3. Energy and Mineral Development					
Issue 3.1	Disturbance to GrSG				
Objective 3.1.1	Current management, all industries except large-scale mining				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.1.1.1	Continue to avoid GrSG breeding and nesting seasons during oil and gas construction and drilling activities and small-scale mining in associated seasonal habitats (for seasonal habitat definitions refer to CCP Appendix B: "GrSG Disturbance Guidelines", or local conservation plans). To protect breeding habitat, negotiate appropriate Conditions of Approval (COAs) on federal estate or use voluntary application on private estates.	USFS, COGCC, BLM	Ongoing	**BLM:** BLM uses the Disturbance Guidelines in Appendix B as default recommendations on APDs and mine applications. **USFS**: Oil and gas leasing has not been an issue on any of the three National Forests (Routt, White River, Arapaho-Roosevelt) in GSG habitat. None of the three NFs has significant GSG habitat. **See Appendix D: COGCC 1200 Series Regulations**	
3.1.1.2	Restrict oil and gas development and production activities and small-scale mining during the GrSG lekking season within a buffer around leks (see CCP Appendix B, "GrSG Disturbance Guidelines"; see also strategies 3.3.3.10 and 3.4.2.1). If this is not possible, limit activities near active sage-grouse leks during the breeding season to portions of the day after 9:00 a.m. and before 4:00 p.m. to avoid times with peak lek attendance (for seasonal definitions refer to CCP Appendix B: "GrSG Disturbance Guidelines", or local conservation plans). Lek data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management.	USFS, COGCC, BLM	Ongoing	**BLM:** See above. A .6 mi no surface disturbance buffer around a lek is typically applied to all surface disturbing activities thru Conditions of Approval. Once RMP's are revised or amended a .6 mi NSO stipulation will be available for new leases.	**BLM:** .6 mi represent the average male loafing distance surrounding a lek, and 4 mi represent 80% of the nesting locations expected near a lek (see CCP for references).
3.1.1.3	Gate field and facility service roads or otherwise limit regular public access on field and facility service roads in GrSG range, consistent with landowner wishes and direction.	USFS, Private Landowners, Industry, COGCC, BLM	Ongoing	**Tri-State:** Access is limited to mine employees or contractors only, due to locked gates. Only limited and designated mine employees or other authorized third party personnel are granted periodic access on field and facility service roads in GrSG range. **BLM:** This recommendation has been considered as appropriate on a case by case basis. **COGA**: Yes, 4 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	
3.1.1.4	Reduce noise impacts from compressor stations by locating stations at least 2,500 feet away from GrSG leks (or at an alternative distance as indicated by best available science: see CCP Appendix B, "GrSG Disturbance Guidelines"; see also strategies 3.3.3.10 and 3.4.2.1), or by using decibel reduction equipment, on a site-by-site basis.	USFS, Industry, COGCC, BLM	Ongoing	**BLM:** Compressor stations are located outside of the .6 mi buffer around an active GRSG lek. Additional noise reduction BMP's are analyzed and applied on a case by case basis. **COGA**: Yes, 3 of 6 operators surveyed, who hold a total of 3% of the permits in GrSG SWH and operate a total of 2% of the wells in GrSG SWH or RSO	
3.1.1.5	For all geophysical exploration, conservation measures to avoid important GrSG seasonal habitat-use periods should be encouraged on private lands and incorporated on federal lands.	USFS, SLB, Private Landowners, Industry, COGCC, BLM	Ongoing	**SLB:** Proposing to Board the preparation of a SLB GSG Conservation Action Plan to include rapid assessment of state trust lands in GSG habitat, consult with lessees, and make recommendations to the Board for habitat improvement. **BLM:** Timing Limitations are currently applied to geophysical exploration activities. **COGA:** Yes, 3 of 6 operators surveyed, who hold a total of 36% of the permits in GrSG SWH and operate a total of 13% of the wells in GrSG SWH or RSO	**BLM:** 4 mi represent 80% of expected nesting locations.
3.1.1.6	Encourage the use of technologies that reduce road traffic and daily visits to well pads to the extent possible in GrSG habitat (e.g., telemetric well monitoring, multi-phase pipeline gathering systems).	Industry	Ongoing	**COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
Issue 3.2	Effects on GrSG habitat				
Objective 3.2.1	Oil, gas, and small-scale mining of energy and mineral resources				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.2.1.1	Encourage the use of effective BMPs, as identified by BLM or other sources, in order to reduce habitat fragmentation and the long-term footprint of energy and mineral development in GrSG habitat, across all ownership boundaries (see CCP Appendix I, "Suggested Management Practices Applicable for Oil and Gas Development within Lease Rights").	USFS, Industry, COGCC, BLM	Ongoing	**Tri-State:** Surface mining footprint at Colowyo is limited and reclamation activites closely follow mining to further minimize any regional or local impact that could lead to population fragmentation. BMPs are regularly implemented. **BLM:** BMPs are considered and analyzed based on action, location, local population and other factors. Many BMPs in CCP Appendix I had already been incorporated by BLM. **COGA:** Yes, 4 of 6 operators surveyed, who hold a total of 44% of the permits in GrSG SWH and operate a total of 14% of the wells in GrSG SWH or RSO	**BLM:** Individual BMPs are designed to minimize individual actions or potential impacts to SG - see CCP discussion. Limited mineral development has occurred in GRSG core/priority habitat since the CCP was signed. There has not been enough time or on the ground implementation to assess effectiveness of these cumulative actions.
3.2.1.2	In situations with federal lands and federal mineral estates, apply an NSO as a lease stipulation on new leases, or as a COA on drilling permits (see "Energy and Mining Leasing and Development Process", CCP Appendix G) around GrSG leks (see "GrSG Disturbance Guidelines", CCP Appendix B, and strategies 3.3.3.10 and 3.4.2.1). Encourage a similar approach on state and private lands.	USFS, SLB, Private Landowners, Industry, BLM	Ongoing	**USFS**: Leasing stipulations in place for the Routt NF and being developed for the WRNF. Very small portion of ARNF has GSG habitat. **SLB:** Works closely with CPW to identify SLB properties with leks. **BLM:** Leases within 'core' GRSG habitat (now GRSG PPH) have been deferred pending completion of RMP revisions/ now NW CO SG EIS Amend. APDs on existing leases have incorporated a .6 mi no surface disturbance COA around leks or modified pad placements within lease rights to avoid this buffer around leks. **NRCS:** Landowner in Piceance Basin coordinated with industry (2011-2012) to relocate a drilling rig away from a lek.	**SLB:** The board has deferred 11 parcels at the recommendation of CPW because of existing leks. Those parcels have not been leased. **NRCS:** Drilling rig relocated; lek undisturbed.
3.2.1.3	Avoid surface disturbing activities within a buffer of GrSG leks (see CCP Appendix B, "GrSG Disturbance Guidelines"; see also strategies 3.3.3.10 and 3.4.2.1). Locate surface-disturbing activities a minimum of 1,000 feet outside of riparian areas, or as far as practical and necessary to avoid influencing GrSG brood habitat function.	USFS, COGCC, BLM	Ongoing		

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.1.4	If an energy or mineral development is planned in sagebrush habitats that are located within a 4-mile radius of a GrSG lek: - within a 1-mile radius of the proposed ground-disturbing activity, any seasonal habitats that may be impacted should be delineated and field-validated in coordination with CDOW, BLM, USFS, or private biologists, prior to project location and design (see “Habitat Monitoring Strategy” [pg. 354] and CCP Appendix C, “Sage-grouse Habitat Monitoring Protocol”). -This is a priority for mapping only. Appropriate strategies should still apply within the 4-mile radius of the lek site. Coordinate responsibility across lease boundaries for mapping purposes and to assess cumulative effects -See “GrSG Disturbance Guidelines” (CCP Appendix B) - Lek data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management.	USFS, CPW, BLM	Ongoing	**BLM:** This strategy was intended to help field biologists determine seasonal habitats and associated timing/ other conservation measures in lieu of rangewide seasonal habitat mapping. CPW has since completed a PPH mapping effort that supercedes previous 'core' habitat mapping and encompasses all seasonal habitats. This strategy has only been completed on a very limited basis. **CPW:** General - Site specific seasonal habitats are evaluated by use of GIS information prior to site visit. Case-by-case habitat is not delineated on-the-ground prior to the time of a site visit; however, habitats are visually identified and confirmed at the time of the site visit. CPW Area biologist and Land Use specialists "consult" with BLM and energy operators on energy and mineral developments within Priority Habitat, which largely encompasses suitable habitat within 4 miles of GRSG leks. Seasonal habitat maps from CPW Research Section are available to reference and suitable habitat can largely be delineated from NAIP imagery, so field mapping and/or validation is rarely completed. Consultation with BLM and/or energy operators is done to minimize impacts to GRSG by recommending siting and/or timing criteria. NP - CPW implemented a radio-telemetry project in North Park to refine the seasonal habitat models for North Park. Data are currently being processed and seasonal habitat models for NP should be developed by early 2013. **NESR** - Currently, oil and gas development is not an issue. However there have been several gravel pit permit proposals within GrSG habitat in NESR. CPW provides recommendations to Routt County Planning. Recommendations include ways to avoid, minimize and mitigate impacts to GrSG habitats. The majority of GrSG habitat in Eagle County is BLM. MWR and MP - There is no active energy development. CPW does not expect increased lease sales in MP until after the completion of the BLM Kremmling FO RMP.	**BLM:** Effectiveness of this strategy has not been determined. **CPW:** CPW staff provides large scale habitat suitability data to operators. CPW staff is unaware of cross-lease coordination for mapping and cumulative analysis. DWMs, Land Use Specialists, Biologists and GIS prepare annual updates as information becomes available. **NESR:** Routt County denied a gravel pit proposal partially because of GrSG concerns.
3.2.1.5	Encourage and/or offer to have biologists attend notice of staking on-site visits on private lands, as well as state and federal mineral estates, to locate well pads and roads where they will have the least impact on GrSG habitat.	USFS, CPW, BLM	Ongoing	**CPW:** Land Use and Energy staff attempt to involve biologists at site visits. DWMs and biologists attend as time and workload permit. NWCO - Meeker Land Use position attends many on-site, including federal and private well pad locations. Grand Junction Land Use specialist and NW Energy Liaison attend on-sites, including federal and private well pad locations for most new permits, and all RSO's. CPW biologists are generally attending notice of staking on-site visits on Federal mineral estates. CPW biologists are usually involved with HB 1298 (Colorado OGCC Rules governing wildlife input) site visits. NESR, MWR and MP - There is no active energy development.	**BLM:** Effectiveness of this strategy has not been determined. **CPW:** Land Use Specialists, DWMs, and biologists participate in site visits when work load permits. CPW coordinates with BLM biologists. CPW biologists are generally not asked to attend notice of staking on-site visits on State or private mineral estates.
3.2.1.6	Use directional drilling to minimize the impact to GrSG habitat where biologically significant GrSG habitats are involved, if such techniques are technically feasible and cost-effective.	Industry, COGCC, BLM	Ongoing	**BLM:** Primary BMP considered for all APDs. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	**BLM:** Minimize footprint and %surface disturbance.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.1.7	Minimize pad size and other facilities to the smallest extent practical in GrSG habitat, consistent with safety (note: where directional drilling is used, larger pads are needed for multiple wells).	USFS, Industry, COGCC, BLM	Ongoing	**BLM:** Primary BMP considered for all APDs. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	**BLM:** See Above (3.2.1.6).
3.2.1.8	Limit facility footprint in sage-grouse habitat to that necessary for safe and effective development.	USFS, Industry, COGCC, BLM	Ongoing	**Tri-State:** Colowyo only develops new roads for new pit operations and reclaims existing roads when the intended use is completed. **BLM:** Primary BMP considered for all APDs. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	**BLM:** See Above (3.2.1.6).
3.2.1.9	Plan and construct roads and pipelines to minimize duplication in GrSG habitat. Use existing roads and right-of-ways wherever possible, and design and construct all new roads to a safe and appropriate standard (no higher than necessary), to accommodate their intended use.	USFS, Industry, COGCC, BLM	Ongoing	**Tri-State:** Current roads located on Juniper / Pinyon hillsites to reduce raptor perches. **BLM:** Primary BMP considered for all APDs **COGA:** Yes, 4 of 6 operators surveyed, who hold a total of 34% of the permits in GrSG SWH and operate a total of 13% of the wells in GrSG SWH or RSO	**BLM:** See Above (3.2.1.6).
3.2.1.10	Cooperate with county weed programs to control noxious weed infestations associated with oil and gas development disturbances in GrSG habitat (see also "Weeds" strategy, pg. 425).	USFS, SLB, Private Landowners, LWGs, Industry, CPW, County Governments, BLM	Ongoing	**Moffat**: Co-founded NW Colorado Weed Partnership with BLM (2007). Money from donations, annual expenditures=$35-65,000 on 6000 acres interspersed throughout GSG habitat. Partnerhsip has conducted reseeding projects, hired a PT Coordinator to staff the effort, and worked with CSU in designing annual monitoring. Additional weed partnerships exist and use the Integrated Pest Management principles. Annual site visits assist these partnerships. **Jackson:** Established Noxious Weed Management Program in 1998. Money from county, private, state, and federal partners. Ave. annual expenditures=$51,200. Employs a PT coordinator and applicators, all licensed by the Dept of Ag. Available to assist state agencies at any time. **Tri-State:** Colowyo has a multi-year ongoing noxious weed spray program on reclaimed lands and off-site areas. **SLB:** Over $400K has been spent since 2004 to treat noxious weeds within GSG habitat areas. Newly proposed Conservation Plan will place special emphasis on assessing areas impacted by energy, with goal of 80% native species reclamation following mineral development. **BLM:** All field offices have agreements with county weed programs to assist in control of weed infestations (and would include historic energy development). Weed management specific to current O&G development is incorporated in Surface Use Plan of Operations for all development actions. **CPW:** COGCC 1000 Series Rules require oil and gas operators to manage weeds and comply with State weed Act. PPR - Wildlife Mitigation Plans (WMP's) signed with 4 companies that are developing energy within GrSG habitat include noxious weed management plans. **LWG:** NP LWG - Currently, noxious weeds are not a problem in NP. The Jackson County weed program is active in controlling any weeds that exist. NWCO and PPR LWGs-County officials are active in the LWGs but specific conversations about weed management have been limited. MP and NESR LWGs-do not have oil and gas development issues. **COGA:** 4 of 6 operators surveyed, who hold a total of 61% of the permits in GrSG SWH and operate a total of 22% of the wells in GrSG SWH or RSO.	**Moffat:** 95% control on Halogeton with no impact on sage brush or salt bushes. All treatments since 2008 conducted with new chemical recommendations (1/4 oz / acre of Tellar). **CPW:** CPW makes weed management recommendations. WMPs - CPW reviews progress in meeting weed management plan objectives at least annually.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.1.11	Incorporate BMPs to exclude wildlife from surface impoundments associated with oil and gas development.	USFS, Industry, BLM	2008	**Tri-State:** Surface runoff catch ponds are all fenced. **CPW:** CPW has developed a comprehensive list of BMPs for oil and gas development that are provided to industry and BLM. **BLM**: BLM requires 'practice' to exclude wildlife from surface water impoundments on all oil & gas development. Specific BMP may vary due to location, species, or coordination with CPW or FWS. **COGA:** Yes, 4 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	**BLM:** Reduce potential for direct mortality (see CCP). **CPW:** Portions of these BMPs have been included in WMPs and BLM planning documents.
Objective 3.2.2	Large-scale mining of energy and mineral resources				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.2.2.1	Avoid GrSG seasonal habitats when siting large-scale mining operations and oil shale development, where possible (see CCP Appendix B, “GrSG Disturbance Guidelines”).	USFS, Industry, DRMS, BLM	Ongoing	**BLM:** No new large- scale mining operations or oil shale development has been proposed since the CCP. This strategy is being analyzed during the ongoing plan revision process.	
3.2.2.2	Where GrSG habitats cannot be avoided when siting large-scale mining and oil shale development, mitigate impacts through strategies under Objective 3.3.4. See also "Off-site Mitigation of Impacts" discussion, pg. 299.	USFS, Industry, DRMS, BLM	Ongoing	**BLM:** 3.2.2.1. Off -site mitigation related to SG continues to be discussed in an interagency, interdisciplinary forum, specifically what criteria might be developed to identify 'effective' off- site mitigation and where it might be appropriate.	
3.2.2.3	Encourage the use of effective BMPs, as identified by BLM or other sources, in order to reduce habitat fragmentation and the long-term footprint of energy and mineral development in GrSG habitat, across all ownership boundaries (see CCP Appendix I, “Suggested Management Practices Applicable for Oil and Gas Development, within Lease Rights”).	USFS, Industry, DRMS, BLM	Ongoing	**BLM:** See 3.2.1.1. BMPs considered and analyzed based on action, location, local population and other factors. Many BMPs in CCP Appendix I have already been incorporated by BLM. **COGA**: Yes, 4 of 6 operators surveyed, who hold a total of 44% of the permits in GrSG SWH and operate a total of 14% of the wells in GrSG SWH or RSO	**BLM:** See Above (3.2.1.6).

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.2.4	When an energy or mineral development is planned in sagebrush habitats that are located within a 4-mile radius of a GrSG lek: • seasonal habitats that may be impacted within a 1-mile radius of the proposed ground-disturbing activity should be delineated and field-validated in coordination with CDOW, BLM, or private biologists, prior to project location and design (see "Habitat Monitoring Strategy" [pg. 354] and CCP Appendix C, "Sage-grouse Habitat Monitoring Protocol"). This is a priority for mapping only. Appropriate strategies should still apply within the 4 mile radius of the lek site. • coordinate responsibility across lease boundaries for mapping purposes and to assess cumulative effects • see CCP Appendix B, "GrSG Disturbance Guidelines" • Lek and telemetry data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management. When an energy or mineral development is planned in sagebrush habitats that are located within a 4-mile radius of a GrSG lek: • seasonal habitats that may be impacted within a 1-mile radius of the proposed ground-disturbing activity should be delineated and field-validated in coordination with CDOW, BLM, or private biologists, prior to project location and design (see "Habitat Monitoring Strategy" [pg. 354] and CCP Appendix C, "Sage-grouse Habitat Monitoring Protocol"). This is a priority for mapping only. Appropriate strategies should still apply within the 4 mile radius of the lek site. • coordinate responsibility across lease boundaries for mapping purposes and to assess cumulative effects • see CCP Appendix B, "GrSG Disturbance Guidelines" • Lek and telemetry data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management.	USFS, Industry, CPW, BLM	Ongoing	**BLM:** Seasonal habitats have not been mapped within the 1 mile radius of proposed surface disturbing actions. CPW has completed a priority habitat model across all ownerships that includes all seasonal habitats and supercedes previously mapped core habitat. CCP Appendix B is currently being applied within the prescribed buffer areas for lek and breeding habitats. Sharing of sensitive Sage-grouse habitat or population data is conducted through a data use agreement with CPW. Location of surface disturbing activities are sited in coordination with CPW thru onsite field visits. **CPW:** General - DRMS involves CPW in review of new mine applications. Site specific seasonal habitats are evaluated by use of GIS information prior to site visit. Case-by-case habitat is not delineated on-the-ground prior to the time of a site visit; however, habitats are visually identified and confirmed at the time of the site visit. CPW Area biologist and Land Use specialists "consult" with BLM and energy operators on energy and mineral developments within Priority Habitat, which largely encompasses suitable habitat within 4 miles of GRSG leks. Seasonal habitat maps from CPW Research Section are available to reference and suitable habitat can largely be delineated from NAIP imagery, so field mapping and/or validation is rarely completed. Consultation with BLM and/or energy operators is done to minimize impacts to GRSG by recommending siting and/or timing criteria. Acquisition of lek and telemetry data requires a non-disclosure form to protect this sensitive data. NP - CPW implemented a radio-telemetry project in North Park to refine the seasonal habitat models for North Park. Data are currently being processed and seasonal habitat models for NP should be developed by early 2013. NESR - CPW provides recommendations to Routt County Planning. Recommendations include ways to avoid, minimize and mitigate impacts to GrSG habitats. Routt County Planning considers GrSG habitats and CPW recommendations in permit authorizations. MWR and MP - There is no active mining. **COGA:** Yes, 2 of 6 operators surveyed, who hold a total of 35% of the permits in GrSG SWH and operate a total of 11% of the wells in GrSG SWH or RSO	**CPW:** CPW staff provides large scale habitat suitability data to operators. Site specific, project level mapping is not occurring by CPW staff. Most mining companies employee private biologists to conduct these site-specific surveys. CPW staff is unaware of cross-lease coordination for mapping and cumulative analysis. DWMs, Land Use Specialists, Biologists and GIS prepare annual updates as information becomes available.
3.2.2.5	For surface mining, above-ground facilities of underground mines, and oil shale development areas, minimize the area impacted and duration of impact on GrSG populations and habitat.	USFS, Industry, DRMS, BLM	Ongoing	**BLM:** No new surface or underground mines have been initiated since 2008. Modification of existing mine plans incorporates BMP's to minimize the footprint and/or duration of an action in Sage-grouse habitat.	
3.2.2.6	Limit facility footprint in sage-grouse habitat to that necessary for safe and effective development.	USFS, Industry, DRMS, BLM	Ongoing	**BLM:** See above (3.2.2.5). **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	
3.2.2.7	Cooperate with county weed programs to control noxious weed infestations associated with energy and mineral development disturbances in GrSG habitat.	USFS, SLB, Private Landowners,LWGs, Industry, CPW, County Governments, BLM	Ongoing	**BLM: 3.2.1.10** All field offices have agreements with county weed programs to assist in control of weed infestations. **CPW:** DRMS and federal mining regulations require management of weeds and comply with State Weed Act. CPW makes recommendations to reduce and address noxious weed infestations associated with mineral development. **LWG:** NP LWG - Currently, noxious weeds are not a problem in NP. The Jackson County weed program is active in controlling any weeds that exist. NWCO and PPR LWGs - County officials are active in the LWGs but specific conversations about weed management have been limited. MP and NESR LWGs - do not have current mining issues. **COGA:** Yes, 4 of 6 operators surveyed, who hold a total of 61% of the permits in GrSG SWH and operate a total of 22% of the wells in GrSG SWH or RSO	**BLM:** Many more acres of weeds are treated in coordination with county weed programs than through BLM alone. See CCP for discussion & references.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
Objective 3.2.3	Cumulative impacts of all industries				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.2.3.1	Identify key GrSG areas located within potential energy development areas, to better address cumulative impacts to sage-grouse.	CPW	2008	**SLB:** 80 state trust lands sections have been identified within GSG habitat. Those sections have been leased for grazing and mineral development. Another 115 sections leased for oil and gas development but not yet under development. **CPW:** General - In 2012, CPW updated priority habitat maps that includes lek locations and seasonal habitats. Known leks continue to be monitored while searches for new leks continue in populations, particularly in PPR as part of a research effort by CPW B. Walker. NP - CPW is refining seasonal habitat models for NP. NESR - GrSG habitats are currently mapped as low potential for energy development. At this point, oil and gas development is not an issue in the NESR Population.	**CPW:** CPW updates habitat maps annually or as new information becomes available. Tracking processes/tools to account for cumulative impacts have not been set up or implemented yet.
3.2.3.2	Maintain large blocks of undeveloped sagebrush habitat across the landscape. Locate facilities or design mitigation to maximize the size and continuity of undeveloped sagebrush habitat across the landscape.	USFS, CPW, BLM	Ongoing	**BLM:** Little Snake RMP identified and incorporated strategies to maintain large blocks of undeveloped sagebrush habitat in their 2011 RMP revision. The White River RMP Amendment (Parachute Piceance Roan GRSG population) does not consider a similar alternative due to pre-existing conditions (naturally fragmented landscape, pre-existing leases, large private land ownership). All other plans were analyzing an alternative with similar goals, and this is being carried forward into the NW CO SG EIS Amendment. **CPW:** General - CPW has prioritized maintenance of large blocks of sagebrush habitat in recommendations to BLM for the Little Snake, White River, and Kremmling FO RMP revisions. CPW consults with BLM, energy and mineral operators, and other entities on projects proposed within GRSG habitat. CPW offers analysis, siting suggestions, timing suggestions, and suggests BMPs to avoid, minimize, or mitigate affects to GRSG. CPW recommends use of shared infrastructure (roads, pipelines) at site visits and in consultation negotiations. CPW and BLM coordinate efforts to protect habitat in limited situations Wildlife Mitigation Plans, and Plans of Development. PPR - Some WMPs incorporate phased or clustered development in an attempt to maintain larger blocks of habitat. CPW has commented on the Kremmling Field Office RMP to recommend maintaining large blocks of sagebrush and to minimize fragmentation of the landscape. NESR - Currently, oil and gas development is not an issue. However there have been several gravel pit permit proposals within GrSG habitat in Routt County. CPW provides recommendations to Routt County Planning. Routt County Planning considers GrSG habitats and CPW recommendations in permit authorizations.	**CPW:** Little Snake final RMP incorporates measures that incentivize maintenance of large undeveloped blocks of sagebrush habitat. Draft White River and Kremmling RMPs also include protection of large sagebrush blocks in at least 1 alternative. Also, CPW attempts to maintain large blocks of habitat through the development of WMPs. At least 1 company with a WMP has implemented this strategy. CPW works with BLM when BLM develops Geographic Area Plans (GAPs). Routt County denied a

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.3.3	Where production phase drilling and development may occur, require a plan that evaluates the impacts to sage-grouse from the entire field development, not just from individual well development. Include the need for additional infrastructure and/or communication towers (e.g., to facilitate remote monitoring) that should be considered during the land-use planning process	USFS, SLB, BLM	Ongoing	**SLB:** All state trust lands are inspected at least once every ten years. New uses require new site inspections. Since 2002, nearly 16K acres (= 16% grazing leases in GSG habitat) were inventoried.	**SLB:** Range inventories often result in improved grazing management practices and treatment for noxious weeds.
3.2.3.4	In GrSG habitat, cluster the development of roads, pipelines, electric lines, and other facilities, and use existing, combined corridors where possible (see “Infrastructure”	USFS, CPW, BLM	Ongoing	**BLM:** Primary BMP considered for all APDs and related actions. Multi-state transmission lines are currently being analyzed and coordinated with CPW. Combined corrdiors are a primary factor in those analyses. **CPW:** General - CPW recommends use of shared infrastructure (roads, pipelines) at site visits and in consultation negotiations. Some Wildlife Mitigation Plans incorporate multiple pipes in a pipeline right-of way. PPR - WMP's (4 signed) with grouse habitat agreed to measures that cluster development where possible. NP and MP - CPW has commented on the Kremmling Field Office RMP to recommend maintaining large blocks of sagebrush and to minimize fragmentation of the landscape. NESR - CPW provides recommendations to Routt County Planning. Routt County Planning considers GrSG habitats and CPW recommendations in permit authorizations. The majority of GrSG habitat in Eagle County is BLM. CPW makes recommendations to BLM to conserve GrSG habitat. MP and MWR - There is no active energy development.	**BLM:** Minimize footprint & % surface disturbance. **CPW:** PPR - Through WMPs, several operators have clustered facilities through the use of centralized fluid collection sites and collocated pipelines.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.3.5	Investigate opportunities and provide incentives for phased energy development in key GrSG habitats.	USFS, CPW, BLM	Ongoing	**BLM:** LSFO incorporated non-monetary incentives in their RMP by rewarding operators who enter into a voluntary SG conservation agreement with an exception on big game timing limitations elsewhere. Focus is on limited % surface disturbance rather than phased development. **CPW:** Individual permitting lacks incentive or ability to protect landscape scale habitats and not all operators are interested in participating in a WMP. CPW has completed 5 WMPs that have incentive based phased or clustered development. CPW also collaborates with BLM on leasing decisions and management actions in Land Use Plans. The draft White River FO RMP includes measures that would incentivize phased development. NP - CPW has brought up the idea of phased development. However, companies claim that oil development in NP is in the "exploratory stage" and companies are not willing to discuss phased energy development at this point. NESR, MWR, and MP - At this point, oil and gas development is not issue.	**CPW:** PPR -Several WMP's have been signed with energy companies providing them with expedited well permits as a benefit of agreeing to implement mitigative measures. Several other WMP's have been started and are in various stages of completion. BLM also uses phased development (to some degree) in GAPs. Phased development is encouraged and used as opportunity and law allows. Four of these 5 operators (EnCana, Williams, Marathon, PDC, and Shell) have sage grouse habitat and have agreed to phased development in a WMP.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.3.6	Identify key sage-grouse areas that are not already leased for energy and mineral development. Investigate and implement alternatives to leasing for energy and minerals in these areas.	USFS, Industry, CPW, BLM	2011 and ongoing	**USFS**: Routt NF RMP revision in progress includes this provision. WRNF oil & gas RMP amendment also underway. **SLB:** 2012 inventory of lands with high conservation values to consider designation for the Stewardship Trust. Inventory covered 16K acres, comprising 4% of SLB-owned GSG habitat. **BLM:** LSFO has incorporated alternatives to maintain large blocks of undeveloped lands in their RMP revision (2010). All new leases have required stipulations that minimize %surface disturbance and fragmentation in the lease area. Three of the four remaining GRSG plans considered an alternative with no new leasing in core SG habitat. The White River RMP is already predominantly leased in the PPR GRSG population area. The NW CO SG EIS Amendment is analyzing an alternative that includes no leasing in GRSG PPH. **CPW:** CPW has identified Priority Habitat for GRSG statewide and has overlaid this with leased acreage to evaluate what areas are currently unleased. CPW has made recommendations to minimize oil and gas leasing in priority areas. CPW has collaborated with BLM to defer leasing until Land Use Plans are complete or until management of GRSG within energy development areas is better understood and managed. BLM is evaluating long-term lease deferrals in several RMP revisions and through their NTT/EIS process. CPW has supported long-term lease deferral alternatives in the White River, Kremmling and Colorado River Valley draft RMPS.	**BLM:** Minimize footprint & % surface disturbance. **CPW:** Alternatives to energy leasing would have to be voluntary pursued on the part of the mineral owner. Current federal practice is that the mineral estate must be leased and developed, with limited exceptions.
3.2.3.7	In areas or populations having intense energy development, encourage LWGs to aggressively pursue additional strategies, using an adaptive management approach, to address population sustainability (e.g., consult PVA analysis in CCP), including, but not limited to, the following options: • options for increasing GrSG female survival • short duration of energy development and expedited reclamation • % habitat disturbance cap, habitat disturbance acreage cap, planned distribution of disturbance areas • innovative area development plans (e.g., refuge approach, mitigation/conservation credit approach; see “Energy and Mineral Development: Avoiding and/or Mitigating Impacts”, pg. 292) • see also all strategies under Issue 3.3, “Habitat Enhancement” strategy section, discussion under “Population Augmentation”	LWGs	ASAP	**LWG:** PPR LWG - originally acted as a spring board for developing actions such as these when writing the local PPR conservation plan. The working group now acts more as an information sharing outlet with such actions being implemented more on an agency-to-landowner/operator basis when possible. NP LWG - Energy development strategies are not included in the Local Plan signed in 2000. However, energy development has been discussed recently by the LWG. Members of the LWG do not agree that proposed oil and gas developments and potential for increased oil and gas development pose a threat to GrSG in NP, thus, the LWG has not developed strategies to address impacts from oil and gas. NWCO LWG - has not addressed this strategy. MP and NESR LWGs - do not have any active energy and mineral development activity.	
Objective 3.2.4	Reclamation, all industries				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.4.1	Use early and effective reclamation techniques, including interim reclamation, to speed the return of disturbed areas to use by sage-grouse (see "Habitat Enhancement" strategy, pg. 349). Develop and implement performance-based reclamation standards.	USFS, Industry, CPW, BLM	Ongoing	**BLM:** All FO's are incorporating early, interim and long term reclamation standards. The WRFO is focusing their RMP Amendment on minimizing the disturbance footprint and maximizing effective reclamation in PPH. Part of those standards include not allowing new development until previously disturbed sites meet established reclamation standards. **CPW:** CPW recommends early interim reclamation, minimal facility disturbance and performance-based reclamation standards. Also, COGCC Series 1000 Rules promote erosion control which may indirectly influence seed mixes that may be better suited for grouse habitat. CPW and BLM coordinate reclamation recommendations as much as possible. CPW comments on reclamation plans in BLM Land Use Plans and for county special use permits where applicable. In addition, reclamation of any energy or infrastructure projects on State Wildlife Areas is dictated and overseen by CPW. **COGA**: Yes, 6 of 6 operators surveyed, who hold a total of 69% of the permits in GrSG SWH and operate a total of 24% of the wells in GrSG SWH or RSO	**CPW:** COGCC regulates and enforces permitting regulations for reclamation. BLM regulates reclamation on federal surface. CPW has required stringent reclamation techniques (use of live plant materials, hydromulching, locally collected seed, etc.) on State Wildlife Areas. CPW has been successful in getting similar requirements applied to some BLM projects. PPR - WMPs incorporate reclamation standards and implementation is verified annually.
3.2.4.2	Practice reclamation techniques that speed the recovery of pre-existing vegetation in GrSG habitat (e.g., brush-beating of sagebrush for site clearance, retention of topsoil with native seed).	USFS, Industry,CPW, BLM	Ongoing	**BLM:** Some BMPs in this area are already being incorporated (retention of topsoil, use of native seed, etc), other BMPs such as use of mats for well pads may not be suitable for all places in CO. **CPW:** CPW does not have regulatory authority over oil and gas permitting or reclamation standards. CPW does recommend minimal facility disturbance and footprint. Recommendations for topsoil management are offered as well. Many techniques such as drilling mats, and minimizing grading, or vegetation mowing are not perceived as viable techniques for construction of a pad site by industry. Operators cite safety as a concern and a reason not to use these techniques. PPR- CPW Researcher, D. Johnston, is studying success of native plant establishment and competition with noxious weeds which may lead to faster reestablishment of native plants. NP - CPW has recommended techniques that speed the recover of sagebrush habitat. For mineral proposals, CPW provides recommendations to Routt County Planning. Recommendations include early and effective reclamation techniques. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 62% of the permits in GrSG SWH and operate a total of 23% of the wells in GrSG SWH or RSO	**CPW:**Seed mixes are often not capable of achieving both goals. On private surface, the land owner is the decision maker on seed mix choice and use.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.4.3	Use reclamation seed mixes consisting of native bunchgrasses, forbs, and appropriate subspecies of big sagebrush in GrSG habitat. Avoid aggressive, non-native grasses (e.g., intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome) in reclamation seed mixes (see CCP Appendix D, "Recommendations Regarding Plant Species for Use in GrSG Habitat Management and Restoration", and Monsen 2005).	USFS, Industry, CPW, BLM	Ongoing	**BLM:** Reclamation seed mixes consist largely of native species of grasses and forbs in CO. **CPW:** CPW's oil and gas BMPS include this strategy. These BMPs are provided to industry and regulatory agencies. Also, COGCC Series 1000 Rules promote erosion control which may indirectly influence the use of seed mixes that do not promote quality grouse habitat. CPW and BLM coordinate reclamation recommendations as much as possible. NWCO - CPW comments on reclamation plans in BLM Land Use Plans. In addition, reclamation of any energy or infrastructure projects on State Wildlife Areas is dictated and overseen by CPW. NP - CPW provides recommendations of plant species to use for a variety of different situations specific to GrSG in Appendix D of the State Plan (Recommendations regarding plant species for use in GrSG habitat management and restoration). CPW has recommended the use of native grasses in reclamation. For mineral proposals, CPW provides recommendations to Routt County Planning. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 44% of the permits in GrSG SWH and operate a total of 14% of the wells in GrSG SWH or RSO	**CPW:** The BLM and COGCC regulate reclamation at permitting stage. CPW BMPs encourage seed mixes that benefit grouse (e.g., CP-4D mixes). These recommendations are more likely to be adopted at final reclamation rather at the interim reclamation stage. Availability of native plant material continues to be a challenge.
3.2.4.4	Structure reclamation soil profiling and re-vegetation seed mixes to create high quality sage-grouse habitat as quickly post-development as possible see CCP Appendix D, "Recommendations Regarding Plant Species for Use in GrSG Habitat Management and Restoration", and Monsen 2005.	USFS, Industry, DRMS, CPW, BLM	Ongoing	**BLM:** Interim reclamation of O&G development is required within 6 months of ground disturbance. No specific requirements for soil profiling, however ecological sites and associated vegetation types are known, recommended seed mixes can be provided by BLM or other local experts. Through the BLM Native Plant Materials Development Program, native seed mixes specific to re-vegetation in sage-grouse habitat are in use. These native seed mixes will be refined based on the evaluation of the establishment of the species at the site. **CPW:** CPW recommends minimal facility disturbance and footprint. CPW recommendations include topsoil management and seed mixes as well. PPR- CPW Researcher, D. Johnston, is studying a variety of soil management techniques which may lead to faster reestablishment of native plants. NP - CPW has recommended techniques that speed the recover of sagebrush habitat. For mineral proposals, CPW provides recommendations to Routt County Planning. Recommendations include early and effective reclamation techniques. **COGA:** Yes, 5 of 6 operators surveyed, who hold a total of 62% of the permits in GrSG SWH and operate a total of 23% of the wells in GrSG SWH or RSO	**CPW:** The BLM and COGCC require soil management actions in permit COAs. Interim reclamation is not focused on habitat establishment but rather soil stability and erosion control. This type of recommendation - grouse intensive reclamation -would likely occur at final reclamation in about 25 to 35 plus years out. CPW encourages operators to reclaim as much of the facility as possible to the final reclamation standard during interim reclamation.
3.2.4.5	Identify and implement incremental habitat reclamation objectives in GrSG habitat.	USFS, CPW, BLM	Ongoing	**BLM:** Interim and long term reclamation standards are currently being proposed on BLM.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.2.4.6	Develop and implement an evaluation and monitoring process for meeting reclamation objectives in GrSG habitat, using standard monitoring criteria (see "Habitat Monitoring" strategy, pg. 354, and CCP Appendix C, "Habitat Monitoring Protocol").	USFS, CPW, BLM	Ongoing	**BLM:** Current BLM monitoring and evaluation methods are used to determine success in meeting reclamation goals. **CPW:** General - Colorado specific structural habitat guidelines are known and described in the CCP (2008). These provide a potential starting point for development of reclamation monitoring guidelines. CPW comments on reclamation plans in BLM Land Use Plans and other project proposals. Reclamation of any energy or infrastructure projects on State Wildlife Areas is dictated and overseen by CPW. WMPs include agreements on monitoring standards for reclamation.	**BLM:** Not enough time or on the ground implementation has occurred to assess effectiveness of BMPs to date. **CPW:** Reclamation success in WMPs is evaluated annually against the standards specified in the WMP.
3.2.4.7	Discuss options for making state reclamation standards for oil and natural gas development similar to those for mining.	BLM	Begin in 2008	**BLM:** Although no formal attempt has been made to adopt mining reclamation standards for O&G development in BLM CO, WRFO & LSFO have adopted long term reclamation standards that include structural diversity. All O&G development on public land requires a Surface Use Plan of Operations which includes reclamation plans. COAs provide reclamation standards. All offices incorporate forbs into reclamation standards and sagebrush seed is included in current seed mixtures.	
Objective 3.3.1	Land management planning				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.3.1.1	Use the best available and applicable information to expand the extent and to enhance the utility of habitats available for sage-grouse (while continuing to develop additional Colorado-specific research regarding GrSG habitat and habitat-use: see strategies 3.4.3.7 - 3.4.3.10; see also "Habitat Enhancement" strategy, pg. 349 and "Habitat Linkages" strategy, pg. 352).	CPW	Ongoing	**CPW:** Research supports and provides feedback. CPW has worked with private landowners and on BLM-administered lands to conduct habitat enhancements by: 1) conducting pinyon-juniper encroachment projects, 2) seeding burned areas to accelerate recovery, 3) seed private lands to improve CRP stands. These projects have occurred in the general vicinity of energy development, but have not been specifically targeted to mitigate for the impacts of energy development. CPW Research Unit is conducting multiple studies on GrSG and their habitat within the PPR and NWCO populations.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.1.2	Evaluate the existence and adequacy of energy and mineral development guidance in federal, state, county, and local work group plans within GrSG habitats, including leasing decisions. Federal policy allows for leasing decisions to be revisited through the land-use planning process when significant new scientific information becomes available (see CCP Appendix G, "Energy and Mining Leasing and Development Background and Process"). Update guidance as needed.	USFS, CPW, BLM	By 2012	**USFS:** Planning revisions underway for Routt NF and White River NF. **BLM:** All new BLM RMP revisions/ amendments include language that allows for incorporation of new scientific information in ongoing federal actions as part of adaptive management processes. **CPW:** All the BLM RMPs have been/are being revised to strengthen protections for GrSG. CPW provides input and recommendation to federal resource management plans, environmental assessments, and geographic area plans. BLM is undergoing a review of adequacy under the GrSG EIS and CPW is a cooperator in all these projects.	**CPW:** The BLM does have the ability to use the best available science to amend lease conditions and stipulation by way of the Yates Decision. The Little Snake RMP incorporates components of the Yates Decision. The use of Working Group recommendations is voluntary and it is a guidance document not a regulatory or prescriptive document. CPW is actively involved in making recommendations for RMP updates and other planning and implementation documents.
3.3.1.4	Evaluate and implement specific mitigation and exception criteria during the land-use planning process in GrSG habitat. Attach the criteria to the lease as stipulations upon issuance.	USFS, BLM	As LUPs are revised	**BLM:** Proposed stipulations for O&G development in SG habitat are being analyzed during the planning process & through the NW CO SG EIS amendment.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.1.5	Encourage counties to consider and implement sage-grouse conservation plan recommendations (local and statewide) when planning land-use, and when processing land-use permits.	CPW, County Governments	Ongoing	**Moffat**: Planning & Zoning Commission require weed control plans developed with the consultation of county Weed & Pest Department for ground disturbing projects. Planning Dept may add stipulations to Conditional Use Permits if Commission deems it necessary. County has developed window stickers for vehicles working in on Entrega Interstate Pipeline to verify washed and weed free vehicles entering the county. **Grand**: All land use actions are sent for review to CPW for review. Written feedback recommendations are then incorporated into land use approval granted by the county. All land use actions require noxious weeds to be controlled in compliance with Grand County Noxious Weed program. **Jackson:** Has begun to consider amendments to the county Comprehensive Master Plan that would provide guidance to decision makers on Special Use Permits and other land use authorizations. **Routt:** Zoning regulations 3.6.2 including timing and seasonal limitations, mitigation techniques, and requirement for consultation with CPW. **CPW:** When appropriate CPW - Land Use Specialist, DWM and biologist encourage Counties to implement (state-wide or local working group) sage-grouse plan recommendations. CPW communicates with counties in the NW Colorado population primarily through the Local Working Group. The PPR Conservation Plan, which encourages consideration of numerous strategies that can benefit GrSG, was signed by several counties. There is no active energy development within the MWR Population boundary. CPW references local and statewide conservation plans and their recommendations in CPW comment letters written and provided to the county during planning phases. CPW does make comments or recommendations for local land use plans when local plans are updated. As appropriate, CPW recommends sage-grouse conservation measures in local land-use permitting comments.	**Moffat**: All companies operating in county have completed weed control requirements. 4 large-scale infrastructure projects added weed control stipulations to their permits. Penalties for non-compliance are enforceable by law. **Grand**: former county gravel pit off CR 340 was shifted to seasonal and timing restrictions in response to written request by CPW, to allow for lek activity in the area. **Routt:** County does not have a mechanism to confirm that mitigation stips on permits have been implemented. Field inspections in 2008 revealed 99% compliance rate.
3.3.1.6	Develop a map that reflects ownership of minerals and mineral potential in GrSG habitat in Colorado. Tabulate the acreage and identify blocks of areas with common mineral estate ownership.	USFS, BLM	2008	**BLM:** This has not been done by BLM CO, although the data is available thru COGCC.	
3.3.1.7	Clarify energy development stipulations and where they apply in GrSG habitat.	USFS, BLM	Ongoing	**BLM:** This is an ongoing process. Energy development stipulations are currently being updated, evaluated and applied through the NW CO SG EIS Amendment.	
3.3.1.8	Map energy development infrastructure within GrSG habitat to reflect current and historic development levels, patterns, and conditions (see also “Infrastructure” [pg. 383] and “Roads” [pg. 409] strategy sections.	Industry	Ongoing	**Tri-State:** Colowyo has mapped all infrastructure elements for both current and historic areas of the mine. **COGA:** Yes, 3 of 6 operators surveyed, who hold a total of 32% of the permits in GrSG SWH and operate a total of 11% of the wells in GrSG SWH or RSO	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.1.9	Recommend setting bonds sufficient to ensure that appropriate GrSG habitat reclamation is met.	USFS, DRMS, CPW, COGCC, BLM	Ongoing	**BLM:** This has not been done. **CPW:** COGCC and Federal agencies determine bond adequacy in most instances. CPW sets bonds for infrastructure projects affecting State Wildlife Areas. CPW has not recommended bond for projects involving other land management jurisdictions. At site visits, CPW has made comments to both COGCC and BLM that bonds may not be sufficient to cover true on-the-ground reclamation actions.	
3.3.1.10	Write energy development guidelines that take into account a variety of site-specific situations in GrSG habitat. Implementation of these guidelines should be determined on a site-by-site basis within the landscape context.	USFS, CPW, BLM	Ongoing	**BLM:** LSFO wrote performance based GRSG energy guidelines in their approved RMP revision. Similar stipulations or energy development criteria is being evaluated in the NW CO SG EIS Amendment. Any additional overarching energy guidelines will be discussed and/or developed through an interagency team in CO. **CPW:** At a statewide level, CPW has developed BMPs for oil and gas development in coordination with HB 1298 Rules. CPW was engaged in COGCC rule making. CPW provides comments on BLM Resource Management Plans and EAs. CPW, DWMs, Land Use Specialists and biologists make recommendations at site visits and federal Notice of Staking. CPW recommends site specific activities to minimize impacts to habitat. Implementation is up to operator. Companies enrolled in WMP's have implemented guidelines that consider site-specific situations in GrSG habitat. CPW has not written energy development guidelines in NP to date.	**BLM:** Minimize footprint and %surface disturbance.
3.3.1.11	Consider private property owner concerns when developing guidelines for energy and mineral development on split estates in GrSG habitat.	USFS, CPW, BLM	Ongoing	**BLM:** Private property concerns and comments are considered when applying stipulations designed to protect SG on split estate. BLM invites private landowners to attend APD onsites for all federal wells. **CPW:** CPW does make recommendations on private property but they are up to the landowner to accept or not.	
3.3.1.12	Require issue-specific monitoring plans and data reporting processes and standards for energy development projects in GrSG habitat.	USFS, Industry, BLM	Ongoing	**BLM:** This has not been formally done. Although periodic monitoring of noise or container ponds, for example, does occur in conjuction with permit requirements.	
3.3.1.13	Enforce and ensure compliance with conditions, stipulations, and reclamation for leases and permits in GrSG habitat.	USFS, DRMS, COGCC, BLM	Ongoing	**BLM:** Compliance with O&G permit conditions of approval is conducted.	**BLM:** Staffing may not be sufficient to keep up with the need.
Objective 3.3.2	Frameworks for voluntary participation				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.3.2.1	Review the effectiveness of existing industry incentive programs in wildlife habitat in other states (e.g., Pinedale/Jonah field in Wyoming).	BLM	2008	**BLM:** Review of WY incentive programs has been limited to what has been done, not how (or if) it has resulted in effective mitigation relative to impacts to SG.	
3.3.2.2	Develop incentives to encourage industry to implement beneficial development practices for GrSG, including restoration of old sites (energy development sites that have not been sufficiently reclaimed).	BLM	2008 and ongoing	**BLM:** LSFO RMP developed incentives to sign voluntary agreements to limit surface disturbance in priority SG habitat. No other incentives have been developed to date.	
3.3.2.3	Encourage industry to incorporate new and less invasive technologies to develop energy and mineral resources in GrSG habitats (see also strategy 3.2.1.5).	USFS, COGCC, BLM	Ongoing	**BLM:** Conversations with industry relative to innovative technologoies is an ongoing effort. These discussions occur on a case by case basis as opportunities arise.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.2.4	Conduct project design, review, and approval through a consultative process with industry, agencies, and others to assure that projects incorporate the most current sage-grouse data and development technology available.	BLM, CPW, COGCC, County Governments, DRMS, Industry, LWGs, SLB	Ongoing		
3.3.2.5	Define the opportunities and/or limitations associated with directional drilling or other energy development technologies in GrSG habitat (e.g., geologic, topographic, cost/benefit).	Industry	2008	**COGA:** Yes, 3 of 6 operators surveyed, who hold a total of 67% of the permits in GrSG SWH and operate a total of 22% of the wells in GrSG SWH or RSO	
3.3.2.6	Encourage operators to provide long-term financial commitments to support reclamation design, compliance, research, and monitoring in GrSG habitat.	COGCC, BLM	Ongoing	**BLM:** Industry has provided financial support for ongoing CPW & BLM efforts on a case by case basis.	
3.3.2.7	Locate site and design oil and gas facilities in cooperation with the operator and landowner to maximize opportunities for interim and long-term GrSG-oriented reclamation.	Private Landowners, LWGs, Industry, CPW, County Governments, COGCC	Ongoing	**Moffat**: County conditions all of its oil and gas facility permits with weed management criteria. County suggests that oil and gas companies consider grouse location sensitive siting. **Jackson:** Defers to the COGCC in regulation, siting and reclamation associated with drilling. **CPW:** CPW offers analysis, siting suggestions, timing suggestions, and suggests BMPs to avoid, minimize, or mitigate affects to GRSG. CPW makes recommendations as extensive as surface owner will allow. CPW does make site specific recommendations when permitting COGCC Form 2A permits, and with BLM at NOS site visits. Recommendations are developed with CPW, surface owner, and energy company representatives. CPW works with BLM, companies, and landowners to minimize overall disturbance. **LWG:** PPR LWG originally acted as a spring board for developing actions such as these when writing the local PPR conservation plan. The LWG now acts more as an information sharing outlet with such actions being implemented more on an agency-to-landowner basis when possible. NP and NWCO LWGs - CPW and BLM are involved with site design and interim and long-term reclamation; the LWG is not involved. **COGA:** Yes, 2 of 6 operators surveyed, who hold a total of 35% of the permits in GrSG SWH and operate a total of 11% of the wells in GrSG SWH or RSO	**Moffat**: At least two operators have moved a well from a lek location based on a county request.
3.3.2.8	Encourage operators to provide long-term financial commitments to support reclamation design, compliance, research, and monitoring in GrSG habitat.	USFS	Ongoing		
Objective 3.3.3	Adaptive management approach				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.3.3.1	Develop and implement a valid monitoring plan to assess the impacts of energy and mineral development on sage-grouse.	USFS, BLM	2010 and Ongoing	**BLM:** Ongoing monitoring of SG movement and habitat use is conducted in several populations of SG by CPW, and continues to inform proposed development. BLM has adopted or proposed adaptive management processes for oil and gas development in the Little Snake final RMP and the White River draft RMP. CPW has been a cooperator.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.3.2	Develop and implement a valid monitoring plan for reclamation activities in GrSG habitat (see “Habitat Monitoring” strategy, pg. 354 and CCP Appendix C, “Habitat Monitoring Protocol”).	USFS, CPW, BLM	2010 and Ongoing	**BLM:** BLM uses approved monitoring methodology to determine effectivenss of reclamation activities. **CPW:** BLM has adopted or proposed adaptive management processes for oil and gas development in the Little Snake final RMP and the White River draft RMP. CPW has been a cooperator. PPR - WMPs require monitoring of reclamation activities.	**CPW:** CPW reviews reclamation progress in WMPs annually.
3.3.3.3	Develop and implement a valid monitoring plan to assess GrSG habitat restoration and to measure success with respect to GrSG.	USFS, CPW, BLM	2010 and Ongoing	**BLM:** BLM uses approved monitoring methodology to determine effectivenss of reclamation activities. **CPW:** CPW has hired a habitat coordinator who is developing monitoring plans for tracking restoration of GrSG habitat.	**BLM:** Not enough time or on the ground implementation has occurred to assess effectiveness of BMPs to date.
3.3.3.4	Use and refine existing vegetation and other map data to develop a better understanding of piñon-juniper/mountain shrub, industrial, agricultural, and urban encroachment on GrSG habitat.	USFS, NRCS, CPW, BLM	2010	**BLM:** BLM is using the revised SG habitat maps that CPW developed in the analysis within the ongoing NW CO SG EIS Amendment. **CPW:** CPW has hired a habitat coordinator who is developing monitoring plans for tracking restoration of GrSG habitat. CPW Researcher, B. Walker, is studying habitat improvement through the removal of pinyon-juniper and has generated suitable habitat maps using models guided by telemetry locations. NP - CPW is digitizing disturbed habitats and refining mapping data for use in the NP seasonal habitat model. CPW is also developing an anthropogenic disturbance layer for use in GrSG modeling in NP.	**CPW:** Research results are preliminary; however, they indicate some use of treated areas by grouse.
3.3.3.5	Use remote sensing and other techniques to determine the current state of fragmentation in GrSG habitat.	USFS, CPW, BLM	2010	**BLM:** BLM has not implemented this to date. BLM is coordinating with CPW on ongoing remote sensing efforts. **CPW:** CPWs 2012 priority habitat map provides a measure of natural fragmentation at a landscape scale as unsuitable habitats are not priority habitat.	
3.3.3.6	Evaluate the adequacy and effectiveness of GrSG stipulations and BMPs related to mineral and energy development.	USFS, CPW, BLM	2015		
3.3.3.7	Assess the compliance, consistency, implementation, and cost of stipulations and/or COAs with respect to GrSG management, and report results.	DRMS, CPW, COGCC, BLM	Biennially	**CPW:** Since 2010, CPW has been tracking implementation of stipulations, COAs, and BMPs through the Form 2A permits. WMPs stipulations or BMPs are applied. **See Appendix E: Summary of Oil and Gas Permits in GrSG Habitats**	**CPW:** The application of stipulations or BMPs in WMPs is assessed annually by CPW, in some cases through formal audits.
3.3.3.8	Continue to update and adjust BMPs to reflect monitoring and research results in GrSG habitats. Promote use of updated BMPs across land ownership boundaries.	USFS, BLM	Ongoing	**BLM:** Minimal monitoring or research has been completed to indicate necessary changes to BMPs.	
3.3.3.9	Develop a mechanism to modify regulations or stipulations on federal mineral estates over time, based on monitoring and/or research results in GrSG habitat.	USFS, BLM	2008 and ongoing	**BLM:** Language is currently being incorporated into all RMP revisions to specifically acknowledge & authorize use of updated conservation measures or restrictions as needed and based on new science thru the adaptive management process. No other mechanism for changes in management has been identified.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.3.10	Evaluate alternatives to a radial buffer approach in GrSG habitat, such as incorporating local topographic conditions or habitat communities for defining geometry (see CCP Appendix B, "GrSG Disturbance Guidelines").	USFS, CPW, BLM	2008	**BLM:** CPW has refined the core habitat approach & updated priority habitat using some topographic & habitat data. The buffer approach is still used as a starting point to implement appropriate conservation measures. **CPW:** CPW recommends use of topography as one variable that can adjust radial buffers. NWCO and PPR - New seasonal habitat maps take into account habitat attributes in addition to lek buffers for defining seasonally important areas and Priority Habitat. CPW Researcher, B. Walker, has generated models that incorporate roughness of topology. CPW is refining the seasonal habitat models based on locations from a telemetry study. CPW will evaluate the refined seasonal habitat models compared to the lek buffer approach.	**CPW:** CPW- DWMs, Land Use Specialists, biologists and BLM often use topography to offset impacts or to improve buffering of development locations.
Objective 3.3.4	Mitigation, both current and future				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.3.4.1	Define what constitutes meaningful mitigation to meet site- and/or issue-specific GrSG population and/or habitat objectives.	CPW	2010	**CPW:**CPW and operators have agreed on mitigation when both parties develop a WMP.	**CPW:** Consultation - site visit - recommendations often reflect compromise of mitigation actions based on input from operators, CPW staff, and/or landowner.
3.3.4.2	Wherever possible, incorporate site-specific COAs (on-site mitigation measures) on proposed operations in GrSG habitat, consistent with lease rights, or as negotiated with operators.	USFS, BLM	Ongoing	**BLM:** This is consistently done during the APD process on a case by case basis with input from CPW.	
3.3.4.3	Evaluate the need for near-site and/or off-site mitigation to maintain sage-grouse populations during oil and gas development and production and energy and mineral development through mining.	CPW	Ongoing	**CPW:** CPW includes mitigation in WMPs and is in the preliminary stage of development on a Colorado Habitat Exchange for credit trading and mitigation banking. BLM has similar opportunity when GAP is proposed or required in mineral development plans.	**CPW:** Mitigation implementation in WMPs is evaluated by CPW annually against the standards specified in the WMP. Specifically, credit trading and mitigation banking have been utilized. CPW Researcher, B. Walker, is conducting research for possibilities for off site mitigation (pj removal).
3.3.4.4	Determine whether sage-grouse will move to mitigation areas as mine and energy development sites develop in active habitat. **[See Research Strategy 21.3.1.1]**	Universities, CPW	Begin by 2010	**CPW:** CPW Researcher, B. Walker, is conducting research on pj removal and subsequent use by GrSG.	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.3.4.5	Identify potential locations where there may be opportunities for off-site mitigation for GrSG. Identify suitable mitigation practices within those areas (see also Strategy 3.3.4.9).	CPW	2010	**CPW:** CPW has identified some potential areas for mitigation at both the landscape and local scales. WMPs attempt to conserve large blocks of habitat suitable for mitigation efforts and include phased development as mitigation. Colorado Habitat Exchange will develop potential locations for off-site mitigation. Landscape scale priority habitat mapping identifies suitable habitat. Finer scale mapping for PPR and Hiawatha portion of NWCO provides locations to consider for off-site mitigation. CPW participated with the Nature Conservancy to identify areas suitable for mitigation in NWCO through Energy by Design modeling. NESR - CPW has made on- and off-site mitigation recommendations for gravel pit proposals. CPW continues to identify suitable mitigation practices for particular sites (e.g. conservation easements or pinyon juniper habitat enhancement projects). CPW research and monitoring data informs these decisions.	
3.3.4.6	Consider site capability and the timeline necessary to restore areas to suitable GrSG habitat, when determining which mitigation practices should be implemented on a site-by-site basis.	USFS, CPW, BLM	Ongoing	**BLM:** This is consistently done during the APD process on a case by case basis with input from CPW. **CPW:** CPW is working with industry to make recommendations based on current knowledge and best available information and site specific factors. CPW recommends habitat enhancement or restoration activities taking into account soil type, precipitation regime, land ownership, management practices, etc.	**CPW:** CPW- DWMs, Land Use Specialists, biologists incorporate these factors when making mitigation recommendations.
3.3.4.7	Conduct effective GrSG habitat enhancements (on- and off-site mitigation) in areas adjacent to or nearby energy development, in order to maintain sage-grouse population numbers (see “Habitat Enhancement” strategy, pg. 349).	USFS, CPW, BLM	Ongoing	**BLM:** Limited energy development, and thus site-mitigation, has occurred in GRSG priority habitat since the CCP. **CPW:** CPW is not able to do off site mitigation on individual 2A permits unless a surface owner volunteers to do so. CPW is able to do some off site mitigation in WMP documents. CPW has worked with private landowners and on BLM-administered lands to conduct habitat enhancements by: 1) conducting pinyon-juniper encroachment projects, 2) seeding burned areas to accelerate recovery, 3) seed private lands to improve CRP stands. These projects have occurred in the general vicinity of energy development, but have not been specifically targeted to mitigate for the impacts of energy development. CPW Research Unit is conducting multiple studies on GrSG and their habitat within the PPR and NWCO populations. The Colorado Habitat Exchange will indentify additional areas where oil and gas mitigation can occur.	**CPW:** Mitigation implementation in WMPs is evaluated by CPW annually against the standards specified in the WMP.
3.3.4.8	Encourage completion of mitigation measures prior to mine site development or expansion, or energy field development, where possible, to minimize sage-grouse population disruption.	USFS, Industry, BLM	Ongoing	**BLM:** No new mine sites or energy fields have been developed since the CCP.	
3.3.4.9	Investigate, evaluate, and implement mitigation trust/banking opportunities where appropriate in GrSG habitat. Develop incentives to ensure that mitigation areas remain undeveloped until original habitats are fully recovered and populations are re-established.	USFS, CPW, BLM	Ongoing	**CPW:** Colorado Habitat Exchange - CPW, CO Cattleman's Assoc. and the Envir. Defense Fund are currently developing a credit trading program and expect it to be completed by late 2013. Mitigation banking and credit trading have been utilized by a few operators to a small degree.	
Objective 3.4.1	Existing research				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.4.1.1	Evaluate existing research on energy and mining development impacts on GrSG regarding (1) its applicability to local situations; and (2) whether or not it has been peer-reviewed.	CPW	Dec. 2008	**CPW:** CPW has a strong research unit that conducts peer-reviewed research in CO relevant to GrSG and grouse habitats. CPW uses best available science to inform oil and gas recommendations. CPW researchers routinely meet with LWGs to ensure that research projects address local needs. CPW also conducts research in local populations e.g., telemetry project in NP in 2010. One objective was to gather information on GrSG demographics in NP prior to more extensive oil and gas development.	**CPW:** CPW staff are regularly up-dated on new and existing research (Biological In-Service and research reviews, etc.).
Objective 3.4.2	Determine effectiveness of existing stipulations and mitigation				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.4.2.1	Through research, determine the effectiveness of energy and mining mitigation actions, stipulations, and BMPs in maintaining GrSG populations and/or habitat across the landscape. **[See Research Strategy 21.3.1.1]**	Universities, CPW	Begin by 2010	**CPW:** CPW has started evaluations of mitigation actions but not BMP or stipulation effectiveness at the population level.	**CPW:** CPW researchers are conducting evaluations of some mitigation actions (e.g., PJ removal and plant establishment techniques).
Objective 3.4.3	Other needed research				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.4.3.1	Develop a timeline for implementation of research strategies (e.g., strategies 3.4.3.3 - 3.4.3.5; 3.4.3.7 - 3.4.3.10). **[See Research Strategy 21.2.1.3]**	USFWS, Industry, CPW, BLM	Begin by 2020		
3.4.3.2	Increase funding to conduct needed research on mining, energy development, and GrSG in Colorado. **[See Research Strategy 21.2.1.3]**	USFWS, Industry, CPW, BLM	Begin by 2020	**Tri-State:** Colowyo has funded numerous studies including Masters and Doctoral research. **BLM:** BLM continues to provide funding for ongoing research in CO for SG. **COGA:** Yes, 3 of 6 operators surveyed, who hold a total of 67% of the permits in GrSG SWH and operate a total of 22% of the wells in GrSG SWH or RSO	
3.4.3.3	Investigate the specific factors affecting GrSG population parameters (e.g., causes of female and chick mortality, effects of noise on sage-grouse habitat use or avoidance, wind direction, and topography influence on noise impacts), and how they are influenced by energy development. [See Research Strategy 21.2.1.3]	USFWS, Industry, CPW, BLM	Begin by 2020	**Tri-State**: Colowyo has been the site for GSG investigations, including the Collom Wildlife Monitoring Report (2006, 2007, 2008) and the Collom Raptor / Grouse Report (2011). **BLM:** BLM regularly reviews and shares ongoing research from other states, such as recent research in WY relative to impacts of noise on SG. **COGA**: Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	
3.4.3.4	Design and implement a research program (regarding energy/mining and GrSG) so that the duration of data is sufficient to answer GrSG management questions. Recognize the need and timeline necessary to integrate research data and results into planning cycles. [See Research Strategy 21.2.1.3]	USFWS, Industry,CPW, BLM	Begin by 2020		

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.4.3.5	Study, monitor, and attempt to quantify impacts to sage-grouse from oil and gas development and mining operations (e.g., intensity, duration, and timing elements of PVA). **[See Research Strategy 21.2.1.3]**	USFWS, Industry, CPW, BLM	Begin by 2020	**COGA**: Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	
3.4.3.6	Incorporate stakeholder concerns into current and future research designs for GrSG studies. **[See Research Strategy 21.2.1.3]**	USFWS, Industry, CPW, BLM	Begin by 2020	**CPW:** Current research has evolved out of needs identified by the state and local Conservation Plans developed by a consortium of stakeholders. CPW researchers routinely meet with LWGs to ensure that research projects address local needs.	
3.4.3.7	Quantify habitat fragmentation effects on GrSG. **[See Research Strategy 21.1.1.1]**	BLM, CDA, CPW, Industry, LWGs, NGOs, NRCS, Other Research Institutions, Private Landowners, SLB, Universities, USFS, USFWS, USGS, WAFWA	Begin by 2010	**See 21.1.1.1**	
3.4.3.8	Determine habitat loss thresholds for GrSG populations using spatially explicit landscape models (i.e., how much habitat is needed to sustain a population). **[See Research Strategy 21.1.1.1]**	BLM, CDA, CPW, Industry, LWGs, NGOs, NRCS, Other Research Institutions, Private Landowners, SLB, Universities, USFS, USFWS, USGS, WAFWA	Begin by 2010	**See 21.1.1.1**	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.4.3.9	Identify the appropriate mix of sagebrush habitats and seral stages necessary for sustainable GrSG populations, consistent with site capabilities. **[See Research Strategies 21.1.1.1 and 21.1.1.3]**	BLM, CDA, CPW, Industry, LWGs, NGOs, NRCS, Other Research Institutions, Private Landowners, SLB, Universities, USFS, USFWS	Begin by 2010/2012	**See 21.1.1.1**	
3.4.3.10	Determine the sufficient minimum habitat patch size for GrSG, as it relates to habitat fragmentation. **[See Research Strategy 21.1.1.1]**	BLM, CDA, CPW, Industry, LWGs, NGOs, NRCS, Other Research Institutions, Private Landowners, SLB, Universities, USFS, USFWS, USGS, WAFWA	Begin by 2010	**See 21.1.1.1**	
Issue 3.5	Communication				
Objective 3.5.1	Improve communication				
Reference Number	**Conservation Strategy**	**Responsible Parties**	**Timeline**	**Implementation**	**Effectiveness**
3.5.1.1	Develop a communication process to assist the energy industry to work with CDOW and LWGs in planning energy activity on non-federal surface-owned leases. **[See also Information, Communication, and Education Strategy 12.3.2.1]**	DNR, County Governments	2008	**Moffat**: monthly meetings with Shell Oil and "as needed" meetings with other operators.	
3.5.1.2	Present information and data about energy, mining, and GrSG so that it is readily understandable and accepted by stakeholders and the general public. **[See also Information, Communication, and Education Strategy 12.2.1.3]**	USFS, Industry, CPW, BLM	Ongoing	**BLM:** BLM presents current data in ongoing NEPA analysis and planning efforts that bridge GRSG habitat and threats discussion with proposed management actions. **CPW:** CPW researchers present research findings at LWG meetings and at CPW's semi-annual seminars for industry. All research projects have annual reports that are posted to the CPW public website. MP LWG has hosted 2 public presentation workshops over the last 4 years to update and educate landowners on current research and CPW activities concerning GrSG. **COGA:** Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.5.1.3	Share GrSG data among agencies, and with counties and industry to allow for better planning of mining and energy development, to minimize impacts to the species. Provide GrSG data to COGCC and DRMS to identify opportunities for coordination. Lek and telemetry data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management. [See also Information, Communication, and Education Strategy 12.3.2.2]	CPW	Ongoing	**BLM:** The public has opportunities to review and provide comments to all proposed energy & mineral leasing, development and conservation measures within RMP revisions (planning) during the BLM NEPA process. **CPW:** CPW routinely shares data with agencies, counties, and private entities. Lek and telemetry data are provided for development projects but are limited to the project area and require a non-disclosure agreement. CPW - DWMs, Land Use Specialists, biologists, Energy Liaison, research, and GIS coordinate efforts and data sharing. Annual LWG meetings update interested stakeholders with the most recent population counts, research findings, and GrSG related efforts on the ground. CPW has also provided information to COGCC in the HB 1298 rules that assist companies with oil and gas development planning.	
3.5.1.4	Share energy development plans with agencies ASAP to facilitate improved planning, analysis, and management of GrSG within sagebrush habitats, recognizing confidentiality sensitivities. Lek and telemetry data are considered sensitive information by CDOW. Limit data distribution to the extent necessary for effective management. [See also Information, Communication, and Education Strategy 12.3.2.2]	Industry	Ongoing	**COGA:** Yes, 3 of 6 operators surveyed, who hold a total of 35% of the permits in GrSG SWH and operate a total of 11% of the wells in GrSG SWH or RSO	
3.5.1.5	Encourage counties, LWGs, conservation and sportsmen's groups, and private landowners to be involved in COGCC meetings in order to comment on well pad spacing densities, reclamation standards, and comprehensive planning within GrSG habitats. [See also Information, Communication, and Education Strategies 12.2.2.1 and 12.3.2.3]	LWGs, CPW	Ongoing	**CPW:** CPW has no formal process for notification. CPW provides its own comments based on staff recommendations. CPW does not actively promote participation in these activities but does inform stakeholders when such activities are up-coming or directly related to their operational interests. **LWG: PPR LWG -** Discussions encouraging stakeholders to attend COGCC meetings have not been held. **NP and NWCO LWGs** - At this point, not involved. **NESR and MP LWGs** - Currently, oil and gas development is not issue.	
3.5.1.6	Encourage open communication among companies to entertain opportunities to reduce impacts and/or maximize benefits to GrSG, at the local and landscape levels. **[See also Information, Communication, and Education Strategy 12.3.2.3]**	Industry	Ongoing	**COGA:** Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	
3.5.1.7	Encourage oil, gas, and mining companies to participate on local GrSG work groups. **[See Information, Communication, and Education Strategy 12.3.2.1]**	CPW	2008 and ongoing	**CPW:** LWG meetings are open to all interested parties and oil, gas, and mining companies are encouraged to participate and some company staff are involved in LWGs. NP LWG - EOG was added to the North Park LWG mailing list and invited them to be involved. NESR LWG - Gravel companies have been involved. PPR LWG - a number of oil and gas companies are active in the LWG (EnCana, Williams, Barrett, and others).	**CPW:** A variety of companies' staff participate in LWGs.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.5.1.8	Promote regular communication and continual coordination among agencies, industry, LWGs, and counties to improve energy and mineral-related planning and management of GrSG. **[See Information, Communication, and Education Strategy 12.3.2.3]**	Industry	2008	**CPW:** CPW conducts semi-annual seminars for industry to foster communications between entities. Additional formal and informal communications occur at annual meetings and site visits. CPW engages with oil and gas operators in long-range planning efforts by way of WMPs and long-range planning meetings. Annual LWG meetings are used to update interested stakeholders with the most recent population counts, research findings, and GrSG related efforts on the ground. CPW has coordinated with the NESR LWG and Routt County on issues relating to gravel pit proposals. **COGA:** Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	**CPW:** CPW is actively communicating and coordinating with industry (EnCana, Williams, Marathon, Shell, etc) regarding use of BMPs, and operational planning across their leases.
3.5.1.9	Promote and provide regular opportunities for public involvement to improve energy and mineral planning as it relates to management of GrSG and GrSG habitat. **[See also Information, Communication, and Education Strategy 12.2.2.1]**	LWGs, Industry, County Governments, BLM	Ongoing	**Moffat**: monthly Land Use Board meetings, monthly Planning Commission meetings, weekly County Commissioner meetings, all open to the public. **Jackson:** Active participation in North Park Sage Grouse Working Group, also open to the public. County representatives also hear from the public at a range of stakeholder meetings where GSG issues are discussed. **CPW:** CPW is active in public presentations on GrSG conservation efforts and energy development. LWGs provide opportunities for the public to be involved with mineral and energy development. LWG: NWCO LWG meets 2 to 3 times per year to share information and typically has guests present information on large scale issues (e.g.. BLM RMPs, transmission line EIS, etc), providing opportunity for stakeholders to be involved in GrSG conservation. PPR LWG - is open to public involvement and encourages public input. NESR LWG - Members of the NESR LWG participated in Routt County Commissioners meetings to discuss a proposed gravel pit in GrSG habitat. **COGA**: Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	**Moffat**: Members of the public attend every Land Use Board meeting when energy and sage grouse issues are considered. **CPW:** CPW invites industry and other stakeholders to participate in LWG meetings. CPW provides outreach to NGOs.
3.5.1.10	Communicate to affected publics the need to balance energy and mineral production with GrSG habitat and population requirements.	All Stakeholders	Ongoing	**CPW:** CPW conducts semi-annual seminars for industry to foster communications between entities. Additional formal and informal communications occur at annual meetings and site visits. The need to balance energy and mineral development with GrSG conservation is routine part of CPW interactions with stakeholders.	
3.5.1.11	Promptly and frequently update information related to energy and mineral development and GrSG to foster a better understanding of impacts to the species. **[See also Information, Communication, and Education Strategy 12.3.2.2]**	Industry, BLM	Ongoing	**BLM:** BLM regularly reviews and shares ongoing research from other states, such as recent research in WY relative to impacts of noise on SG. **CPW:** CPW routinely communicates and coordinates with the public regularly via the LWGs. CPW - DWMs, biologists, researchers and GIS update lek data as it becomes available. CPW research up-dates are routinely posted on CPW's public website. CPW includes recent research findings into BMP requests at on sites. MP LWG has hosted 2 public presentation workshops over the last 4 years to update and educate landowners on current research and CPW activities concerning GrSG. These presentations have included updates from research being conducted concerning interactions between GrSG and energy development. **COGA:** Yes, 1 of 6 operators surveyed, who hold a total of 25% of the permits in GrSG SWH and operate a total of 10% of the wells in GrSG SWH or RSO	**CPW:** CPW staff update grouse information annually, specifically lek maps.

Reference Number	Conservation Strategy	Responsible Parties	Timeline	Implementation	Effectiveness
3.5.1.12	Improve the understanding, sharing, and acceptance of research and modeling efforts regarding GrSG and mining/energy development. Ensure that current management, reclamation techniques, and appropriate BMPs are shared with contractors and consultants to improve on-the-ground implementation. [See also Information, Communication, and Education Strategies 12.3.1.1 and 12.3.2.2]	CPW	Ongoing	**CPW:** CPW conducts semi-annual research up-date seminars for industry where current findings. CPW meets at least annually with each energy company involved in a WMP to review progress, incorporate recent research findings, and develop future plans. CPW updates lek data annually. CPW routinely consults with contractors, consultants, and energy operators to promote the implementation of the most up-to-date management and reclamation techniques. MP LWG has hosted 2 public presentation workshops over the last 4 years to update and educate landowners on current research and CPW activities concerning GrSG. These presentations have included updates from research being conducted concerning interactions between GrSG and energy development.	