South Dakota Field Office Draft Resource Management Plan and Environmental Impact Statement	
Sage-Grouse Conservation Issue	**South Dakota FO Draft RMP/EIS (Preferred Alternative D)**
Priority Sage-Grouse Habitat	
Greater Sage-grouse are a landscape species (Connelly et al. 2011a). Migratory populations have large annual ranges that can encompass >2,700 km² (1,042 mi²/667,184 ac) (Knick and Connelly 2011, *citing* Dalke et al. 1963; Schroeder et al. 1999; Leonard et al. 2000) (the species may use up to 2,500 mi² per population (Rich and Altman 2001)). Large-bodied birds are generally more strongly affected by habitat loss and fragmentation (Winter et al. 2006). Although conclusive data on minimum patch size is unavailable (Connelly et al. 2011a), conserving large expanses of sagebrush steppe is the highest priority to conserve sage-grouse (Aldridge et al. 2008; Connelly et al. 2011b; *see* Manier et al. 2013: 25-26). Sage-grouse conservation plans sho**u**ld designate and manage large areas of priority sage-grouse habitat to conserve the species. Priority habitat is generally defined as "having the highest conservation value to maintaining sustainable Greater Sage-grouse populations" (BLM Memo 2010-071) and should include all active sage-grouse leks, and brood-rearing, transitional and winter habitats. "Priority habitat will be areas of high quality habitat supporting important sage-grouse populations, including those populations that are vulnerable to localized extirpation but necessary to maintain range-wide connectivity and genetic diversity" (BLM Memo 2010-071).	The SD DRMP/EIS planning area is the state of South Dakota (49.3 million acres). More than 99 percent of BLM surface and subsurface estate are in the western half of the state (xiii; Map 1-2). The agency administers 274,239 acres of surface estate and 1,715,677 acres of mineral estate in South Dakota (3, Table 1-1). The preferred alternative would designate 83,744 acres of BLM surface estate and 253,357 acres of mineral estate as protection priority areas (PPAs) for sage-grouse (xix; 42). The preferred alternative would also dispose of 86,578 acres, or 32 percent of publicly owned surface acres in the planning area (xii; 39), including parcels within sage-grouse priority habitat (Maps 2-2, 2-4).[1] The conservation alterative (Alt. C) would designate larger PPAs for sage-grouse conservation: 93,266 surface acres and 289,563 acres of subsurface estate (42; Map 2-5).
Prohibit new surface disturbance in priority sage-grouse habitat. Where new disturbance cannot be avoided (e.g., due to valid existing rights), **(A)** minimize impacts by limiting preexisting and permitted disturbance to one instance per section of sage-grouse habitat regardless of ownership, **(B)** with less than three percent surface disturbance per section or priority area (SGNTT 2011: 8; Knick et al. 2013). Disturbances include but are not limited to highways, roads, transmission lines, substations, wind turbines, oil and gas wells, heavily grazed areas, range developments, pipelines, landfills, mines, and vegetation treatments that reduce sagebrush cover. **(C)** Where possible, buffer active sage-grouse leks against surface disturbance or occupancy by 4 miles[2] (SGNTT 2011: 23).	Surface occupancy associated with fluid minerals development would be disallowed in PPAs (57, Table 2-1), *although waiver, exceptions and modifications to this restriction would be available* (MMCAs 1011). PPAs would be closed to renewable energy development (57, Table 2-1) and avoidance areas for other rights-of-way (57, Table 2-1). PPAs would be open to development of locatable, salable, and other leasable minerals, including coal (58, Table 2-1), although the SD DRMP/EIS claims there is little interest in developing these resources in PPAs (617). Further, any expression of interest in coal would require new planning that would (likely/certainly?) find PPAs unsuitable for development (152, Table 2-2, Management Action 1). **(A)** MMCAs, *if applied* and where consistent with valid existing rights, would limit fluid minerals development to one site per section (MMCAs 1160). **(B)** The preferred alternative does not adopt a general disturbance cap for priority habitat in the planning area and the MMCAs appear to allow up to 5 percent disturbance in priority

[1] Identifying parcels for disposal within sage-grouse protection priority areas appears to conflict with Management Action 25, "retain public ownership of priority sage-grouse habitat" (100, Table 2-2).

[2] Smaller sage-grouse lek buffers may be justified where research demonstrates that most sage-grouse nests (i.e., > 90 percent) would be protected by the smaller buffer (see, e.g., Conservation Plan for Greater Sage-Grouse in Utah, unpublished: 9), although the impacts from continued and future land use (pursuant to valid existing rights) in nesting habitat would still advise adopting larger 4-mile lek buffers to conserve the species.

	habitat (MMCAs 1155) (although specific measures for fluid minerals development, *if applied* and where consistent with valid existing rights, would limit surface disturbance 3 percent per section in priority habitat (MMCAs 1160)). **(C)** The MMCAs*, if applied* and where consistent with valid existing rights, would restrict fluid minerals development within 4 miles of leks in priority habitat (MMCAs 1160). Year-round lek buffers for other activities may be prescribed depending on application of the MMCAs and other BMPs.
Identify[3] and protect sage-grouse winter habitat (Braun et al. 2005, *citing* Connelly et al. 2000 and others; Moynahan et al. 2007).	The SD DRMP/EIS maps sagebrush cover (Map 2-6) and identifies sage-grouse winter habitat in western South Dakota (Map 2-9), but also notes that sage-grouse winter concentration areas are not well documented in the planning area (360). It is presumed that sage-grouse winter habitat in PPAs would be covered by the same restrictions on surface occupancy that apply to other seasonal habitats in priority areas. In addition, surface-disturbing activities would be restricted in winter habitat from December 31 to March 31 (43), *unless an exception is granted by BLM* (95, Table 2-2, Management Action 11) (50,791 surface, 103,553 subsurface acres; 59, Table 2-1). MMCAs, *where applied* and consistent with valid existing rights, would prohibit surface disturbance associated with fluid minerals development in winter habitat (MMCAs 1160). Winter habitat would be exclusion areas for renewable energy development,[4] and avoidance areas for other rights-of-way (95, Table 2-2, Management Action 12) (53,144 surface acres; 59, Table 2-1).[5] New fences would be avoided in winter habitat (91). New power lines within sage-grouse winter range would be buried (618), *where they can be safely buried* (59, Table 2-1).[6] MMCAs recommend discouraging livestock from concentrating in winter habitat (1158); advise a timing limitation on solid mineral development in winter habitat (1162); and prohibit vegetation management in winter habitat (1164).

[3] Failure to map sage-grouse winter habitat could be grounds for remanding an RMP/EIS back to BLM to address the omission. WWP v. Salazar, 4:08-CV-516BLW, Slip Op. at 3.
[4] Commercial renewable energy development would be "excluded" in sage-grouse winter habitat, but the SD DRMP/EIS also states that "winter range areas would not be closed to [renewable energy] development" (286).
[5] The SD DRMP/EIS also indicates that the renewable energy exclusion area/ROW avoidance areas in sage-grouse winter habitat would affect 31,722 surface acres (521, Table 4-28).
[6] The SD DRMP/EIS also separately states that "all power lines within sage-grouse winter range would be buried or eliminated on public lands" under the preferred alternative (273).

Manage or restore sage-grouse habitat so that at least 70 percent of the land cover is sagebrush sufficient to meet sage-grouse needs[7] (SGNTT 2011: 7; Knick et al. 2013[8]).[9]	Although herbaceous vegetation comprises a greater proportion of sagebrush steppe in South Dakota than shrub species (358, *citing* Kaczor 2008), the SD DRMP/EIS fails to prescribe management to maintain and restore high shrub cover in sage-grouse concentration areas. Vegetation management prescriptions may help maintain and expand current sagebrush cover (e.g., 77, Table 2-2, Management Action 1; 84, Table 2-2, Management Action 1; MMCAs 1166).
Restoration Sage-Grouse Haibtat	
Designate restoration sage-grouse habitat to focus habitat restoration efforts to extend sage-grouse habitat and mitigate for future loss of priority habitat (BLM Memo MT-2010-017). Restoration habitat may be degraded or fragmented habitat that is currently unoccupied by sage-grouse, but might be useful to the species if restored to its potential natural community. Restoration habitat should be identified in management planning based on its importance to sage-grouse and the likelihood of successfully restoring sagebrush communities (Meinke et al. 2009; Wisdom et al. 2005a). Effective restoration requires a regional approach (e.g., sub/regional EISs) that identifies appropriate options across the landscape (Pyke 2011). Passive restoration should be prioritized over active restoration methods in these areas.	The preferred alternative "would identify" sage-grouse restoration areas in areas previously mined or likely to be mined for bentonite in PPAs, areas with other forms of large-scale disturbance in PPAs, and areas disturbed in the high oil and gas development potential areas in PPAs (46). These areas are not currently mapped in the SD DRMP/EIS and there is no specific strategy for restoring the areas. The MMCAs include basic guidelines for sagebrush habitat restoration (1165-1166).
Specially Designated Sage-Grouse Habitat	
Designate a subset of sage-grouse priority habitat areas as sagebrush reserves (e.g., Areas of Critical Environmental Concern (Bureau of Land Management), Zoological Areas (Forest Service),[10] research natural areas (Bureau of Land Management, Forest Service), or national wildlife refuges (Fish and Wildlife Service), etc.) to be specially managed refugia for sage-grouse and other sagebrush-dependent species.[11] Sagebrush reserves should encompass centers of sage-grouse abundance on the landscape and protect a sufficiently large proportion of habitat in each planning area to sustain biological processes, recover species and mitigate for the systematic effects of climate change, invasion by nonnative plants and unnatural fire.[12] Sagebrush reserves should offer additional conservation benefits for sage-grouse and other sagebrush-dependent species over priority habitat. They may be withdrawn from locatable and leasable minerals development (43 U.S.C. § 1714); closed to new surface disturbance; and prioritized for grazing permit retirement and removal of infrastructure (unneeded oil and gas equipment, roads, range developments, fencing, etc.).	The preferred alternative would not specially designate reserves for sage-grouse, even though the ACEC report concluded that a proposed sage-grouse ACEC met both relevance and importance criteria to support such a designation (1143-1144). The conservation alternative would designate a SD Sage Grouse Protection Priority Areas ACEC comprised of 96,379 surface acres[13] and 289,899 acres of subsurface estate[14] (1143, Appendix T).

[7] While ≥ 70 percent of land cover is sagebrush, the remainder of the landscape should be other natural habitats or areas that could be restored to sagebrush steppe.
[8] Seventy-nine percent of the area within 5 km of active sage-grouse leks was in sagebrush cover.
[9] *See also* Karl and Sadowski (2005): 15.
[10] The Sage-Grouse Recovery Alternative referred to specially designated areas on Forest Service lands as "Sagebrush Conservation Areas," p. 30 (www.sagebrushsea.org/pdf/Sage-Grouse_Recovery_Alternative.pdf).
[11] More than 350 species of conservation concern occur in sagebrush steppe (Wisdom et al. 2005a: 21 and App. 2).
[12] *See* Sage-Grouse Recovery Alternative for criteria for designating sagebrush reserves, p. 50 (www.sagebrushsea.org/pdf/Sage-Grouse_Recovery_Alternative.pdf).
[13] The draft RMP also indicates that 93,266 acres of surface estate were considered for a sage-grouse ACEC (e.g., 97, Table 2-2, Management Action 19; BLM SD DRMP/EIS ACECs factsheet).
[14] It is unclear if the ACEC analyzed in the SD DRMP/EIS included subsurface estate. There is a discrepancy in the SD DRMP/EIS ACEC report (Appendix T). The summary information for the analysis indicates the ACEC would be 96,379 surface acres, while the relevance and importance evaluation includes an additional 289,899 subsurface acres (1143, Appendix T) (which is the only specific reference to 289,899 subsurface acres anywhere in the SD DRMP/EIS and appendices). The SD DRMP/EIS also states throughout the document that the conservation alternative would reserve 93,266 acres of surface estate and 289,563 subsurface acres in PPAs, which would be designated as ACECs. The final RMP/EIS should clarify how many surface and subsurface acres were considered for ACEC designation.

	NTT Report Recommendations	Sage-Grouse Ecology	South Dakota FO Draft RMP/EIS (Preferred Alternative D)
***Fluid Minerals Development* (unleased)**			
Lek Buffers	No surface occupancy throughout priority habitat; exceptions may be considered if a 4-mile no surface occupancy buffer is applied, and if an entire lease is within priority habitat, then a limitation of one well-pad per section might be applied.	Development negatively affects sage-grouse 1.9 miles from occupied leks (Holloran 2005). Most sage-grouse hens nest within 4 miles of leks (Moynahan 2004; Holloran and Anderson 2005). Effects of drilling on sage-grouse were noticeable out to 12.4 miles from leks (Taylor et al. 2012; Taylor et al. 2013).	Surface occupancy associated with fluid minerals development would be prohibited in priority habitat (57, Table 2-1) *although waiver, exceptions and modifications to this restriction are possible* (1011). The MMCAs*, if applied* and where consistent with valid existing rights, would restrict fluid minerals development within 4 miles of leks in priority habitat (MMCAs 1160).
Density	Limit disturbance to 1 well per 640 acres.	Maximum development density of 1 well per 640 acres to 1 well per 699 acres (Holloran 2005; Doherty et al. 2010a; Doherty 2008).	MMCAs, *if applied* and where consistent with valid existing rights, would limit fluid minerals development to one site per section (MMCAs 1160).
Disturbance	Surface disturbance may not exceed 3 percent per 640 acres or project area (exceptions may be considered in limited circumstances).	Ninety-nine percent of active sage-grouse leks are in landscapes with less than 3 percent disturbance within 5 km of the lek (Knick et al. 2013).	The preferred alternative does not adopt a disturbance cap for priority habitat in the planning area and the MMCAs appear to allow up to 5 percent disturbance in priority habitat (MMCAs 1155). However, specific measures for fluid minerals development, *if applied* and where consistent with valid existing rights, would limit disturbance to 3 percent disturbance per section in priority habitat (MMCAs 1160)
Winter Habitat	No surface occupancy in winter habitat during any time of the year; exceptions may be considered if a 4-mile no surface occupancy buffer is applied, and if an entire lease is within priority habitat, then a limitation of one well site per section might be applied.	No surface disturbance in or adjacent to winter habitat any time of year (Walker 2008).	MMCAs, *where applied* and consistent with valid existing rights, would prohibit surface disturbance associated with fluid minerals development in winter habitat (MMCAs 1160).
Livestock Grazing			
For range management, sage-grouse habitat objectives should be based on, in priority order, potential natural community within the applicable Ecological Site Description, Connelly et al. (2000: 977, Table 3), or other objectives that have been demonstrated to be associated with increasing sage-grouse populations. Utilization levels should not exceed 25 percent annually on uplands, meadows, flood plains and riparian habitat (Holecheck et al. 2010). Habitat objectives should be applied to all sage-grouse habitat areas. Management plans should: 1. Maintain ≥ 18 cm average grass height in nesting and brood-rearing habitat (Connelly et al. 2000; Braun et al. 2005). 2. Control livestock grazing to avoid contributing to the spread of cheatgrass (*Bromus tectorum*) (Reisner et al. 2013). 3. Facilitate voluntary grazing permit retirement in sage-grouse priority habitat (*see* SGNTT 2011: 17).		Livestock grazing management objectives in sage-grouse habitat in the SD DRMP/EIS are not based on potential natural community within the applicable Ecological Site Description or Connelly et al. (2000). The MMCAs, *where applied*, recommend use of Connelly et al. (2000) to assess land health where local objectives are not available (MMCAs 1157). The MMCAs, *where applied*, would also require terms and conditions on grazing that "assure plant growth requirements are met, and residual forage remains available for greater sage-grouse hiding cover" (1158). Guideline 12 in the BLM Standards for Rangeland Health and Guidelines for Livestock Grazing in Montana and the Dakotas states that grazing management practices should maintain, improve or restore habitat to assist in the recovery or promote conservation of sensitive plants and animals (922).

	Across the planning area, the BLM would allow approximately 50 percent of the annual vegetation production to be used by livestock with approximately 25 percent ingested by livestock and the other 25 percent trampled or soiled (32). While this prescription may be appropriate for prairie ecosystems, it is excessive for sagebrush steppe and probably harmful to sage-grouse. **(1)** No specific standard for grass height is included in the plan, although the MMCAs may achieve the objective, *if applied*. The SD DRMP/EIS also notes the importance of grass height to sage-grouse nest success (648). **(2)** The SD DRMP/EIS acknowledges that "excessive grazing" can increase cheatgrass abundance in sagebrush steppe (361) and that areas currently not meeting rangeland standards are usually infested with noxious weeds, including cheatgrass (337), but the plan does not control grazing where cheatgrass occurs in sage-grouse habitat. The MMCAs generally recommend developing and implementing "management techniques that minimize the risk of [weed] infestation" and isolating livestock from known infestations, "where feasible" (1158). **(3)** Under the preferred alternative, grazing allotments wholly within PPAs would be considered for retirement where the base property owner relinquishes their grazing preference (37).
Climate Change Effects	
Account for the effects of climate change in management planning (Secretarial Order 3289, 02-22-2010; CEQ Memo, 02-18-2010 (draft)). Climate change is a recognized threat to sage-grouse (Connelly et al. 2011b: 556, Table 24.2; Blomberg et al. 2012; van Kooten et al. 2007) that is also predicted to have deleterious impacts on sagebrush steppe (Schlaepfer et al. 2012; Neilson et al. 2005). Most climate change simulations predict sagebrush steppe will contract as mean temperatures increase and the frost line shifts northward (Blomberg et al. 2012; Neilson et al. 2005). In the worst case scenario, sagebrush species are simulated to contract to just 20 percent of current distribution (Wisdom et al. 2005b: 206, *citing* Neilson et al. 2005). The largest remaining areas will be in southern Wyoming and in the gap between the northern and central Rocky Mountains, followed by areas along the northern edge of the Snake River Plateau and small patches in Washington, Oregon and Nevada (*see* Miller et al. 2011: 181, Fig. 10.19). Sagebrush steppe may also shift northward in response to increased temperatures (Schlaepfer et al. 2012; Shafer et al. 2001). Measures for ameliorating the effects of climate change on species and landscapes include increasing the size and number of protected areas, maintaining and enhancing connectivity between protected areas, and identifying and protecting areas likely to retain suitable climate/habitat conditions in the future (even if not currently occupied by the species of concern). Management should also repulse invasive species, sustain ecosystem processes and functions, and restore degraded habitat to enhance ecosystem resilience to climate change (Chester et al. 2012; NFWPCAS 2012).	The SD DRMP/EIS recognizes that climate change is a planning issue (xiv) that poses a challenge to resource management (315-319) and notes that "[s]ensitive species in the planning area that are already stressed by declining habitat, increased development, and other factors, could experience additional pressures due to climate change" (318). These additional stressors may include reduced soil moisture, severe or prolonged drought, diminished water quantity, increased wildfire (317-318), which could have deleterious effects on sage-grouse (358). However, and although the plan has a goal of supporting ecosystem resiliency to ameliorate the stresses from climate change (18; 83, Table 2-2, Goal 3), the SD DRMP/EIS fails to prescribe meaningful measures to achieve that goal.

Wind Energy Development	
Prohibit wind energy development in priority sage-grouse habitat (Jones 2012; SGNTT 2011: 12). If development is permitted, locate turbines and infrastructure at least four miles from sage-grouse leks (Manville 2004; Jones 2012); do not site wind energy development in or adjacent to sage-grouse wintering areas.	Renewable energy development would be excluded in PPAs (57, Table 2-1) and within one mile of sage-grouse leks in general habitat areas (58, Table 2-1). Renewable energy development would also be excluded in sage-grouse winter habitat[15] (95, Table 2-2, Management Action 12), although no protective buffer is prescribed around winter habitat.
Bureau of Land Management Sensitive Species Management	
Greater sage-grouse are a candidate species for listing under the Endangered Species Act (ESA) and a designated Bureau of Land Management "sensitive species" across their range. BLM's policy directs that actions authorized, funded or implemented by BLM do not contribute to the need to list a candidate species under the ESA (BLM WO IM 97-118; BLM Manual 6840).	The SD DRMP/EIS has the goal of maintaining and/or increasing sage-grouse abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend, including in general habitat areas (20). Unfortunately, sage-grouse habitat loss, fragmentation, and degradation are expected to continue under all management alternatives (632). The preferred alternative anticipates that sage-grouse would be affected by inadequate seasonal and protective lek buffers outside PPAs (668), minerals development (669) and impacts from development on other land ownerships (674). Even the conservation alternative (Alt. C) "would not likely maintain the current distribution and abundance of sage-grouse" (658).
Sage-Grouse Recovery Alternative	
Conservation organizations submitted the Sage-Grouse Recovery Alternative as a complete alternative to be analyzed and considered in management plans affecting sage-grouse in accordance with the National Environmental Policy Act (42 U.S.C. §§ 4321- 4347). The recovery alternative seeks to maintain and increase sage-grouse abundance and distribution by conserving, enhancing and restoring sagebrush steppe. It is comprehensive, reasonable and feasible to implement, and prescribes scientifically valid conservation measures to provide the best opportunity to conserve and recover sage-grouse.	The SD DRMP/EIS declined to separately analyze the Sage-Grouse Recovery Alternative, contending that components of the "conservation groups alternative" were substantially similar to measures analyzed in other alternatives in the plan (47)—although it is unclear whether the DRMP/EIS is referring specifically to the Recovery Alternative, since different conservation organizations submitted at least three different conservation alternatives to BLM during the scoping process for the National Greater Sage-Grouse Planning Strategy.

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[15] Commercial renewable energy development would be "excluded" in sage-grouse winter habitat, but the SD DRMP/EIS also states that "winter range areas would not be closed to [renewable energy] development" (286).