunges into the surrounding valleys. Sagebrush is the primary vegetation that ties the unit together, however, hidden treasures can be found throughout the unit including hedgehog and prickly pear varieties of cacti and many varieties of wild flowers. The rare and endangered *Astragalus callathrix*, has been reported to be present in the unit.

The unit shows some signs of un-reclaimed 20th century mining exploration activity, however most of the disturbance has been reclaimed by natural processes of erosion and revegetation over the past 40 years and is substantially unnoticeable. The unit appears to be primarily dominated by the forces of nature. Two routes enter into the unit. The southern-most route, north of Streuben Knob, was a route originally constructed to access an area of mining exploration in the core of the unit. This route is decades unused, no longer serves any purpose, sees very little use, and has washed-out in places. FNW Inventory crew recommended leaving only the first 0.6 miles open to provide access to an area for parking and camping. This small intrusion does not adversely affect the naturalness of the unit. The second route is a moderately used 3.25 mile un-constructed route that provides access to the Goblin Knobs themselves. This route terminates in an area well situated for camping and initiating hiking into the surrounding formations. The route also serves as a trailhead to access the deep core of the unit. This small, winding route does not adversely impact the naturalness of the unit. (See the Route Analysis forms provided with the unit documentation for more information.)



Goblin Knobs 2013 *K A Peterson*

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?
YES

Goblin Knobs 2013 *Jamey Pyles*

Description (describe the area's outstanding opportunities for solitude): **The immense size of this unit (61,069 acres) itself provides outstanding opportunities for solitude. The numerous canyons, rock formations, tablelands, rims, dykes, volcanic necks, sills, towering knobs, scattered juniper, and plateaus provide an amazing diversity of outstanding opportunities for visitors to find secluded spots and to discover solitude. The vast alluvial fan systems that comprise the west, north, and eastern boundaries of the unit provide an experience of solitude created by space alone. The visitor who ventures into these areas will quickly vanish into the sheer scale of the unit.**

The south-central portion of the unit supports an extensive juniper woodland that continues north to encircle the slopes of Streuben Knob. This woodland provides outstanding opportunities for visitors to find seclusion in the company of these diminutive trees. The heights of the volcanic highlands of the unit, reaching elevations of 7500 feet, allow the visitor to experience the outstanding opportunities of the solitude of eagles, with 360° views encompassing some of the most wild and scenic terrain in Nevada. The Goblin Knobs portion of the unit is characterized by innumerable rock formation characterized by fantastic shapes. The formations provide nearly an unlimited number of outstanding opportunities for visitors to lose themselves in the solitude these rocks create. The basalt tablelands of the central core of the unit provide an outstanding experience of solitude so remote that it feels as if no human has ever passed through that area

before. The numerous canyons that carve into the unit from all sides furnish visitors with outstanding opportunities to find and enjoy solitude by following the rare traces of water that occasionally wind through the unit. The 2013 FNW inventory found a wide diversity of outstanding opportunities for solitude throughout the entire Goblin Knobs unit. Silence is the most common sound heard within this unit.

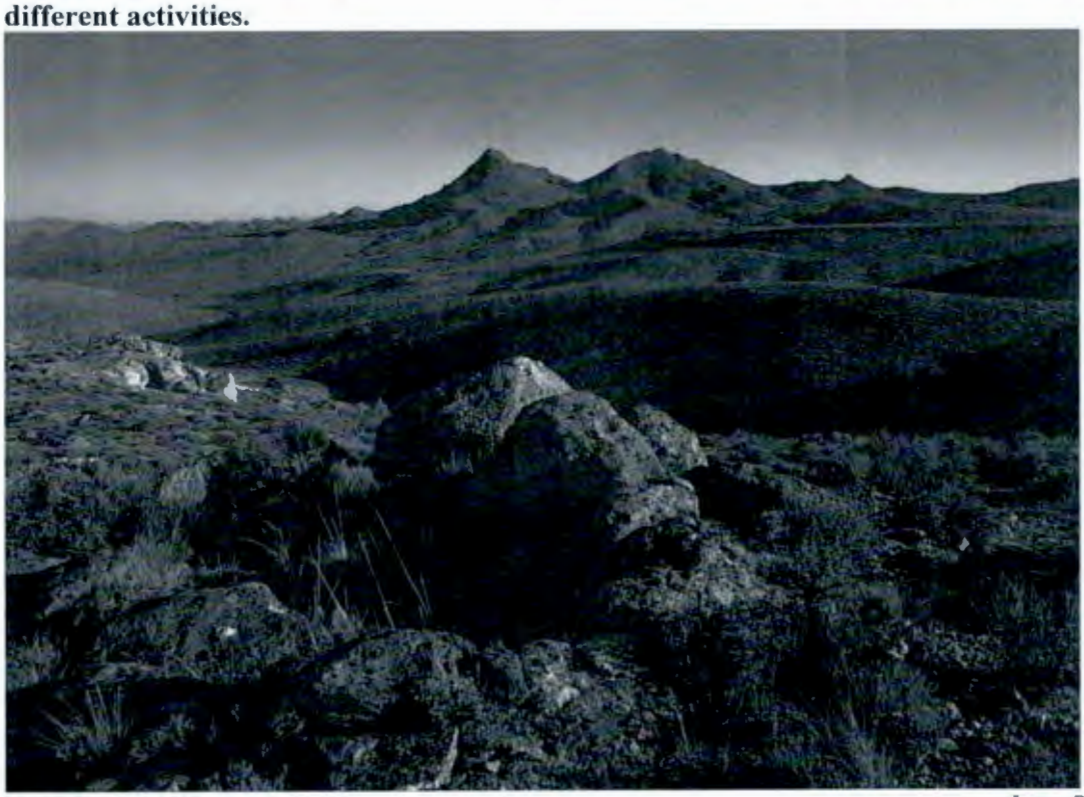
Goblin Knobs (Goblin Castle) 2013 *K A Peterson*

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?
YES

Description (describe the area's outstanding opportunities for primitive and unconfined recreation):
This unit offers outstanding opportunities for primitive and unconfined recreation. Nearly every inch of this unit is accessible to the visitor with the determination and skills to traverse trackless wilderness. Every section of this unit provides unique opportunities for exploration. The unit is rich with geologic wonders from fantastic rock formations to rock arches to spires to volcanic dykes, sills, and rims—these provide outstanding opportunities for geologic sightseeing. The mining history of the unit provides opportunities for rockhounds seeking interesting mineral specimens and unique rock samples. Opportunities for day hikes abound and, for explorers willing to carry their own water or choose a season when snow is still on the ground, these 61,069 acres offer many outstanding options for multiday hikes and wilderness backpacking exploration.

Photographers and artist will find outstanding opportunities for inspiration and subjects in the constantly shifting shadows, shapes, and compositions created by the numerous rock formations. The variable vegetation including at least one endangered and rare species, offers opportunities for plant enthusiasts to explore the unit, especially in the spring or after an exceptionally heavy monsoon season. Winter hiking and snowshoeing provide the unit with a white mantle that presents an entirely different landscape from the hotter, dryer summer months. Wildlife in the unit includes pronghorn, mule deer, coyotes, jackrabbits, cottontails, lizards, and rodents providing visitors with the opportunity to spot, discover, and track these elusive creatures. Occasionally, desert bighorn sheep have been documented moving through the Goblin Knobs. The unit offers hunting activities for those hunter willing to leave their vehicles behind. Ravens, eagles, hawks, and numerous seasonal song birds provide opportunities for bird watching activities. Wild horses can also be found wandering trails back and forth across the unit.

Most of the unit is accessible for equestrian use. Burro packing provides a visitor with a remarkable opportunities to explore a truly wild area and to make a living-history connection with the challenges faced by early Nevada explorers and prospectors. Outstanding rock scrambling and bouldering opportunities abound within this unit. Visitors with navigation and route-finding skills can find outstanding opportunities for climbing to the summits of the unit's volcanic knobs. The northern end of the unit present unique opportunities to explore the rugged and sparsely vegetated volcanic ash formations like the Goblin Castle. The Goblin Knobs unit is within one of the darkest regions of the United States. The opportunity for star gazing, and night sky photography are truly outstanding. The 2013 FNW inventory found that the Goblin Knobs unit offers outstanding opportunities for primitive and unconfined recreation in a variety of different activities.



Goblin Knobs 2013 *Jamey Pyles*

Goblin Knobs (Streuben Knob) 2008 *Brian Beffort*

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?
YES

Description:
This area is wealthy in supplemental values. The ecological value is enhanced by its diverse array of habitats created by the changes in rock types and aspect ratios to be found within this unit. The multitude of near vertical rock formations creates an outstanding diversity of microclimates where the careful observer can find fragile, water loving plants such as mosses growing hidden away in this otherwise mostly dry area. The rare and endangered *Astragalus callathrix,* has been reported to be present in the unit. This area has some important historic value as region that attracted the attention of 20th century miners. The geological values are obvious and apparent from the diversity of volcanic rock types, from the rhyolite that comprises the Goblin Knob formations, proper, to the numerous basalt flows, dykes, and sills, to the carved ash-flow formations such as the Goblin Castle. Archaeological evidence in the form of arrowheads and tools made of chert and obsidian and curious stacked rock formations tell of a deep prehistoric use of the unit. The darkness of the night skies in this unit are an outstanding supplemental value.

Goblin Knobs 2013 *Jamey Pyles*

Goblin Knobs 2013 *K A Peterson*

Goblin Knobs 2013 *K A Peterson*

Goblin Knobs 2013 *K A Peterson*

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

CITIZEN NAME: **Goblin Knobs**

BLM UNIT NAME: **North Reveille** BLM UNIT NUMBER: **NV-060-132**

Narrative documentation of how the Citizen-Submitted information substantially differs from the information in the BLM inventory of the area's wilderness characteristics (as per BLM Manual 6310; .06; B; 1; b; ii.)

SPECIAL NOTE: FNW conducted an extensive inventory of lands with wilderness characteristics in the Battle Mountain District of the BLM in 2012. An email sent from Christopher Worthington to Shaaron Netherton on June 27th, 2012 stated that *"[o]nly two [areas] were identified as having wilderness characteristics (Goblin Knob and Grant Range)."* As a result of this information, FNW did not conduct an inventory of Goblin Knobs because the email indicated that the Battle Mountain District already considered this unit as possessing wilderness characteristics. In contrast to that 2012 email correspondence, the BLM in the 2013 Battle Mountain Wilderness Characteristics Evaluations Forms (posted online September 2013) generated for the District RMP, stated that the Goblin Knobs unit possessed 0 acres of wilderness characteristics. A further email of explanation sent by Christopher Worthington of the BLM to Shaaron Netherton of FNW (Sep 18, 2013) stated that the initial evaluations of the wilderness characteristics of the Goblin Knobs unit *"conducted [in 2012] by a GBI employee (not a BLM employee)" "were insufficient due to: 1. It was conducted by an outside organization other than the BLM itself. There is clear W.O. guidance that LWC inventories are solely a BLM responsibility, and outside organizations cannot participate with those BLM inventories. 2. The findings were never finalized by a line officer, and once again, after a field review it was determined that the findings contained within the 2012 inventory were not correct."* Finally, this same email stated that: *"It was determined that the findings contained within the 2012 inventory were not correct and that the BLM's inventory findings from 1980 are still current regarding these two areas."* Additionally, the 2013 Battle Mountain District RMP wilderness evaluation form for the Goblin Knobs unit also reiterated these 1980 findings.

The email discussion states that the BLM has declared that the "*inventory findings* [for wilderness characteristics for the Goblin Knob unit] *from 1980 are still current,"* the following will provide documentation of how the 2013 FNW Citizen Submitted wilderness inventory findings substantially differ from both the 1980 BLM inventory findings and the 2013 BMD RMP wilderness characteristics evaluation form.

CHARACTERISTICS INVENTORIED:

1. Size: The BLM 1980 Wilderness Inventory documented 63,500 acres of Unit 132 as being roadless. The 2013 FNW Inventory is comparable and describes this area as 61,069 acres. The difference results primarily because the 2013 FNW inventory moved the western boundary to the east side of the Reveille Valley Wash to avoid any possible conflict with the water developments along the floor of the wash. (See Appendix C: Route Analysis for more information on routes and boundaries.)

2. Naturalness: The BLM 1980 Wilderness Inventory found that: *"49,600 acres were found to be in a natural condition. 13,900 acres were deleted due to a lack of naturalness. The area deleted was found to be in an unnatural condition due to extensive mining activity, roads, ways, and ditching."* The 2013

FNW inventory found all 61,069 acres of this unit appeared to be effected primarily by natural processes. (See Wilderness Characteristics Form 2 provided with the FNW Inventory of this unit for more information about the naturalness of this unit.) The mining activity in the area appears to be decades old. The intervening 40 years since the 1980 BLM inventory have allowed natural processes to substantially reclaim the "*extensive mining activity, roads, ways, and ditching*" mentioned in the 1980 BLM inventory. Most of the unreclaimed mining exploration activity roads and ways have become impassible as a result of the natural forces of erosion and revegetation. The 2013 FNW inventory found these human impacts within the unit were now substantially unnoticeable and that all 61,069 acres of the unit appeared natural.

3. Outstanding Opportunities for:

A. Solitude: The BLM 1980 Wilderness Inventory stated: *"[t]he roadless and natural portion of the area does not possess an outstanding opportunity for solitude because of its irregular configuration, limited natural screening, and lack of secluded spots."* The 2013 FNW inventory was unable to determine how the configuration of the unit could adversely affect the outstanding opportunities for solitude within the unit. The unit is substantially round and, at 61,069 acres, the immense size of the area alone would provide multiple outstanding opportunities for solitude even if the area had no natural screening at all. Contrary to the 1980 BLM Wilderness Inventory for Unit 132 quoted above, however, the 2013 FNW Inventory found multiple examples of areas that offered natural screening and outstanding secluded spots, from the rugged towers of the Streuben Knob area, to the enigmatic rock formations of the Goblin Knobs themselves, to the myriad of small secluded canyons that carve deeply into the unit from the north, west and east. The high, extensive volcanic tablelands run along the core of the unit provide the plenty of rimrock, volcanic dykes, and ridges for visitors to loose themselves in. The volcanic tablelands in the core of unit and the expansive alluvial fans that comprise perimeter of the unit provide outstanding opportunities for unencumbered desert-type solitude. BLM Manual 6310 guidelines state: "[o]utstanding opportunities for solitude can be found in areas lacking vegetation or topographic screening." The 2013 FNW inventory of Unit 132 found multiple outstanding opportunities for solitude throughout 61,069 acres of the unit.

The 2013 BMD RMP Form 2 Wilderness Characteristics Evaluation rejected the unit from having outstanding opportunities for solitude with the following statement: *"[s]everal routes exist inside the unit decreasing feeling of, and opportunities for, solitude. Very prominent views of roads in the valleys to the east and west."* The 2013 FNW documented two routes the penetrated partially into the unit and determined that only portion of these routes qualified as being constructed and/or having the regular and continuous use that would qualify them for remaining open as cherry-stemmed routes. In a unit as large as Unit 132 (61,069 acres), FNW determined that these routes complemented the opportunities of solitude within the unit by providing access to base camping and hiking that allowed for visitors to experience the deep solitude of this area immediately after leaving their vehicles in this massive area. Admittedly, the area immediately adjacent to these two routes do not provide "outstanding opportunities for solitude," but a 15-minute walk from either of the routes will immerse the visitor into complete and outstanding opportunities for solitude in this massive and wild unit. Additionally, it is important to remember that under BLM Manual 6310 guidelines, an LWC unit not need "have outstanding opportunities on every acre" to meet the criteria for outstanding wilderness characteristics opportunities.

The BLM 2013 wilderness characteristics evaluation statement that "[v]*ery prominent views of roads in the valleys to the east and west"* implies that these roads adversely impact the opportunities for solitude within the unit. Unit 132 is bounded on the north and northeast sides by NV State Route 375. As for the highway impacting the outstanding opportunities for solitude within the unit, the BLM 6310 Manual is very specific on this point: "[o]nly consider the impacts of sights and sounds from outside the inventory area on the opportunity for solitude if these impacts are pervasive and omnipresent." The sparse traffic on the Extraterrestrial Highway cannot be considered a "pervasive and omnipresent" impact on the opportunities for solitude within Unit 132. (See Form 2 in the FNW Inventory documents for more detail on the outstanding opportunities for solitude within Unit 132.)

B. Primitive and Unconfined Type of Recreation: The BLM 1980 inventory stated: "*The area does not offer an outstanding opportunity for a primitive and unconfined type of recreation as opportunities for primitive travel are limited to hikes of short duration which would offer little variety in types of vegetation and scenery encountered. No specific attractions are apparent in the unit. Hunting opportunities are poor and there is no known collecting of rocks and minerals or vegetation."* The 2013 BMD RMP Form 2 Wilderness Characteristics Evaluation rejected the unit from having outstanding opportunities for primitive an unconfined recreation with the following statement: *"[w]hile the rock formations that give the area its name are intriguing[,] the recreation opportunities are <u>not</u> outstanding as primitive or unconfined."* Contrary to the BLM 1980 inventory findings and the 2013 BMD RMP Form 2 Wilderness Characteristics Evaluation for Unit 132, the FNW 2013 Inventory found an outstanding variety of landscapes, rock formations, terrain, and vegetation throughout the unit. From the end of the cherry stem route that terminates in the rock formations that give the area its name (the Goblin Knobs), the visitor can wander through a 360° wild and natural terrain populated with fantastic rock formations. This is a textbook example of outstanding primitive and unconfined recreation opportunities. The outstanding opportunities for primitive and unconfined recreation do not end with the Goblin Knobs portion of the area. Immediately north of the Goblin Knobs lies a fantastic canyon full of rock spires, fanciful formations, rock windows, all terminating in a high basalt rim. Strueben Knob on the south side of the unit, the volcanic tablelands in the core of the unit, and the volcanic Goblin Castle on the north side of the unit are all fine examples of specific attractions within the unit to provide outstanding destinations for visitors to explore. The FNW Inventory found the 61,069 acres of natural landscape provide multiple opportunities for long duration hikes and even overnight backpacking for hikers willing to carry their own water or hike during the winter when snow is on the ground. Under the BLM Manual 6310 policies, "[t]he presence of water is not essential for an outstanding primitive recreation opportunity." The geology of the area is outstanding with plenty of opportunities for visitors to sightsee through a variety of basalt tablelands, rock spires, and volcanic dykes and sills. Opportunities for searching for interesting rocks and minerals are scattered through the unit as testified by the mid-20th century mining exploration of the area. The multiple elevations and aspect of the terrain provide an outstanding array of microclimates that supports diverse vegetation from cacti to grasslands to shadscale to juniper woodlands. The BLM 1980 inventory of the unit describes: *"Astragalus callathrix , a rare and endangered plant has been reported to be present in the unit."*

The 2013 FNW inventory found that this Unit offers both outstanding opportunities in several primitive and unconfined types of recreation and a diversity of recreational opportunities. (See Form 2 in the FNW Inventory documents for details.)

Friends of Nevada Wilderness (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

SUMMARY OF PUBLIC COMMENTS: The 1980 BLM Inventory for Unit 132 stated that the: *"BLM received eight specific comments on this unit. Some mentioned intrusions or other resource values. Others discussed the area's naturalness and outstanding solitude and recreation. Also received were 2,327 general comments stating the unit meets the wilderness criteria and one stating the unit does not meet the criteria."*

RATIONALE FOR DECISION: The 1980 BLM Inventory for Unit 425 stated*: "Even though comments were received both supporting and opposing WSA designation, the evidence available to the Bureau indicates the area does not possess the necessary criteria for WSA designation."*

Although this may have been an accurate assessment in 1980 the 2013 FNW inventory demonstrates that the wilderness characteristics of this area have, according to Manual 6310 standards, substantially changed over the intervening four decades. The wilderness characteristics generated from the FNW 2013 Inventory for the unit substantially differ from the information in the BLM inventory of the area's wilderness characteristics. Under current 6310 guidelines, FNW recommends that this unit should be re-considered for LWC status.

Additional considerations and a historical perspective on differences between the original WSA Inventory conducted by the BLM in the late 1970's and today's inventories.

Four decades ago the concept of wilderness was new to the BLM and new to the state of Nevada. At that point in time, most wilderness designations had been traditionally in mountainous and forested roadless areas. Nevada's only wilderness at that time was Jarbidge Wilderness in northern Nevada managed by the Forest Service. As a result, the criteria and language for wilderness characteristics was heavily biased toward these very, forest-service oriented "rock and ice" types of terrains. Careful study of the 1980 Nevada BLM Wilderness Study Areas Decisions reveals that many outstanding Nevada roadless areas were dropped from wilderness consideration because they lacked wilderness characteristics that were biased toward alpine environments.

Over the last four decades, the BLM has developed definitions of wilderness characteristics that both aligned with the intent of the Wilderness Act of 1964 and recognized the wilderness potential of low-relief and more arid roadless lands. The current BLM Manual 6310—Conducting Wilderness Characteristics Inventory on BLM Lands (Public), provides a stellar example of removing the alpine-terrain bias from wilderness characteristics. Congress has affirmed this action by the BLM to recognize wilderness in flat and arid regions through designating millions of acres of these terrains, such as the Black Rock Desert and the Nellis Wash, as Wilderness Areas.

FLPMA, passed by Congress in 1976, dramatically changed the mission of the BLM. With the recognition of the value of the public lands and a mandate that these lands would remain in public ownership, the BLM had to scramble to redefine itself. This was a daunting task that required many changes to perspectives within the agency complicated by changing perspectives of the agency externally, i.e. from the public sector. The land management role of the BLM, and the agency's perspective for land use have changed substantially since the original wilderness inventories of the 1970s. In realizing this new mission, the BLM has been dealing with increasingly complex management issues including, threatened and endangered species, increased recreation use, rapidly changing recreation technology, climate change, invasive species, wildlife management, mineral leasing, land exchanges, energy developments, etc. over the last 40 years.

To face this increasing complexity required the BLM to significantly changed agency positions and staffing over the intervening decades. BLM staffing now includes ecologists, biologists, wildlife biologists, botanists, archaeologists, recreation planners, economists, etc, positions that were rare or in the 1970's. The inclusion of this resource specialist staffing created an enhanced scientific approach to resource management and better understanding of ecological connectivity and complexity.

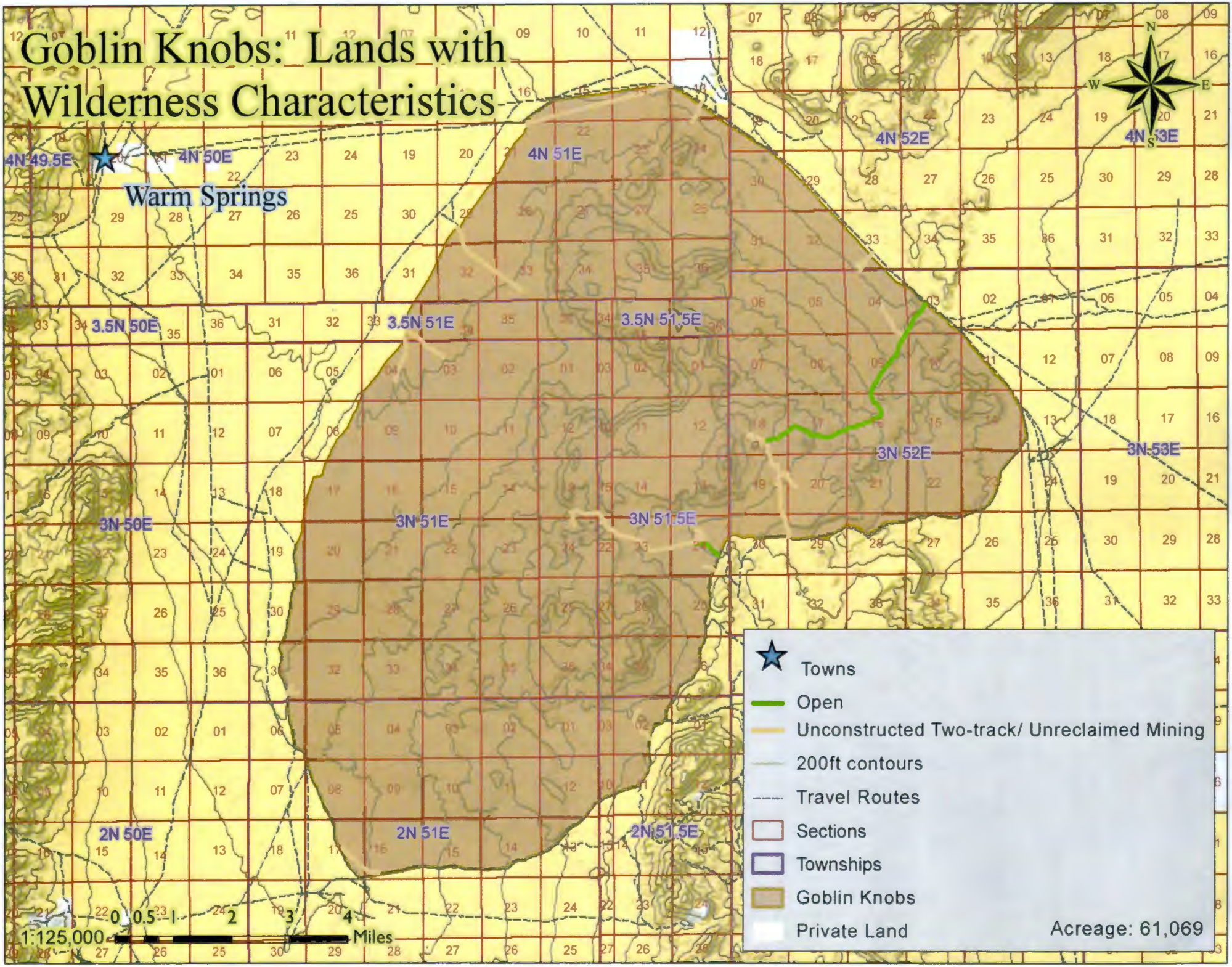
Forty years of growth, development, and ever-increasing urbanization of the west has resulted in wholesale losses of habitat, which in has turn led to more challenges with species such as the desert tortoise and the sage grouse. The newest generation of powerful and high performance ORV's

combined with current trends for large-scale energy development on public lands (including "fracking," solar, and wind) is creating ever-escalating threats to the remaining roadless BLM Lands.

All of these factors illustrate the multitude of changes both within the BLM and external to the agency that have radically changed attitudes and policies toward lands with wilderness characteristics. Today the remaining Nevada BLM LWCs have high value for a growing population on a shrinking planet. These same LWCs can provide critical, scientific case-studies for the interaction between diverse habitats as climate patterns shift. Retaining the natural integrity of these LWC swill assure that these natural interactions can continue to be monitored into an uncertain climatic future. LWCs provide the critical habitat to accommodate the shifting ecosystems that will result from climate change.

On the ground, the character and use of these BLM roadless areas have changed in the intervening 40 decades. Many of the "roads," mining, mineral exploration activities, and other human impacts that may have disqualified this area from wilderness consideration in the 1970s have been decades abandoned and are actively being eroded, revegetated, and reclaimed by natural forces. Many of the 1980 WSA Decision disqualifying-human-impacts for this area have become substantially unnoticeable since those WSA inventories were completed.

The general observations outlined above and the specific findings for this unit (found in the first part of this document) illustrate the significant differences between: 1) the inventory information available in the BLM files based on the culture, policy, and observations of nearly 4 decades ago; and 2) the inventory information that is available today, as in the 2013 FNW Inventory of this area. These significant differences provide compelling reasons to revaluate this unit for LWC status.


Goblin Knobs: Lands with Wilderness Characteristics
Warm Springs
4N 49.5E
4N 50E
4N 51E
4N 52E
4N 53E
3.5N 50E
3.5N 51E
3.5N 51.5E
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2N 50E
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2N 51.5E
N
S
E
W
0 0.5 1 2 3 4
Miles
1:125,000
Towns
Open
Unconstructed Two-track/ Unreclaimed Mining
200ft contours
Travel Routes
Sections
Townships
Goblin Knobs
Private Land
Acreage: 61,069

Friends of Nevada Wilderness LWC Inventory

Confusion Hills

WILDERNESS CHARACTERISTICS INVENTORY
INVENTORY AREA EVALUATION (FORM 2)

Current Conditions: Presence or Absence of Wilderness Characteristics
Area Unique Identifier: **Confusion Hills** Acreage: **44,781**

(If the inventory area consists of subunits, list the acreage of each and evaluate each separately).
In completing steps (1)-(5), use additional space as necessary.

(1) Is the area of sufficient size? (If the area meets one of the exceptions to the size criterion, check "Yes" and describe the exception in the space provided below),

Yes No Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (describe the boundaries of the area--wilderness inventory roads, property lines, etc): **The Confusion Hills Area is bounded by well-developed county roads on all three sides with minor offsets to accommodate one area of private property.**

(2) Does the area appear to be natural?
YES

Note: If "No" is checked the area does not have wilderness characteristics; check "NA" for the remaining questions below.

Description (include land ownership, location, topography, vegetation, and summary of major human uses/activities: **Historic human use of the Confusion Hills area included mining exploration. This exploration left un-reclaimed mining routes in the Cruiser Point area. Most of these un-reclaimed routes have fallen into disuse and are over-grown by pinyon and juniper trees and brush. In many places these routes have also been eroded and washed-out by seasonal storms. The overall impact on the naturalness of the area is negligible. On the south-central part of the area, two well-developed roads lead to two oil exploration well sites. These sites can be effectively excluded from the area with minimal impact on the natural integrity of the area.**

A maze of multicolored, ash-fall hills characterizes the southwest corner of the Confusion Hills. These formations create the fanciful landscape from which the name of the area is derived. Open stands of pinyon and juniper trees flow-over these low hills and queue-up along the shallow canyons. The Great Basin sagebrush community plants weave in and out of the trees, covering the hills where the soils are stable and developed enough to support vegetation. In many locations, the soil of these ash-derived hills is so unstable that vegetation cannot gain a foothold. In these areas only the most determined pinyon or juniper survives, growing in twisted and stunted forms that mimic the chaotic terrain. As the foothills climb toward Cruiser Peak and higher terrain, the pinyon and juniper become denser and form a diminutive forest. This extensive pinyon/juniper forest continues over the crest of the range and down toward the eastern boundary.

The vegetation thins again on the east side of the Confusion Hills area and the multicolored Red Ring Mountain dominates the eastern boundary dressed in a cloak spotted with pinyon and juniper.

Two very different natural habitats define the north half of the Confusion Hills. An extensive dwarf-sage brush and grass plant community covers the gently sloping alluvial fan system on the east side and

contrasts sharply with the 9-mile knife-edge of Andesite Ridge paralleling the northwest border. Andesite Ridge and the dwarf-sage brush plain meet in rolling, juniper and pinyon covered hills in the center of the Confusion Hills area. The high point of the Confusion Hills is an 8000 foot peak on the southern end of Andesite Ridge. Throughout the unit, a visitor may glimpse golden eagles, turkey vultures, hawks, falcons, or kestrels hunting on capricious air currents (see species list).

The Confusion Hills provide an ever-changing adaptations of natural habitats as the terrain makes incremental changes responding to variations in precipitation, soil types, and exposure to the relentless desert sun. A wide diversity of animals call this unit home, including: coyotes, bobcat, mountain lions, mule deer rabbits and rodents (see species list). The natural integrity of this corner of Nevada abides and for all visitors, the most dramatic attribute of the Confusion Hills is the appearance of naturalness.

(3) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for solitude?
YES

Description (describe the area's outstanding opportunities for solitude):
Walking into the Confusion Hills is to immerse oneself into a remote and natural world where the primeval forces of the world still hold sway. Immersion into this unit is immersion into outstanding opportunities for solitude. The maze-like, colorful formations of the volcanic hills in the southwestern part of this unit provide outstanding opportunities to vanish into a land flush with vegetative and topographical screening. The dense pinion/juniper forests of the upper southern section offer opportunities to find uncompromised solitude in the sheltering fragrance of this diminutive forest. The extensive, open pinion/juniper woodlands of the eastern part of the Confusion Hills unit offer outstanding opportunities for solitude based on the pure scale of the region. Distances here are enormous and moving through this landscape under one's own power makes the space even large. After 15 minutes of travel, visitors become engulfed in the immensity of the unit and will find themselves utterly alone. Climbing to the top of the isolated of Red Ring Mountain on the eastern boundary of the unit provides visitors with the opportunity survey the scale of emptiness this Confusion Hills unit represents.

The extensive alluvial plains on the east side of the unit provide visitors with the outstanding opportunity of the wilderness within dwarf-sagebrush community. Despite the low aspect of the vegetation, this area is surprisingly well-watered and nourish grasslands combined with a profusion of wildflowers and herbaceous plants. This is the solitude of the plains; solitude the visitor will most likely share only with the rabbits, rodents, lizards, coyotes or perhaps a small band of passing pronghorn antelope. Andesite Ridge provides an outstanding opportunity for a unique form of solitude. This massive knife-like ridge provides a formidable challenge. A challenge that, when met, is rewarded by the solitude of elevation; solitude only you and the raven, soaring and celebrating in the unpredictable gusts atop the ridge, will know.

(4) Does the area (or the remainder of the area if a portion has been excluded due to unnaturalness and the remainder is of sufficient size) have outstanding opportunities for primitive and unconfined recreation?
YES

Note: If "No" is checked for both 3 and 4 the area does not have wilderness characteristics; check "NA" for question 5.

Description (describe the area's outstanding opportunities for primitive and unconfined recreation):
The opportunities for primitive and unconfined recreation in the Confusion Hills unit are limited only by determination and imagination. Nearly every corner of the unit is accessible for recreation, from easy hiking through the colorful and winding arroyos of the volcanic foothills and the upland forests, to the

more challenging terrain of the rhyolitic ramparts of Cruiser Point and Andesite Ridge. Outstanding opportunities exist with this unit for photography, horseback riding, backpacking, hunting, wildlife watching, birding, rockhounding, botanical identification, bouldering, rock climbing, as well as opportunities for though who like to "collect" desert peaks and climb to the highest point in every one of the 300 mountain ranges of the state. The Confusion Hills unit shows evidence of extensive use by prehistoric peoples and provides outstanding opportunities for amateur archaeologists to explore lifestyles that involved lithic industry, petroglyphs, and pictographs. The never-ending patterns of light and shadow, fashioned from the changeable weather careening over the colorful formations of this unit create fascinating inspiration for artist and poets. Outstanding opportunities for sketching, painting, and creative writing can be found within the inspirational colors and wild nature of the Confusion Hills area.

(5) Does the area have supplemental values (ecological, geological, or other features of scientific, educational, scenic or historical value)?
YES

Description:
The Confusion Hills unit includes a wide diversity of ecological habitats. The western boundary of this unit follows the well-watered Hot Creek Valley. The dryer uplands support extensive pinion/juniper forests. The eastern plains provide low sagebrush-steppe habitat. This complex of environments provides a critical case-study of the interaction between diverse habitats as the climate patterns shift. Retaining the natural integrity of this unit will assure that these natural interactions can continue to be monitored into an uncertain future. The area included within the Confusion Hills unit is rich in archaeological resources and provides valuable materials for the study of indigenous peoples in Nevada.

Friends of Nevada Wilderness and the Nevada Wilderness Project (FNW)
Citizen-Submitted Wilderness Characteristics Inventory Information

CITIZEN NAME: **Confusion Hills**

BLM UNIT NAME: **Lone Mountain** BLM UNIT NUMBER: **NV-060-212**
BLM UNIT NAME: **Red Ring Mountain** BLM UNIT NUMBER: **NV-060-213**

Narrative documentation of how the Citizen-Submitted information substantially differs from the information in the BLM inventory of the area's wilderness characteristics (as per BLM Manual 6310; .06; B; 1; b; ii.)

CHARACTERISTICS INVENTORIED:

1. Size: The BLM 1980 Wilderness Inventory documented a total of 40,500 acres (34,300 acres for Unit 212 and 6,200 acres for Unit 213); the FNW Inventory describes this area as 44,781 acres. The FNW inventory describes this area as a single unit because the "route" used by the 1980 BLM boundary between Units 212 and Unit 213 was found by the 2012 FNW inventory to not have been constructed for most of its length and to have fallen into disrepair, disuse, and is, in many places, overgrown with pinyon and juniper to the point where it is no longer passable by vehicles. The configurations of the two BLM units and the single FNW unit fairly closely coincide. The FNW inventory refers to the two Units from the 1980 BLM inventory as a single, continuous unit.

2. Naturalness: The BLM 1980 Wilderness Inventory found that "33,900 acres [of Unit 212] were found to be in a natural condition. 400 acres were deleted due to a lack of naturalness" and "6,200 acres [in Unit 213] were found to be in a natural condition." The intervening 4 decades since this inventory have allowed the natural processes to reclaim the boundary "route" between the two units and the mining exploration access routes within the Units. The 2012 FNW inventory found these human impacts within the unit were now substantially unnoticeable and that all 44,781 acres of the unit appeared natural.

3. Outstanding Opportunities for:

A. Solitude: The BLM 1980 Wilderness Inventory stated that for Unit 212: *"[t]he roadless and natural portion of the area does not possess an outstanding opportunity for solitude. The northern half of the unit is comprised of a narrow ridge and part of Sand Springs Valley. This area averages only two miles in width with an average relief of 500 feet. The southern half of the unit has a mining road, which penetrates the unit for about four miles. This situation restricts the user from being able to find a secluded spot and thus would prevent the user from avoiding the sights and sounds of man."*

The 2012 FNW inventory found that over the intervening 4 decades, the "mining road" described above as penetrating four miles into the southern half of Unit 212 has been eroded, revegeted, and overgrown by pinyon and juniper, making this unused route impassible by full-size vehicles. The prospects this complex of un-reclaimed mining exploration routes traditionally led to have not been accessed for decades. The "averaged" statistics used in the 1980 BLM inventory to describe the topography in the northern portion of Unit 212 do not accurately portray the spectacular topographical relief created by the dramatic, 1,500-foot rise of Andesite Ridge above Pritchard's Canyon to the west and above Little Smokey Valley to the east (not Sand Springs Valley as described in the 1980 BLM inventory).

The BLM 1980 Wilderness Inventory stated that for Unit 213: *"[t]he roadless and natural portion of the area does not possess an outstanding opportunity for solitude. It is a relatively small mountain with little topographic variance. Vegetation is sparse and visitors would find it difficult to screen themselves from others in the unit."*

Guidelines for evaluating LWC have changed in the last 4 decades. Under the 6310 policies, "[o]utstanding opportunities for solitude can be found in areas lacking vegetation or topographic screening." The 2012 FNW inventory found outstanding opportunities for solitude in expansive alluvial systems of the Little Smokey Valley and surrounding Red Ring Mountain. The 2012 FNW inventory also describes outstanding opportunities for solitude created by topographic and vegetative features in many places in this combined unit including the knife-edge of Andesite Ridge, the colorful canyons of the Confusion Hills, and dense pinyon/juniper forest of the south central core of the unit . Also, under contemporary 6310 guidelines, an LWC unit not need "have outstanding opportunities on every acre" to meet the criteria for outstanding opportunities. (See Form 2 in the enclosed FNW Inventory documents for details on outstanding opportunities for solitude in this Unit.)

B. Primitive and Unconfined Type of Recreation: The BLM 1980 inventory for Unit 212 stated: "The area does not offer an outstanding opportunity for a primitive and unconfined type of recreation as opportunities... are of low quality." The BLM 1980 inventory for Unit 213 stated: "[t]he area does not offer an outstanding opportunity for a primitive and unconfined type of recreation. Those opportunities that do exist are common and of relatively low quality." The 2012 FNW inventory found that the combined unit offers both outstanding opportunities in several primitive and unconfined types of recreation and a diversity of recreational opportunities. (See Form 2 in the FNW inventory documents for details.)

SUMMARY OF PUBLIC COMMENTS: The 1980 BLM Inventory for Unit 212 stated that the "BLM received two specific comments on this unit. One mentioned naturalness and supplemental values while the other noted other resource values. Also received were 2,288 general comments stating the unit meets the wilderness criteria." The 1980 BLM Inventory for Unit 213 stated the "BLM received two specific comments on this unit.
One discussed the area's naturalness and supplemental values and the second noted other resource values."

RATIONALE FOR DECISION: The 1980 BLM Inventory stated the same rationale for both Unit 122 and 213*: "Even though comments were received both supporting and opposing WSA designation, the evidence available to the Bureau indicates the area does not possess the necessary criteria for WSA designation."*

Although this may have been an accurate assessment at the time, the 2012 FNW Inventory demonstrates that the wilderness characteristics of this area (the combined 212 and 213 Units) have substantially changed over the intervening four decades. The wilderness characteristics generated from the FNW 2012 Inventory for the combined unit substantially differ from the information in the BLM inventory of the area's wilderness characteristics. Under current 6310 guidelines, FNW recommends that this combined unit, Confusion Hills, should be re-considered for LWC status.

Additional considerations and a historical perspective on differences between the original WSA Inventory conducted by the BLM in the late 1970's and today's inventories.

Four decades ago the concept of wilderness was new to the BLM and new to the state of Nevada. At that point in time, most wilderness designations had been traditionally in mountainous and forested roadless areas. Nevada's only wilderness at that time was Jarbidge Wilderness in northern Nevada managed by the Forest Service. As a result, the criteria and language for wilderness characteristics was heavily biased toward these very, forest-service oriented "rock and ice" types of terrains. Careful study of the 1980 Nevada BLM Wilderness Study Areas Decisions reveals that many outstanding Nevada roadless areas were dropped from wilderness consideration because they lacked wilderness characteristics that were biased toward alpine environments.

Over the last four decades, the BLM has developed definitions of wilderness characteristics that both aligned with the intent of the Wilderness Act of 1964 and recognized the wilderness potential of low-relief and more arid roadless lands. The current BLM Manual 6310—Conducting Wilderness Characteristics Inventory on BLM Lands (Public), provides a stellar example of removing the alpine-terrain bias from wilderness characteristics. Congress has affirmed this action by the BLM to recognize wilderness in flat and arid regions through designating millions of acres of these terrains, such as the Black Rock Desert and the Nellis Wash, as Wilderness Areas.

FLPMA, passed by Congress in 1976, dramatically changed the mission of the BLM. With the recognition of the value of the public lands and a mandate that these lands would remain in public ownership, the BLM had to scramble to redefine itself. This was a daunting task that required many changes to perspectives within the agency complicated by changing perspectives of the agency externally, i.e. from the public sector. The land management role of the BLM, and the agency's perspective for land use have changed substantially since the original wilderness inventories of the 1970s. In realizing this new mission, the BLM has been dealing with increasingly complex management issues including, threatened and endangered species, increased recreation use, rapidly changing recreation technology, climate change, invasive species, wildlife management, mineral leasing, land exchanges, energy developments, etc. over the last 40 years.

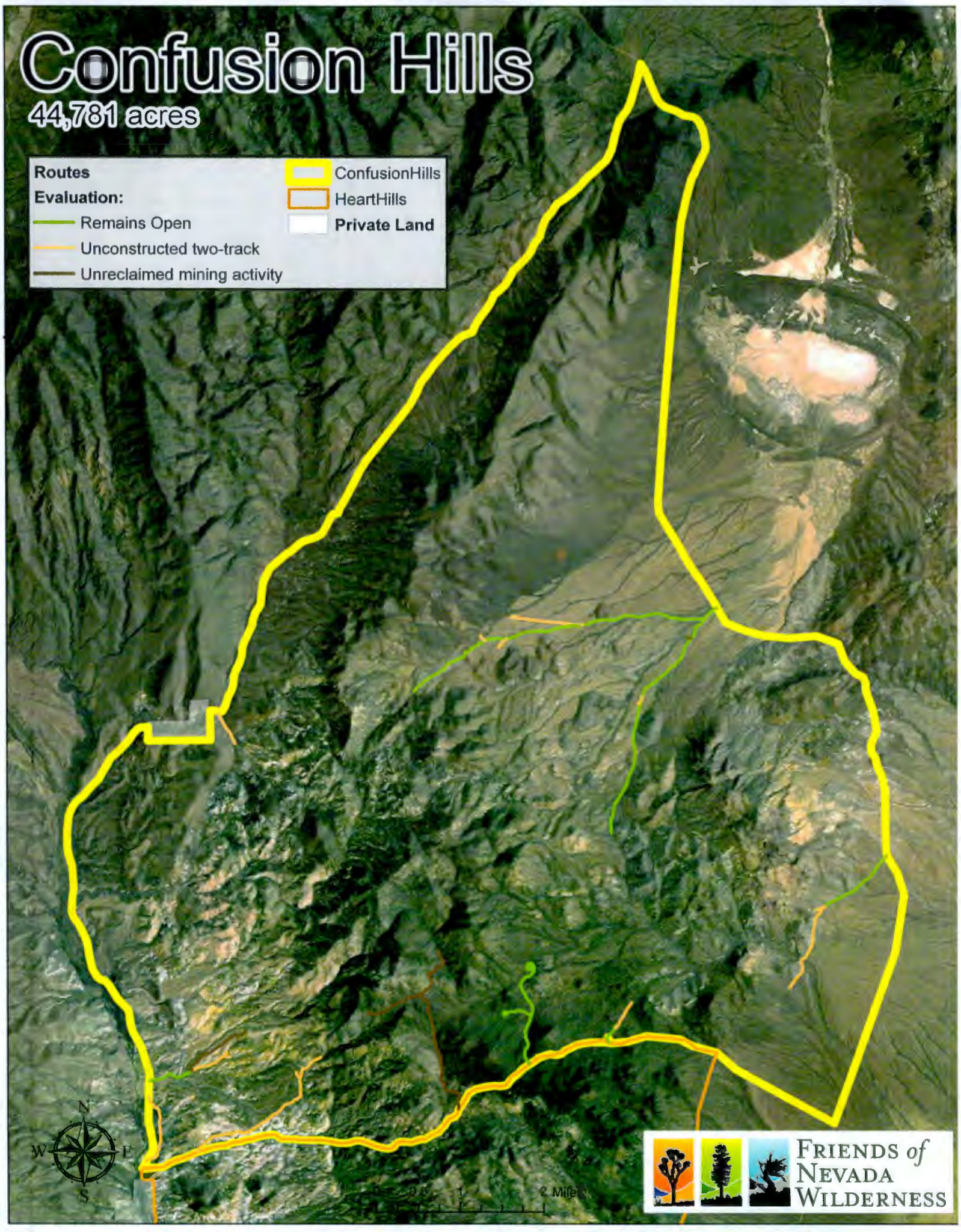
To face this increasing complexity required the BLM to significantly changed agency positions and staffing over the intervening decades. BLM staffing now includes ecologists, biologists, wildlife biologists, botanists, archaeologists, recreation planners, economists, etc, positions that were rare or in the 1970's. The inclusion of this resource specialist staffing created an enhanced scientific approach to resource management and better understanding of ecological connectivity and complexity.

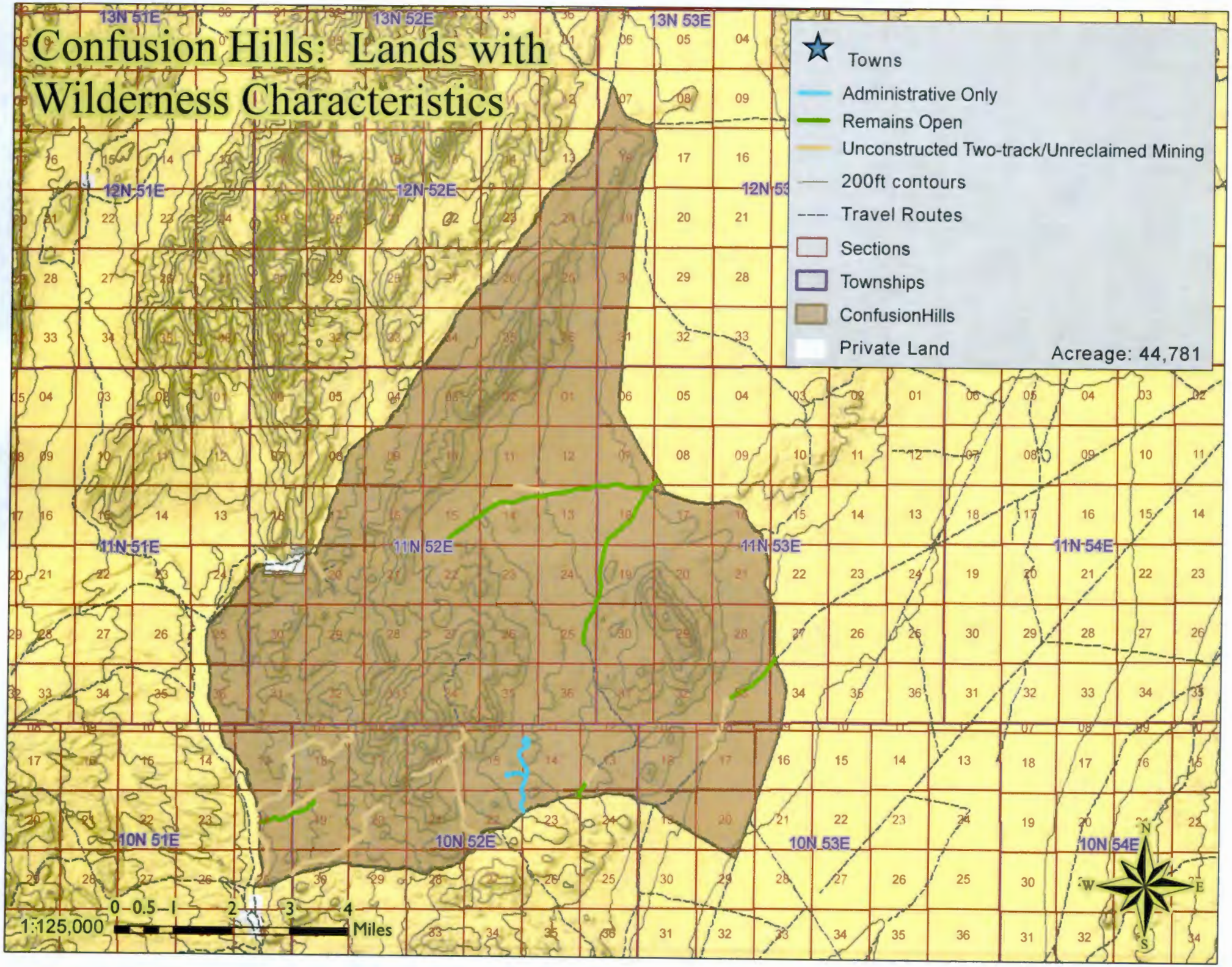
Forty years of growth, development, and ever-increasing urbanization of the west has resulted in wholesale losses of habitat, which in has turn led to more challenges with species such as the desert tortoise and the sage grouse. The newest generation of powerful and high performance ORV's combined with current trends for large-scale energy development on public lands (including "fracking," solar, and wind) is creating ever-escalating threats to the remaining roadless BLM Lands.

All of these factors illustrate the multitude of changes both within the BLM and external to the agency that have radically changed attitudes and policies toward lands with wilderness characteristics. Today the remaining Nevada BLM LWCs have high value for a growing population on a shrinking planet. These same LWCs can provide critical, scientific case-studies for the interaction between diverse habitats as climate patterns shift. Retaining the natural integrity of these LWC swill assure that these natural interactions can continue to be monitored into an uncertain climatic future. LWCs provide the critical habitat to accommodate the shifting ecosystems that will result from climate change.

On the ground, the character and use of these BLM roadless areas have changed in the intervening 40 decades. Many of the "roads," mining, mineral exploration activities, and other human impacts that may have disqualified this area from wilderness consideration in the 1970s have been decades abandoned and are actively being eroded, revegetated, and reclaimed by natural forces. Many of the 1980 WSA Decision disqualifying-human-impacts for this area have become substantially unnoticeable since those WSA inventories were completed.

The general observations outlined above and the specific findings for this unit (found in the first part of this document) illustrate the significant differences between: 1) the inventory information available in the BLM files based on the culture, policy, and observations of nearly 4 decades ago; and 2) the inventory information that is available today, as in the 2012 FNW Inventory of this area. These significant differences provide compelling reasons to revaluate this unit for LWC status.


Confusion Hills
44,781 acres
Routes
Evaluation:
Remains Open
Unconstructed two-track
Unreclaimed mining activity
ConfusionHills
HeartHills
Private Land
N
W
E
S
0.5
1
2 Miles
Friends of Nevada Wilderness


Confusion Hills: Lands with Wilderness Characteristics
Towns
Administrative Only
Remains Open
Unconstructed Two-track/Unreclaimed Mining
200ft contours
Travel Routes
Sections
Townships
ConfusionHills
Private Land
Acreage: 44,781
13N 51E
13N 52E
13N 53E
12N 51E
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0 0.5 1 2 3 4
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EXHIBIT 3

June 2018 BLM Competitive Oil and Gas Lease Sale
Battle Mountain District, Nevada
Review of potential effects to sage-grouse
Matt Holloran
Final 05/04/2018

Introduction

The BLM concludes in its Environmental Assessment for the Battle Mountain District, Nevada June 2018 oil and gas lease sale (BMD EA) that "exploration or development on leased parcels should not have any long-term or substantial impacts to wildlife resources" (BMD EA pg. 31). However, the BMD EA fails to provide the analyses or information necessary to support this conclusion. First, BLM does not offer a substantive analysis of the reasonably foreseeable impacts to sage-grouse from issuing or developing the parcels to be offered at the June 2018 sale. Second, the Reasonably Foreseeable Development (RFD) scenario analysis presented in the BMD EA is not appropriate for making site-specific decisions to offer particular leases. Third, BLM has not explained how its decision prioritizes leasing outside of designated habitat for the sage-grouse, as directed by the Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (2015; ARMPA).

The limits of BLM's impact assessment – described in detail below – will impair its ability to achieve the sage-grouse conservation goals the agency established for itself. Sage-grouse are a landscape species (Connelly et al. 2004), yet within this landscape sage-grouse rely on habitats with a diversity of species and subspecies of sagebrush interspersed with a variety of other habitats (e.g., riparian meadows, agricultural lands, grasslands) that are used by sage-grouse during certain times of the year (e.g., summer) or during certain years (e.g., severe drought; Connelly et al. 2011). Therefore, attaining the primary goal of conserving, enhancing, and restoring the "sagebrush ecosystems upon which [sage-grouse] populations depend in an effort to maintain and/or increase their abundance and distribution" (ARMPA pg. 2-3) requires a landscape-scale approach to managing site-specific projects. To sustain populations, the diversity of resources sage-grouse need seasonally must be considered holistically to provide the large, functional, connected habitat patches required by the species annually (Coates et al. 2016, Dahlgren et al. 2016). The EA for the June 2018 lease sale fails to do so.

Reasonably Foreseeable Impacts

The BLM provides virtually no analysis of the potential impacts to sage-grouse of developing the parcels being proposed for lease in the BMD EA. Instead, BLM indicates that without a lease operations proposal, surface disturbing activities cannot be determined and therefore impacts can only be assessed generally until an exploration or development proposal is submitted (BMD EA pgs. 3-4). But the BLM recognizes surface disturbing activities as foreseeable (BMD EA pgs. 13-14). In this context, the absence of a discrete development proposal does not preclude an assessment of the impacts from development of these leases. Such development is a product of the foreseeable impact determination and the potential indirect and cumulative effects of that development on sage-grouse should be assessed rigorously prior to leasing.

The BLM acknowledges that "once a lease is issued to its owner, that owner has the 'right to use as much of the lease lands as is necessary to explore for, drill for, mine, extract, remove and dispose of the leased resource in the leasehold'...thus, a lease sale makes the offered parcels available to indirect effects (occurring at a later date)" (BMD EA pgs. 13-14). The EA also acknowledges that the Nevada Department of Wildlife (NDOW) raised concerns over the impacts from developing these leases: e.g., the "persistence and viability of [the Monitor Valley] lek complex and subpopulation would be likely compromised" (BMD EA pg. 30) from energy development in the area. The EA's use of a Reasonably

Foreseeable Development estimate (RFD) to predict the number of potential future wells and potential surface acreage disturbance further illustrates that future development of these leases is reasonably foreseeable. While the RFD as a decision-making tool at the leasing stage has flaws (see below), it is unclear why BLM estimated the potential number of wells and acreage—but then chose not to evaluate the impacts to sage-grouse from that development. The Assessment, Inventory, and Monitoring (AIM) Strategy, and a parcel-specific prioritization analysis (both discussed below), would have allowed BLM to develop useful forecasts of potential impacts.

Such an analysis is important because the EA indicates that developing the proposed leases could have substantial impacts to all seasonal habitats (nesting, brood-rearing, summer, and winter) in areas currently devoid of many anthropogenic disturbances. Habitats of particular value potentially impacted by development of proposed leases include Little Fish Lake Valley and Monitor Valley, which support "a high concentration of leks and sage-grouse that comprise a substantial portion of the statewide population" (BMD EA pg. 29). Despite these concerns, the BLM concluded, as mentioned previously, that the impacts to sage-grouse populations of developing the June 2018 leases would be minimal. But the EA lacks the analysis necessary to support that conclusion. It provides only one paragraph addressing foreseeable impacts to sage-grouse (referencing NDOW's concerns) and states that lease stipulations will apply and that impacts to sage-grouse "would be considered at the time of any future project proposal" (BMD EA pg. 30). Because it is deferring its analysis of the reasonably foreseeable impacts of developing the leases, the BLM does not have the information necessary to determine if leases situated in or near important habitats could be developed with minimal impact. In lieu of this level of information, it is imperative that the BLM avoid leasing parcels in or near designated sage-grouse habitats so as not to jeopardize its ability to meet sage-grouse conservation goals (Doherty et al. 2016), as discussed in more detail below.

Moreover, the BMD EA does not address the cumulative impacts of current and proposed leasing and development of sage-grouse habitat in Nevada and other states. In fact, the BLM acknowledges that regardless of whether the Battle Mountain District offered the June 2018 leases, "oil and gas development would take place on parcels that were leased in other lease sales (180 authorized leases totaling 259,617 acres in the District)" (BMD EA pg. 10). The BMD EA also does not account for the potential cumulative impacts of this lease sale in combination with the numerous other recent and proposed lease sales affecting sage-grouse habitat in Nevada and other states. The BLM defines cumulative effects as "those effects on resources within an area or region caused by a combination of past, present and reasonable foreseeable future actions. These impacts may be individually minor but added together over time may become significant" (BMD EA pg. 47). As such, the BMD EA does not address the potential incremental impacts of developing the proposed leases on sage-grouse in the context of other leases and development in and near the District, and therefore cannot contribute to an estimate of cumulative effects.

Reasonably Foreseeable Development Scenario

Based primarily on results of a Reasonably Foreseeable Development (RFD) scenario assessment (BMD EA Appendix G), the BLM concludes that "impacts to wildlife and associated wildlife resources from oil and gas exploration and production activities [in the event leased parcels are developed] would generally be expected to be short-term and minimal" (BMD EA pg. 49). The RFD scenarios rely on past trends in energy development to provide generalized estimates of expected development in the District as a whole over the next 10 years. These estimates of expected development do not address the parcels proposed for this sale, are not spatially-explicit, and do not provide information on the potential response of sage-grouse to the RFD estimate of future development of proposed leases individually or collectively. Further, the analysis is done at spatial scales (District) too large to be directly comparable to leases (Zurek and Henrichs 2007), thereby minimizing their applicability for estimating potential impacts from the development of those leases. As such, the RFD assessment does not provide the BLM with information

that is directly useful for making impact avoidance and minimization decisions as to which leases to offer for sale.

Attempting to wait until individual Applications for Permit to Drill (APDs) are filed will not address the foreseeable impacts of selling the leases proposed in the June 2018 sale (much less the cumulative impacts of other recent and proposed sales). The BLM as a result is making decisions using information derived from analyses done at spatial scales that are not relevant to the June 2018 lease sale. By not conducting rigorous indirect or cumulative impact assessments at spatial scales directly relevant the leases proposed in the BMD EA, the BLM is prevented from ensuring that important site-, regional- and landscape-scale dynamics are accurately captured and assessed (see Stiver et al. 2015) thereby limiting its ability to manage towards the goal of providing the high-quality habitats necessary to maintain and/or enhance sage-grouse populations.

Site-specific Mitigation Measures

Energy Development:--Analyzing impacts to the sage-grouse prior to offering leases is important because addressing them once leases are issued (i.e., at the APD stage) will not be adequate. The BLM acknowledges that there may be indirect impacts from ground disturbing activities on any leased parcels that may require site-specific mitigation measures included as conditions of approval (COA) at the APD stage (BMD EA pg. 30). Mitigation as detailed in BMD EA Appendix B includes timing limitations (TL), and controlled surface use (CSU) and no surface occupancy (NSO) stipulations specific to habitat designation by lease parcel (priority (PHMA) or general (GHMA) habitat management areas). In general, TL stipulations are a restriction on all surface disturbing and/or disruptive activities in specific areas during specific seasons; CSU stipulations consist of actions meant to limit noise and other disturbances within infrastructure-specific distances from leks; and NSO stipulations are restrictions on all surface occupancy and surface disturbing activities in PHMA. Further, the disturbance management protocol is focused on restricting anthropogenic surface disturbance in priority habitats (see ARMPA pg. 2-7 and Appendix E). As the ARMPA and prioritization requirements recognize, however, stipulations alone are not sufficient to avoid all adverse impacts.

For example, TL stipulations generally do not apply to the operation and maintenance of production facilities (ARMPA pg. 5-23) and CSU stipulations do not account for distance-effects of infrastructure throughout the life of the project. CSU stipulations in GHMA are focused on reducing distance effects, but the buffering approaches are not sufficient to eliminate all disturbances to sage-grouse. Further, the potential indirect effects to PHMA of development in GHMA are not addressed by the CSU stipulations implemented in GHMA (Green et al. 2017, Spence et al. 2017). This suggests that residual effects will remain after the minimization measures established in the BMD EA are implemented. The BLM should recognize residual effects as reasonably foreseeable impacts and address them prior to selling leases.[1] Note that the analyses suggested above and further detailed below would assist the BLM making these determinations.

Although results from studies investigating sage-grouse response to human activity suggest that timing restrictions may be effective while being implemented (Dzialak et al. 2012, Holloran et al. 2015), researchers have noted that timing restrictions on construction and drilling during the breeding season will not prevent impacts at other times of the year or during other phases of development (e.g., production phases) and therefore may not be sufficient to minimize impacts over the life of a development (Walker et

[1] BLM states that it lacks authority to apply additional stipulations to protect sage-grouse habitat beyond those provided in the ARMPA at the lease sale stage (BMD EA pg. 30). Given this position, it becomes even more important to evaluate whether these leases should be offered at all. That determination would appropriately be made as part of complying with the prioritization commitment in the ARMPA.

al. 2007, Doherty et al. 2008). If BLM chooses to offer these lease parcels, mitigation measures that minimize human activity throughout the life of potential development projects (e.g., requiring liquid gathering systems for leased parcels in or near sage-grouse habitats; Holloran et al. 2015) should be considered and established at the time of the lease sale.

In addition, several authors have reported a distance-effect associated with the infrastructure of energy fields whereby sage-grouse are negatively influenced to a greater extent if infrastructure is placed near seasonal habitat with the response diminishing as distances from the habitat to infrastructure increase (Manier et al. 2013). The majority of the research has investigated the response of lekking sage-grouse to energy development, with studies consistently reporting impacts from infrastructure on the number of males occupying leks to approximately 2 miles, with lesser impacts consistently apparent to approximately 4 miles (Holloran 2005, Walker et al. 2007, Tack 2009, Harju et al. 2010, Johnson et al. 2011). Additionally, distance-effects of infrastructure associated with energy developments of between approximately 0.9 and 1.7 miles on average have been noted during nesting, brood-rearing, and winter (Doherty et al. 2008, Carpenter et al. 2010, Holloran et al. 2010, Dzialak et al. 2011, LeBeau 2012, Dinkins 2013, Fedy et al. 2014). If BLM chooses to offer lease parcels in or near seasonal ranges, mitigation measures that minimize the effects of infrastructure on surrounding habitats throughout the life of the development (e.g., informed infrastructure siting) should be established by the BLM prior to offering a lease.

Invasive Plants:--Another issue with the BLM's site-specific approach to mitigation involves invasive plants. The BLM establishes that at the time of a local-scale development application (e.g., an APD), site-specific monitoring and mitigation measures, best management practices and COAs for managing invasive plant species would be determined and implemented (BMD EA pg. 27). This reliance on local-scale assessments and actions restricts the ability of the BLM to manage sage-grouse habitats at landscape spatial scales, which is critical for effectively managing invasive plants. The BLM acknowledges that "invasions of noxious and invasive weeds would continue to occur and spread" as a result ongoing human activities in sagebrush habitats (Nevada and Northeastern California FEIS pg. 4-61). The primary concern currently in Nevada is the spread of cheatgrass and the resulting changes in fire frequency which ultimately eliminate fire-intolerant species such as sagebrush from the landscape (Miller et al. 2011). The first principle in the Integrated Rangeland Fire Management Strategy (2015) developed by the BLM is to work at landscape scales precluding the need to develop management actions at multiple individual sites (pgs. 6 and 7). Further, the ARMPA establishes as a management decision the prevention of the establishment of invasive species into sage-grouse habitats (MD VEG 16 pg. 2-17), which is the first line of defense against biological invasion (U.S. Department of Interior 2016). Therefore, given the need to work at landscape spatial scales to manage invasive plant species and safeguard against the resulting changes to fire frequency, and the importance of prevention for the long-term maintenance of the sagebrush habitats sage-grouse depend, the BLM should consider the introduction and/or proliferation of invasive annual grasses a reasonably foreseeable impact and assess the potential consequences of these impacts prior to leasing. If BLM chooses to offer these lease parcels, assessments of potential impacts of the introductions and/or proliferation of cheatgrass as a result of developing proposed leases following approaches established as the Fire and Invasives Assessment Tool (ARMPA Appendix J; USGS 2018) would provide the BLM with reasonably foreseeable impact forecasts at scales appropriate for assessing cumulative effects, and are also critical prior to offering the leases.

Prioritizing Leasing of Non-Habitat

In order to achieve its sage-grouse conservation goals, BLM's prioritization commitment must be applied with the intent of achieving minimal leasing in sage-grouse habitat. Although the ARMPA establishes as a management objective that the BLM's "first priority will be to avoid new disturbance" by "locating project/activity [including "leasing and development of fluid mineral resources"] outside" of sage-grouse

designated PHMAs and GHMAs (pgs. 2-6 and 2-28), the BLM in the BMD EA does not establish that its prioritization commitment was followed, or identify how many proposed parcels cover PHMA or GHMA. For example, the BMD EA does not evaluate which leases involve high-value habitat that is far from existing oil and gas development and has a low potential for such development even while acknowledging that several of the parcels being offered are situated in areas without many human disturbances that support substantial portions of Nevada's population of sage-grouse (BMD EA pg. 29). The list of stipulations further indicates that a substantial amount of the acreage to be leased is in sage-grouse habitat: at least 70 parcels (which is 42% of the proposed parcels) are in areas where at least 1 lease stipulation meant to protect sage-grouse or the species' habitats would be applied (BMD EA Appendix A; see also BMD EA Figure 5 pg. 153). By not prioritizing lease sales on lands outside of sage-grouse habitat, the BLM is not avoiding and minimizing impacts to designated sage-grouse habitats. Nor is BLM managing sage-grouse habitats at spatial scales necessary to sustain populations.

The prioritization process was developed against the backdrop of BLM's broader mitigation policies, which seek to minimize impacts to sage-grouse habitats through the application of the mitigation hierarchy (BLM Mitigation Handbook H-1794-1). The initial step of that hierarchy is avoidance. This is explicitly noted in the ARMPA (Objective SSS 4) where in designated sage-grouse habitats the BLM must "apply the concept of 'avoid, minimize, and compensatory mitigation' for all human disturbance in areas not already excluded or closed, so as to avoid adverse effects on [sage-grouse] and its habitat" (pg. 2-6). Avoidance is for the most part achieved under the ARMPA through the prioritization commitment. The BLM is severely limiting its ability to effectively apply the mitigation hierarchy and manage sage-grouse at landscape spatial scales by not prioritizing the leasing of lands outside of designated sage-grouse management areas and in unsuitable or marginally-suitable habitats.

In implementing the avoidance step in the mitigation hierarchy, the prioritization requirement recognizes that to effectively manage sage-grouse at the population level it is critical that the large, interconnected expanses of sagebrush habitats on which the species depends be managed at landscape spatial scales (Connelly et al. 2004). Lek persistence (i.e., the probability that a lek will remain active) and population-level genetic diversity are strongly related to habitat connectivity at these larger scales (Knick and Hanser 2011, Row et al. 2016, Crist et al. 2017). In the majority of cases in Nevada, this suggests that landscape-scale management of sage-grouse must occur across multiple priority areas including the general and other (OHMA) habitat areas situated near these priority habitats (Edmunds et al. 2017, Green et al. 2017, Spence et al. 2017, Coates et al. 2018). As mentioned above, the BLM recognizes the importance of managing at scales necessary to sustain populations in the ARMPA by establishing the goal to "conserve, enhance, and restore the sagebrush ecosystem upon which [sage-grouse] populations depend in an effort to maintain and/or increase their abundance and distribution" (pg. 2-3).

In contrast, BLM in the BMD EA attempts to mitigate impacts to sage-grouse by applying stipulations and reclamation measures at local scales: at the time of receiving applications for exploration or development, "site-specific mitigation measures and [best management practices] would be included in the proposal or attached as COAs for each proposed activity, which would be analyzed under project-specific NEPA analysis" (BMD EA pg. 30). Although a surface disturbance cap is assessed at the project scale taking into account the breeding habitats used by sage-grouse attending potentially disturbed leks (see ARMPA Appendix E), this approach does not account for impacts that may occur at larger spatial scales, and does not effectively consider indirect or cumulative effects (e.g., siting of infrastructure). By not prioritizing lease sales on lands outside of sage-grouse habitat and instead relying on site-level approaches to assess and mitigate potential impacts after the leases have been sold (i.e., after BLM has made a commitment to allow surface-disturbing activities), the BLM is limiting its management options and failing to manage sage-grouse at spatial scales conducive to sustaining populations.

Conclusion

The site-specific spatial scales and lack of analysis in BLM's assessment and management of potential impact of lease sales establishes a situation where the indirect and cumulative effects of leasing and subsequently developing the parcels being considered for sale may not be realized until regional sage-grouse populations are adversely affected. Recent research suggests that population trends within relatively small management areas can differ from trends in the overall management unit, indicating that regional-scale assessments may not accurately depict what is occurring in smaller management units within the region, and vice-versa (Edmunds et al. 2017, Coates et al. 2018). As mentioned earlier, the diversity of resources sage-grouse require seasonally and the corridors needed to move among these seasonal ranges annually must be considered collectively when managing the landscapes needed to sustain populations of the species (Connelly et al. 2011). This results in a situation where, for example, an impact could be successfully mitigated at the site level, yet remain an impact at larger scales (e.g., impacts to a critical travel corridor between seasonal ranges (Crist et al. 2017); impacts to a regionally-limiting seasonal habitat type (Coates et al. 2016)); and these residual impacts would go unnoticed until regional populations suffer. These sorts of situations are why it is critical to inform management decisions with results from quantified assessments done across all relevant spatial scales and potential impacts. This further suggests that the local-scale impacts probable through this lease sale may contribute to sage-grouse population declines at scales much larger than the management approach promoted by the BLM in the BMD EA, suggesting that user groups across the region could be impacted by actions resulting from the leasing of any individual parcel or group of parcels.

The BLM should consider doing an assessment of the proposed June 2018 Nevada leases where the indirect and cumulative effects of the potential consequences of developing each lease parcel as well as all lease parcels collectively are rigorously analyzed prior to proposing the leases to ensure that adequate avoidance and mitigation is implemented to protect regional populations of sage-grouse from the potential multi-scaled effects associated with development of the leases. The AIM strategy developed by the BLM addresses the concerns voiced in the BMD EA that a lack of data precludes the ability to investigate potential landscape-scale impacts of developing proposed leases. The AIM strategy has a goal of providing guidance and data necessary to integrate key ecological attributes into resource allocation decisions, including providing the approaches and data necessary to evaluate indirect and cumulative effects of management actions necessary for assessments of the potential effects of landscape change resulting from local-scale decisions (Toevs et al. 2011). Therefore, if BLM chooses to offer the lease parcels listed in the BMD EA, assessments of potential impacts of developing proposed leases following approaches established in the AIM strategy would provide the BLM with reasonably foreseeable impact forecasts at scales appropriate for assessing indirect and cumulative effects. Doing such an assessment is critical prior to offering any leases in or near important sage-grouse habitats.

Literature Cited

Carpenter, J., C. Aldridge, and M. S. Boyce. 2010. Sage-Grouse Habitat Selection During Winter in Alberta. Journal of Wildlife Management 74:1806-1814.

Coates, P.S., M.L. Casazza, B.E. Brussee, M.A. Ricca, K.B. Gustafson, E. Sanchez-Chopitea, K. Mauch, L.E. Niell, S.C. Gardner, S.P. Espinosa, and D.J. Delehanty. 2016. Spatially explicit modeling of annual and seasonal habitat for greater sage-grouse (*Centrocercus urophasianus*) in Nevada and Northeastern California—An updated decision-support tool for management. U.S. Geological Survey Open-File Report 2016–1080.

Coates, P. S., B. G. Prochazka, M. A. Ricca, B. J. Halstead, M. L. Casazza, E. J. Blomberg, B. E. Brussee, L. Wiechman, J. Tebbenkamp, S. C. Gardner, and K. P. Reese. 2018. The relative importance of intrinsic and extrinsic drivers to population growth vary among local population of

Greater Sage-Grouse: an integrated population modeling approach. The Auk 135:240-261. DOI: 10.1642/AUK-17-137.1.

Connelly, J. W., E. T. Rinkes, and C. E. Braun. 2011. Characteristics of greater sage-grouse habitats: a landscape species at micro- and macroscales. pp. 69-83 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, WY, USA.

Crist, M. R., S. T. Knick, and S. E. Hanser. 2017. Range-wide connectivity of priority areas for greater sage-grouse—Implications for long-term conservation from graph theory. Condor 119:44-57.

Dahlgren, D.K., T.A. Messmer, B.A. Crabb, R.T. Larsen,T.A. Black, S.N. Frey, E.T. Thacker, R.J. Baxter, and J.D. Robinson. 2016. Seasonal movements of greater sage-grouse populations in Utah—Implications for species conservation. Wildlife Society Bulletin 40:288-299.

Dinkins, J. B. 2013. Common raven density and greater sage-grouse nesting success in southern Wyoming: potential conservation and management implications. PhD Dissertation, Utah State University, Logan, USA.

Doherty, K.E., J.S. Evans, P.S. Coates, L.M. Juliusson, and B.C. Fedy. 2016. Importance of regional variation in conservation planning—A rangewide example of the greater sage-grouse. Ecosphere 7:e01462.

Doherty, K.E., D.E. Naugle, B.L. Walker, and J.M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. Journal of Wildlife Management 72:187-195.

Dzialak, M. R., C. V. Olson, S. M. Harju, S. L. Webb, and J. B. Winstead. 2012. Temporal and hierarchical spatial components of animal occurrence: conserving seasonal habitat for greater sage-grouse. Ecosphere 3:art30.

Dzialak, M. R., C. V. Olson, S. M. Harju, S. L. Webb, J. P. Mudd, J. B. Winstead, and L. D. Hayden-Wing. 2011. Identifying and prioritizing greater sage-grouse nesting and brood-rearing habitat for conservation in human-modified landscapes. PLoS ONE 6: e26273. doi:10.1371/journal.pone.0026273.

Edmunds, D. R., C. L. Aldridge, M. S. O'Donnell, and A. P. Monroe. 2017. Greater sage-grouse population trends across Wyoming. Journal of Wildlife Management; DOI:10.1002/jwmg.21386.

Fedy, B. C., K. E. Doherty, C. L. Aldridge, M. O'Donnell, J. L. Beck, B. Bedrosian, D. Gummer, M. J. Holloran, G. D. Johnson, N. W. Kaczor, C. P. Kirol, C. A. Mandich, D. Marshall, G. McKee, C. Olson, A. C. Pratt, C. C. Swanson, and B. L. Walker. 2014. Habitat prioritization across large landscapes, multiple seasons, and novel areas: an example using greater sage-grouse in Wyoming. Wildlife Monographs 190:1-39.

Green, A.W., C.L. Aldridge, and M.S. O'Donnell. 2017. Investigating impacts of oil and gas development on greater sage-grouse. Journal of Wildlife Management 81:46-57.

Harju, S. M., M. R. Dzialak, R. C. Taylor, L. D. Hayden-Wing, and J. B. Winstead. 2010. Thresholds and time lags in effects of energy development on greater sage-grouse populations. Journal of Wildlife Management 74:437-448.

Holloran, M. J. 2005. Greater sage-grouse (Centrocercus urophasianus) population response to natural gas field development in western Wyoming. Dissertation, University of Wyoming, Laramie, USA.

Holloran, M. J., B. C. Fedy, and J. Dahlke. 2015. Winter habitat use of greater sage-grouse relative to activity levels at natural gas well pads. The Journal of Wildlife Management 79:630-640.

Holloran, M. J., R. C. Kaiser, and W. A. Hubert. 2010. Yearling greater sage-grouse response to energy development in Wyoming. Journal of Wildlife Management 74:65-72.

Johnson, D. H., M. J. Holloran, J. W. Connelly, S. E. Hanser, C. L. Amundson, and S. T. Knick. 2011. Influences of environmental and anthropogenic features on greater sage-grouse populations, 1997-2007. pp. 407-450 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse:

ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Knick, S. T., and S. E. Hanser. 2011. Connecting pattern and process in greater sage-grouse populations and sagebrush landscapes. pp. 383-405 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

LeBeau, C. W. 2012. Evaluation of greater sage-grouse reproductive habitat and response to wind energy development in south-central, Wyoming. Thesis, University of Wyoming, Laramie, USA.

Manier, D. J., D. J. A. Wood, Z. H. Bowen, R. M. Donovan, M. J. Holloran, L. M. Juliusson, K. S. Mayne, S. J. Oyler-McCance, F. R. Quamen, D. J. Saher, and A. J. Titolo. 2013. Summary of science, activities, programs, and policies that influence the rangewide conservation of greater sage-grouse (Centrocercus urophasianus). U.S. Geological Survey Open-File Report 2013-1098. http://pubs.usgs.gov/of/2013/1098/.

Miller, R. F., S. T. Knick, D. A. Pyke, C. W. Meinke, S. E. Hanser, M. J. Wisdom, and A. L. Hild. 2011. Characteristics of sagebrush habitats and limitations to long-term conservation. pp. 145-184 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Row, J. R., S. J. Oyler-McCance, and B. C. Fedy. 2016. Differential influences of local subpopulaitons on regional diversity and differentiation for greater sage-grouse (Centrocercus urophansianus). Molecular Ecology 25:4424-4437.

Spence, E.S., J.L. Beck, and A.J. Gregory. 2017. Probability of lek collapse is lower inside sage-grouse core areas—Effectiveness of conservation policy for a landscape species. PloS ONE 12:e0185885.

Stiver, S. J., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl, eds. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado.

Tack, J. D. 2009. Sage-grouse and the human footprint: implications for conservation of small and declining populations. Thesis, University of Montana, Missoula, USA.

Toevs, G. R., J. J. Taylor, C. S. Spurrier, W. C. MacKinnon, and M. R. Bobo. 2011. Bureau of Land Management Assessment, Inventory, and Monitoring Strategy: For integrated renewable resources management. Bureau of Land Management, National Operations Center, Denver, CO, USA.

U.S. Department of Interior. 2016. Safeguarding America's lands and waters from invasive species: A national framework for early detection and rapid response, Washington D.C., USA.

U.S. Department of Interior Bureau of Land Management. 2018. Environmental Assessment Battle Mountain District June 2018 Competitive Oil and Gas Lease Sale. DOI-BLM-NV-B020-2018-0017-EA. Battle Mountain District, NV, USA.

U.S. Department of Interior Bureau of Land Management. 2016. Mitigation Handbook H-1794-1. Washington D.C., USA.

U.S. Department of Interior Bureau of Land Management. 2015. Nevada and Northeastern California Greater Sage-grouse Approved Resource Management Plan Amendment. Nevada State Office, Reno, NV, USA.

U.S. Department of Interior Bureau of Land Management. 2015. Nevada and Northeastern California Greater Sage-grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement. BLM/NV/NV/ES/15-09+1793. Nevada State Office, Reno, NV, USA.

U.S. Department of the Interior Rangeland Fire Task Force. 2015. An integrated rangeland fire management strategy. Final Report to the Secretary of the Interior. Washington D.C., USA.

U.S. Geological Survey. 2018. https://www.sciencebase.gov/catalog/item/573d907ee4b0dae0d5e56ae7

Walker, B. L., D. E. Naugle, and K. E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71:2644-2654.

Zurek, M. B., and T. Henrichs. 2007. Linking scenarios across geographical scales in international environmental assessments. Technological Forecasting and Social Change 74:1282-1295.

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PERSONAL

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EDUCATION

2005	Ph.D., Zoology and Physiology, University of Wyoming, Laramie, WY, USA. Dissertation: *Greater sage-grouse* (Centrocercus urophasianus) *population response to natural gas field development in western Wyoming.* Dr. Stanley H. Anderson, advisor.
1999	M.S., Zoology and Physiology, University of Wyoming, Laramie, WY, USA. Thesis: *Sage grouse* (Centrocercus urophasianus) *seasonal habitat use near Casper, Wyoming.* Dr. Stanley H. Anderson, advisor.
1991	B.S., Biology, Colorado College, Colorado Springs, CO, USA.

RECENT POSITIONS HELD

2015 – present	Principal; Operational Conservation, LLC
2013 – present	Chief Scientist; Wildlife Management Research Support (a fiscally-sponsored nonprofit research organization)
2005 – 2015	Principal and Senior Ecologist; Wyoming Wildlife Consultants, LLC
2002 – 2005	Doctoral Researcher; Wyoming Cooperative Fish and Wildlife Research Unit; University of Wyoming
1999 – 2005	Research Scientist; Wyoming Cooperative Fish and Wildlife Research Unit; University of Wyoming

PROFESSIONAL EXPERIENCE

2005 – present: **Principal, Operational Conservation, LLC; Chief Scientist, Wildlife Management Research Support; Principal and Senior Ecologist, Wyoming Wildlife Consultants, LLC.**
Dr. Robert Crabtree (Fiscal Sponsor for Wildlife Management Research Support), President and Chief Scientist, Yellowstone Ecological Research Center; 2048 Analysis Drive, Suite B; Bozeman, MT 59718; crabtree@yellowstoneresearch.org.

I design, initiate and direct research and management programs specializing in long-term, coordinated conservation efforts focused towards science-based management of wildlife resources in the intermountain western U.S. The mission of my program is to develop and implement science-based solutions to wildlife management and conservation concerns. I am actively involved as a member of several multi-stakeholder working groups, technical teams, and advisory panels for conservation and management organizations where I routinely advise the development of science-based policies for the protection of wildlife populations and habitats. I have been working in the west for over 20 years developing and implementing conservation efforts aimed at enhancing greater sage-grouse and other sagebrush obligate species' habitats and populations. More recently I have been involved in a community-based program aimed at enhancing grassland habitats for neotropical migrants in the northern Great Plains. My duties include designing, funding, managing, analyzing, publishing and presenting orally original research and conservation approaches; fostering collaborative relationships and partnerships with state and federal agencies, industry, private landowners, NGOs and academia; managing research and business finances; supervising staff; and providing technical expertise for a wide variety of projects. I have authored or helped to author over 20 peer-reviewed publications, and regularly give presentations concerning wildlife and habitat conservation at professional conferences and to the general public. The day-to-day responsibilities of being a small business owner have provided me with unique and expanded leadership,

supervisory, team-building and collaboration, fundraising, budgeting and financial management, and communication experience.

Project-specific Information:

- *The Sagebrush Institute*. Co-PI. I am designing and initiating a Sagebrush Institute, which is a holistic strategy for implementing sustained conservation across the breadth of the sagebrush ecosystem, with a focus on building local-scale management into landscape-scale conservation. The premise for the Institute is that the work done to support sage-grouse conservation provides an opportunity to pursue the conservation model of the future, conceived broadly to encompass the sagebrush landscape as well as the multiple species and people that rely thereon. Financial support provided by the National Audubon Society.
- *North American Grassland Bird Conservation Program*. Co-PI. I am designing and implementing monitoring and conservation efficacy protocols for the National Audubon Society and their Conservation Ranching program in grasslands throughout the central flyway. Conservation Ranching is a landowner-focused program with the goal of providing economic security to participating landowners through the conservation of grassland habitats. These are regional-level efforts built on a foundation that can be applied across the grassland as well as other ecosystems (e.g., sagebrush). Financial support provided by the Margaret A. Cargill Foundation, the National Audubon Society and Ducks Unlimited.
- *Thunder Basin Coordination Initiative – Conservation on a Landscape Scale*. Co-PI. I am working with the Thunder Basin Grassland Prairie Ecosystem Association and the National Audubon Society in a coordinated on-the-ground conservation project in northeastern Wyoming detailing the steps required to move from planning conservation to implementing measures in a coordinated fashion to maximize landscape-scale conservation effect. Financial support provided by the Margaret A. Cargill Foundation.
- *Range-wide Greater Sage-Grouse Compensatory Mitigation Plan for the Bureau of Land Management*. Species Expert. I was a co-author of a comprehensive sage-grouse mitigation approach for the Bureau of Land Management lead by the Wildlife Conservation and Mitigation Program at Texas A&M Institute of Renewable Natural Resources.
- *Wyoming sage-grouse core area health assessment*. Co-PI. Project designed to quantify the response of sage-grouse populations to the implementation of the Greater Sage-grouse Core Area Policy in Wyoming. Financial support provided by the Wyoming Governor's Office, Wyoming Sage-grouse Local Working Groups, and the Pinedale Field Office of the Bureau of Land Management.
- *Greater sage-grouse habitat quantification tool: a multi-scaled approach for assessing impacts and benefits to greater sage-grouse habitat*. Species Expert. Colorado Parks and Wildlife and Environmental Defense Fund (EDF) project designed to develop and implement a Habitat Exchange for sage-grouse in Colorado and Wyoming. I worked on the science advisory team developing the habitat quantification tool. The habitat quantification approaches developed also provide the foundation for the Habitat Exchange established in Nevada. I continue to provide technical support to EDF staff assisting the development of a Habitat Exchange in Montana.
- *Upper Green River Conservancy*. Species Expert. I provide technical support for the development and implementation of a sagebrush landscape-focused conservation bank in southwestern Wyoming in support of WRA, Inc.
- *Sage-grouse and energy development: predicting population response to infrastructure for adaptively informing management and conservation*. Co-PI. Project designed to develop decision support tools (DSTs) and a framework for DST implementation for use minimizing on-site impacts of energy development to nesting female sage-grouse at the scale of an energy development. Financial support provided by the Wyoming State Office of the Bureau of Land Management.
- *Modeling sage-grouse habitat suitability in the Thunder Basin, Wyoming*. Co-PI. Project designed to develop spatial tools for informing and prioritizing sage-grouse conservation and restoration actions throughout northeastern Wyoming in support of a Candidate Conservation Agreement/with Assurances (CCA/CCAA). Financial support provided by the Thunder Basin Grassland Prairie Ecosystem Association and the Northeast Wyoming Sage-grouse Local Working Group.
- *Review of Draft and Final Greater Sage-grouse Environmental Impact Statements and Land Use Plan Amendments*. Species Expert. I reviewed and provided written and oral comment on the scientific rigor of the

draft and final EISs and LUPAs developed for sage-grouse across the western U.S. in support of the Pew Charitable Trust.

- *Enhancing fitness or gizzard envy: are sage-grouse selecting winter habitats in southwestern Wyoming with an eye towards eating dirt?* Co-PI. Field study designed to assess the importance of the availability and distribution of geophagy sites (places where soil is consumed) to sage-grouse selection of winter habitats in southwestern Wyoming. Financial support provided by the Upper Green River Basin Sage-grouse Local Working Group, the Wyoming Landscape Conservation Initiative, the Wyoming State Office of the Bureau of Land Management, and the Wyoming Agriculture Producer Research Grant Program.
- *Mitigation by Design: making the connection between habitat, disturbance, restoration and resource economics.* Co-PI. Project designed to define relationship(s) between: (a) wildlife habitat use and demographics, (b) impacts of development on ecosystem function and habitat values, and (c) restoration practices and costs to infer opportunity cost of energy development (based on cost of recovery). Financial support provided by the U.S. Geological Survey.
- *A study of the impacts of a wind energy development on greater sage-grouse in southeastern Wyoming.* Co-PI. Field study designed to assess the population-level effects of wind energy development on female sage-grouse seasonal habitat selection and demography. Financial support provided by multiple entities including: PacifiCorp Energy, EDP Renewables North America, Iberdrola Renewables, EnXco, National Wind Coordinating Collaborative, Shirley Basin/Bates Hole, Southwest and South Central Wyoming Local Sage-grouse Working Groups, United States Department of Energy, Wyoming Reclamation and Restoration Center and School of Energy Resources at the University of Wyoming, Avian Power Line Interaction Committee, the American Wind Energy Association, and the Margaret and Sam Kelly Ornithological Research Fund. Data collected during the first 2 years of this study were transferred to the University of Wyoming resulting in the MS thesis: *Evaluation of Greater Sage-Grouse Reproductive Habitat and Response to Wind Energy Development in South-Central, Wyoming* (LeBeau 2012).
- *Greater sage-grouse habitat enhancement plan in support of the wildlife hazard management plan for the Jackson Hole Airport.* Species Expert. I designed monitoring and adaptive management protocol, and advised on project implementation in support of a collaboratively developed sage-grouse habitat management and mitigation plan for Grand Teton National Park, Wyoming. I continue to provide technical support for the development of the EA necessary to implement the management actions suggested in support of EnviròSystems Management Inc.
- *Grazing influence, objective development, and management in Wyoming's greater sage-grouse habitat with emphasis on nesting and early brood-rearing.* Species Expert. State of Wyoming project designed to develop livestock grazing protocols for sage-grouse population conservation and sagebrush habitat management in Wyoming. I was a member of the team developing these protocols and assisted writing the report.
- *Sigurd to Red Butte No. 2 Transmission Line Environmental Impact Statement.* Species Expert. I assisted developing and writing the impact and mitigation assessment sections of the Sigurd to Red Butte transmission line EIS in support of EPG, Inc.
- *Wyoming Basin Rapid Ecoregional Assessment.* Species Expert. U.S. Geological Survey project designed to develop a rapid ecoregional assessment for the Wyoming Basin, with the goal of providing information to the Bureau of Land Management in support of regional planning and analysis for management of ecological resources in the region. I provided direction to the assessment of sagebrush habitats and sagebrush-dependent species and wrote these portions of the report.
- *Assessing the effectiveness of southwestern Wyoming core areas for greater sage-grouse conservation: a spatially-explicit demographic approach using management and resource development scenarios.* Species Expert. USGS project designed to develop decision support tools for exploring the implications of alternative resource development scenarios on individual sage-grouse in Wyoming. I assisted parameterizing models required to address objectives.
- *A study of the vegetative response of mule deer winter range to fertilization in southwestern Wyoming.* Co-PI. Field study designed to assess the effects of fertilization on mule deer winter range quality. Financial support provided by the Pinedale Anticline Project Office.
- *Greater sage-grouse seasonal habitat selection and demographics on a landscape destined for an in-situ uranium mine.* PI. Field study designed to establish a pre-development baseline for a sage-grouse population

that may be influenced by *in-situ* uranium mining activity such that a post-development BACI-designed study could be conducted. Financial support provided by Ur-Energy.

- *Holistic greater sage-grouse management on a ranch destined for wind development.* PI. Field study designed to forecast the population-level response of sage-grouse to wind energy development and use those projections to guide proactive conservation as informed through empirically-informed state-and-transition models. Financial support provided by Pathfinder Renewable Wind Energy, LLC.
- *Winter habitat selection of greater sage-grouse relative to activity levels at natural gas well pads in southwestern Wyoming.* PI. Field study designed to estimate differences in responses of wintering sage-grouse to natural gas field infrastructures with different levels of recurring human activity thereby empirically investigating a potential option for reducing on-site impacts of energy development to the species. Financial support provided by multiple entities including: Shell Rocky Mountain Production, QEP Energy Company, Ultra Resources Inc., Tom Thorne Sage-grouse Conservation Fund, and the Upper Green River Basin Wyoming Sage-grouse Local Working Group.
- *Identifying habitats for greater sage-grouse population persistence on Atlantic Rim, Rawlins, Wyoming: A process of protecting specific areas within a developing natural gas field critical for population sustainability in an adaptive management framework.* Research Initiator. Field study designed to identify areas-of-critical-conservation-concern based on limiting seasonal habitats, risk assessment, multi-seasonal occurrence, and seasonal juxtaposition for informing infrastructure placement within a developing gas field. This study was transferred to the University of Wyoming resulting in the MS thesis: *Quantifying habitat importance for greater sage-grouse (*Centrocercus urophasianus*) population persistence in an energy development landscape* (Kirol 2012).
- *Habitat mitigation planning for greater sage-grouse in the Upper Green River Basin, Wyoming.* PI. Field study designed to compile the wildlife and vegetative information, and establish the landowner contacts required to effectively prepare allotment scale habitat management plans. Financial support provided by the Tom Thorne Sage-grouse Conservation Fund, Upper Green River Basin Sage-grouse Local Working Group, and the North American Grouse Partnership.
- *Yearling greater sage-grouse response to energy development in Wyoming.* PI. Field study designed to ascertaining if natural-gas development influenced the distribution of, or the probability of recruiting into the breeding population yearling male and female sage-grouse. Financial support provided by multiple entities including: Bureau of Land Management, U.S. Department of Energy, Wyoming Game and Fish Department, Yellowstone-to-Yukon Initiative, EnCana Oil & Gas Inc., Ultra Resources Inc., and Shell Rocky Mountain Production.

2002 – 2005: **Ph.D. Candidate; University of Wyoming.**
Dr. Stanley H. Anderson (Advisor [deceased]); Leader, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY 82071; Dr. Matt Kaufman (*current unit leader*), (307) 766-5415 (voice); mkauffm1@uwyo.edu.

Project-specific Information:

- Doctoral researcher for the study: *Holloran, M. J. 2005. Greater sage-grouse* (Centrocercus urophasianus) *population response to natural gas field development in western Wyoming. Dissertation, University of Wyoming, Laramie, USA.* Field study designed to determine if and how the development of natural gas resources influenced greater sage-grouse populations in the upper Green River Basin of southwestern Wyoming.

1999 – 2005: **Research Scientist; Wyoming Cooperative Fish and Wildlife Research Unit.**
Dr. Stanley H. Anderson (Supervisor [deceased]); Leader, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY 82071; Dr. Matt Kaufman (*current unit leader*), (307) 766-5415 (voice); mkauffm1@uwyo.edu.

Project-specific Information:

- *Grazing system and linear corridor influences on greater sage-grouse* (Centrocercus urophasianus) *habitat selection and productivity.* Research Initiator. Field study designed to determine the effects of differing cattle

grazing practices on sagebrush dominated landscapes as they relate to sage-grouse seasonal habitat selection and productivity. This study was transferred resulting in an MS thesis (Kuipers 2004).

- *Sage-grouse* (Centrocercus urophasianus) *use of different-aged burns and the effects of coyote control in southwestern Wyoming*. Research Initiator. Field study designed to determine the temporal effects to sage-grouse survival and productivity of prescribed fire by quantifying use of different aged sagebrush burns. This study was transferred resulting in an MS thesis (Slater 2003).
- *Greater sage-grouse seasonal habitat selection and survival in Jackson Hole, Wyoming*. PI. Study designed to document sage-grouse seasonal habitat selection and survival, identified limiting seasonal range(s), and quantified habitat conditions associated with sustainable and increasing productivity in an isolated sage-grouse population in western Wyoming.

RECENT PEER-REVIEWED PUBLICATIONS and REPORTS

Wuenschel, A., A. L. Hild, G. B. Paige, and M. J. **Holloran**. *In Review*. Structural patterns in habitat revealed upon a fine-scale, spatially explicit investigation. Ecosphere.

Burkhalter, C., M. J. **Holloran**, B. C. Fedy, H. E. Copeland, R. L. Crabtree, S. C. Jay, B. A. Rutledge, and A. G. Holloran. *In Press*. Assessing landscape-scale habitat condition for an imperiled avian species: the greater sage-grouse in Wyoming. Animal Conservation.

Decker, K, A. Pocewicz, S. Harju, M. **Holloran**, M. Fink, T. P. Toombs, and D. B. Johnston. 2017. Landscape disturbance models consistently explain variation in ecological integrity across large landscapes. Ecosphere 8:e01775. 10.1002/ecs2.1775

LeBeau, C. W., J. L. Beck, G. D. Johnson, R. M. Nielson, M. J. **Holloran**, K. G. Gerow, and T. L. McDonald. 2017. Greater sage-grouse male lek counts relative to wind energy development. Wildlife Society Bulletin; DOI: 10.1002/wsb.725.

LeBeau, C. W., G. D. Johnson, M. J. **Holloran**, J. L. Beck, R. M. Nielson, M. Kauffman, E. Rodemaker, and T. L. McDonald. 2017. Greater sage-grouse, habitat selection, survival, and wind energy infrastructure. Journal of Wildlife Management; DOI: 10.1002/jwmg.21231.

Zabihi, K., G. B. Paige, A. L. Hild, S. N. Miller, A. Wuenshel, and M. J. **Holloran**. 2017. A fuzzy logic approach to analyze suitability of nesting habitat for greater sage-grouse in western Wyoming. Journal of Spatial Science; DOI: 10.1080/14498596.2017.1292965.

Holloran, M. J., B. C. Fedy, and J. Dahlke. 2015. Winter habitat use of greater sage-grouse relative to activity levels at natural gas well pads. Journal of Wildlife Management 79:630-640.

Kirol, C. P., J. L. Beck, S. V. Huzurbazar, M. J. **Holloran**, and S. N. Miller. 2015. Identifying greater sage-grouse source and sink habitats for conservation planning in an energy development landscape. Ecological Applications 25:968-990. http://dx.doi.org/10.1890/13-1152.1

Fedy, B. C., K. E. Doherty, C. L. Aldridge, M. O'Donnell, J. L. Beck, B. Bedrosian, M. J. **Holloran**, G. D. Johnson, N. W. Kaczor, C. P. Kirol, C. A. Mandich, D. Marshall, G. McKee, C. Olson, A. Pratt, C. C. Swanson, and B. L. Walker. 2014. Habitat prioritization across large landscapes, multiple seasons, and novel areas: an example using greater sage-grouse in Wyoming. Wildlife Monographs 190:1-39.

LeBeau, C. W., J. L. Beck, G. D. Johnson, and M. J. **Holloran**. 2014. Short-term impacts of wind energy development on greater sage-grouse fitness. Journal of Wildlife Management 78:522-530.

Manier, D. J., D. J. A. Wood, Z. H. Bowen, R. M. Donovan, M. J. **Holloran**, L. M. Juliusson, K. S. Mayne, S. J. Oyler-McCance, F. R. Quamen, D. J. Saher, and A. J. Titolo. 2013. Summary of science, activities, programs, and policies that influence the rangewide conservation of greater sage-grouse (*Centrocercus urophasianus*). U.S. Geological Survey Open-File Report 2013-1098. http://pubs.usgs.gov/of/2013/1098/

Fedy, B. C., C. L. Aldridge, K. E. Doherty, M. O'Donnell, J. L. Beck, B. Bedrosian, M. J. **Holloran**, G. D. Johnson, N. W. Kaczor, C. P. Kirol, C. A. Mandich, D. Marshall, G. McKee, C. Olson, C. C. Swanson, and B. L. Walker. 2012. Interseasonal movements of greater sage-grouse, migratory behavior, and an assessment of the core regions concept in Wyoming. Journal of Wildlife Management 76:1062-1071.

Johnson, D. H., M. J. **Holloran**, J. W. Connelly, S. E. Hanser, C. L. Amundson, and S. T. Knick. 2011. Influences of environmental and anthropogenic features on greater sage-grouse populations, 1997-2007. pp. 407-450 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Naugle, D. E., K. E. Doherty, B. L. Walker, H. E. Copeland, M. J. **Holloran**, and J. D. Tack. 2011. Sage-grouse and cumulative impacts of energy development. pp. 55-70 in D. E. Naugle (editor). Energy development and wildlife conservation in western North America. Island Press, Washington, DC, USA.

Naugle, D. E., K. E. Doherty, B. L. Walker, M. J. **Holloran**, and H. E. Copeland. 2011. Energy development and greater sage-grouse. pp. 489-503 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Holloran, M. J., R. C. Kaiser, and W. A. Hubert. 2010. Yearling Greater Sage-grouse Response to Energy Development in Wyoming. Journal Wildlife Management 74:65-72.

Cagney, J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. **Holloran**, B. Rashford, M. Smith and J. Williams. 2010. Grazing influence, objective development, and management in Wyoming's greater sage-grouse habitat with emphasis on nesting and early brood-rearing. University of Wyoming Cooperative Extension Service report B-1203. University of Wyoming, Laramie, USA.

Johnson, G., and M. **Holloran**. 2010. Greater sage-grouse and wind energy development: a review of the issues. Renewable Northwest Project, Portland, OR, USA. http://www.rnp.org/node/956

Kiesecker, J. M., H. Copeland, A. Pocewicz, N. Nibbelink, B. McKenney, J. Dahlke, M. **Holloran**, and D. Stroud. 2009. A framework for implementing biodiversity offsets: selecting sites and determining scale. BioScience 59:77-84.

Thompson, K. M., M. J. **Holloran**, S. J. Slater, J. L. Kuipers, and S. H. Anderson. 2006. Early brood-rearing habitat use and productivity of greater sage-grouse in Wyoming. Western North American Naturalist 66:332-342.

Holloran, M. J., and S. H. Anderson. 2005. Greater sage-grouse population response to natural gas development in western Wyoming: are regional populations affected by relatively localized disturbances? Transactions North American Wildlife and Natural Resources Conference 70:160-170.

Holloran, M. J., and S. H. Anderson. 2005. Spatial distribution of greater sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107:742-752.

Holloran, M. J., B. J. Heath, A. G. Lyon, S. J. Slater, J. L. Kuipers, and S. H. Anderson. 2005. Greater sage-grouse nesting habitat selection and success in Wyoming. Journal Wildlife Management 69:638-649.

Holloran, M. J., and S. H. Anderson. 2004. Greater sage-grouse seasonal habitat selection and survival in Jackson Hole, Wyoming. Completion Report. Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, USA.

Holloran, M. J., and S. H. Anderson. 2003. Direct identification of northern sage-grouse, *Centrocercus urophasianus*, nest predators using remote sensing cameras. Canadian Field-Naturalist 117:308-310.

GRADUATE COMMITTEE INVOLVEMENT

- Wuenschel, Amarina. 2014. *Ecological and Fine-Scale Spatial variation in Vegetation at Sage-grouse Nests in western Wyoming*. Thesis, Department of Ecosystem Science and Management, University of Wyoming, Laramie, USA.
- Kirol, Christopher, P. 2012. *Quantifying habitat importance for greater sage-grouse (*Centrocercus urophasianus*) population persistence in an energy development landscape*. Thesis, Department of Ecosystem Science and Management, University of Wyoming, Laramie, USA.
- LeBeau, Chad, W. 2012. *Evaluation of Greater Sage-Grouse Reproductive Habitat and Response to Wind Energy Development in South-Central, Wyoming*. Thesis, Department of Ecosystem Science and Management, University of Wyoming, Laramie, USA.
- Macsalka, Natalie. 2011. *Assessing the conflict between wind energy development and sage-grouse conservation in Wyoming: An application using a spatially-explicit wind development model*. Thesis, Department of Agricultural and Applied Economics, University of Wyoming, Laramie, USA.

SELECT PROFESSIONAL PRESENTATIONS

2016 Holloran, M. J. (presenter). *How does science fit into Audubon's Conservation Ranching Program?* Audubon Rockies Conservation Ranching Workshop, Rapid City, SD, USA. *Invited*

2015 Holloran, M. J. (presenter). *Rangeland Monitoring*. Wyoming Sage-grouse Habitat Restoration Workshop, Casper, WY, USA. *Invited*

2014 Holloran, M. J. (panelist). *Sage-grouse and the Endangered Species Act.* 2014 Wyoming Energy Summit, Casper, WY, USA. *Invited*

2012 Holloran, M. J. (presenter) and J. Dahlke. *Burrowing owl nest predictive modeling for the Normally Pressured Lance (NPL) project area.* Wyoming Landscape Conservation Initiative 2012 Science Workshop, Rock Springs, WY, USA. *Offered*

2011 Holloran, M. J. (presenter). *Sage-grouse and natural gas development: lessons learned.* Northwest Wind Energy and Wildlife Symposium, Portland, OR, USA. *Invited*

2010 Holloran, M. J. (presenter). *Impacts of energy development on greater sage-grouse habitats in Wyoming.* 16th Wildland Shrub Symposium: Threats to Shrubland Ecosystem Integrity, Logan, UT, USA. *Invited*

2009 Holloran, M. J. (presenter). *Greater sage-grouse and energy development in Wyoming.* U.S. Forest Service Rocky Mountain Region Annual Wildlife Workshop, Fort Collins, CO, USA. *Invited*

2008 Holloran, M. J. (panelist). *Sage-grouse.* Wyoming Perspectives on Wyoming PBS. Riverton, WY, USA. *Invited*

2008 Holloran, M. J. (presenter). *The greater sage-grouse.* Wyoming Sage-grouse Conference: Proactively managing sage-grouse and their habitat on Wyoming's agricultural lands, Lander, WY, USA. *Invited*

2006 Holloran, M. J. (presenter). *Greater sage-grouse and livestock grazing in Wyoming.* The Wyoming Chapters of the Soil and Water Conservation Society and the Society for Range Management Annual Meeting, Sheridan, WY, USA. *Invited*

2005 Holloran, M. J. (presenter) and S. H. Anderson. *Greater sage-grouse response to natural gas field development in Wyoming.* Xth International Grouse Symposium, Luchon, France. *Offered*

2005 Holloran, M. J. (presenter) and S. H. Anderson. *Greater sage-grouse response to natural gas field development: are regional population levels affected?* 70th North American Wildlife and Natural Resources Conference, Arlington, VA, USA. *Invited*

GROUP MEMBERSHIP

- Member of the Council of Scientists for the North American Grouse Partnership.
- Member of the Conservation Advisory Committee for the Thunder Basin Grasslands Prairie Ecosystem Association assisting the implementation of a CCAA/CCA.
- Member of the Advisory Committee for the Wyoming Natural Diversity Database.
- Past president of the Wyoming Chapter of The Wildlife Society.
- Member of the Wyoming State Governor's greater sage-grouse conservation task force.

REFERENCES

Available Upon Request