

Appendix E

Best Management Practices

Best Management Practices (BMPs) and Applicable BLM Standards and Guidelines

It is BLM's responsibility to work with Operators to reduce impacts to resources within the Monument in accordance with the laws, regulations and the Proclamation. A variety of stipulations, Best Management Practices (BMP), Conditions Of Approval (COA), and mitigation measures are necessary to meet this responsibility. The specifics of how these tools are used may vary according to site conditions and potential impacts. For specific BMPs tied to Oil and Gas exploration and development, the Gold Book should be referenced (BLM 2006, Fourth Edition available online at www.blm.gov).

Best Management Practices (BMP) are innovative, dynamic, and feasible mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. BMPs are applied to management actions to aid in achieving desired outcomes for safe, environmentally sound resource development by preventing, minimizing, or mitigating adverse impacts and reducing conflicts. For each proposed action, a number of BMPs may be applied as necessary to mitigate expected impacts. The following lists BMPs that may be applied to mitigate impacts of various activities authorized on BLM lands. This list is not all inclusive and may be modified over time as conditions change and new practices are identified.

Environmental Best Management Practices

1. Avoid permanent visible scars such as canyon rim-rock cutting.
2. Identify and map important viewsheds within the Monument with greater detail to assess project-specific visual effects and to guide the future development of energy resources.
3. Paint all aboveground facilities, including power boxes, building doors, roofs, and/or any visible equipment a color that best allows the facility to blend into the background (color(s) would be selected from the latest national color chart).
4. Design and construct all new routes to a safe and appropriate standard that is "no higher than necessary" in order to accommodate intended vehicular use. Routes would follow the contour of the land, where practical.
5. Minimize the use of traffic, regulatory and site identification signs. All sign backs and posts should be painted a flat, non-reflective dark brown color approved by BLM representative.
6. Recontour all disturbed areas, including access roads, to the original contour or to a contour that blends with the surrounding topography and revegetate all disturbed areas as part of final reclamation.
7. The design of vegetation management associated with linear features such as pipelines, routes, and powerline rights-of-ways should result in natural appearing plant assemblages including natural appearing edges, textures, and colors to reduce contrast with the overall natural landscape character. To minimize ground disturbance, plant removal may, in some cases, be limited to above ground material. Vertical mulch, rocks, and large woody debris may be used to recreate texture. All permanent structures (on site for more than 6 months) will be colored a flat, non-reflective, earth tone color that

matches surrounding summer vegetation or rock. A BLM representative will approve colors.

8. Install raptor perch avoidance devices on all new powerlines and on all existing powerlines that present a potential hazard to raptors.
9. Large scale permanent industrial facilities such as compressor stations should employ landscaping and grade landform to better blend site developments into the surrounding landscape and reduce the industrial appearance of these facilities.
10. Fencing should be limited to typical wire range fencing using wood or painted "T" posts. If other fencing is needed (such as chain link), this should be vinyl clad or painted a flat non-reflective color as approved by BLM representative.

General Construction Activities

1. Limit construction in riparian areas and in wetlands. Avoid locating new concentrated-use sites in these areas.
2. Avoid crossing streams, wetlands, and/or riparian areas during the construction of infrastructure (including pipelines, routes, power lines, etc.) to the extent practicable. In the event that a wetland or a riparian area must be crossed or disturbed, additional (site-specific) mitigation would be required. The mitigation measures would be identified by a hydrologist, riparian ecologist, road engineer, and/or other specialist, as appropriate, and would address long-term wetland function.
3. When construction is necessary, routes and infrastructure within riparian areas should not directly parallel the stream channel.
4. Maintain or restore at least 80 percent of potential groundcover within 100 feet from the edges of all perennial streams, lakes, and/or other bodies of water. Maintain or restore at least 80 percent of potential groundcover to the outer margin of the riparian ecosystem, where it is wider than 100 feet.
5. Locate drilling mud pits outside active floodplains, unless alternate locations are more environmentally damaging. If location is unavoidable, seal and dike all pits in order to prevent leakage.
6. All crossings of wetlands and/or of other waters of the U.S. should comply with the appropriate United States Army Corps of Engineers (USACE) regulations (for example, Nationwide Permits 12 and 14). If potential effects exceed the limits of the nationwide permits (NWP), then individual permits (IPs) must be obtained.
7. Develop site-specific mitigation plans during the application for permit to drill (APD) plan of development or Sundry Notice approval process for all proposed disturbance to wetlands and/or to riparian areas.
8. Avoid, when possible, using heavy equipment in areas that are easily compacted and/or susceptible to soil rutting and/or surface water accumulations.
9. Keep heavy equipment out of streams, swales, and lakes, except when crossing at designated points, building crossings, or when completing restoration work; or when such bodies of water are protected by at least 1 foot of packed snow or 2 inches of frozen soil. Keep heavy equipment out of streams during fish spawning, incubation,

- and/or emergence periods. Do not disrupt water supply or drainage patterns flowing into wetlands.
10. Do not excavate material from, or store excavated material in, any stream, swale, lake, or wetland.
 11. Implement construction practices that do not encroach on fills and limit sedimentation into streams, swales, lakes, and/or wetlands.
 12. Prohibit the depositing of soil material from drilling, processing, and/or site preparation into natural drainages.
 13. Locate the lower edge of disturbed and/or deposited soil banks outside of active floodplains.
 14. Locate mineral removal activities away from the waters edge or to outside of the riparian area.
 15. Begin reclamation of disturbed wetlands and/or riparian areas (or replacement, if necessary) immediately after project activities are complete.
 16. Limit construction of well pads, routes, and/or pipelines on slopes greater than 30 percent.
 17. Retain stabilizing vegetation on unstable soils. Avoid new route construction and/or heavy equipment use on unstable or highly erodible soils.
 18. Avoid disturbance of unstable stream banks and/or of headwall areas.
 19. Minimize erosion at sites located in steep terrain during the construction phase by measures such as contouring, water bars, temporary ditches, and or/ detention basins, and minimize the period of disturbance.
 20. Key sediment traps into the ground and maintain them regularly in order to ensure proper function. Deposit removed sediment in an appropriate location, such as a stable, gentle, upland site, and revegetate, if applicable.
 21. Implement BMPs in order to slow or reduce the flow of surface-water runoff across disturbed areas, including the diversion of surface runoff around facilities and/or the installation of erosion-control devices in order to prevent sedimentation of nearby water bodies.
 22. Maintain routes, as needed, in order to keep the route surface drained during thaws and/or breakups during winter operations. Perform snow removal in a manner that protects the route and other adjacent resources. Do not use riparian areas, wetlands, or streams for snow storage or disposal. Remove snow berms where they would result in accumulation or concentration of snowmelt runoff on the route or erodible fill slopes. Install snow berms where such placement would preclude concentration of snowmelt runoff and would serve to rapidly dissipate melt water.
 23. Close routes, pads, and/or drill sites that are found to no longer be meeting BLM management objectives, and decommission them, as appropriate. Decommissioning may include: blocking the route's entrance, recontouring the disturbed surface and side slopes, revegetating disturbed surfaces, removing culverts and/or other material drainage structures and crossings, and restoring stream channels and natural flow paths. Disturbed and/or exposed surfaces should be revegetated to a minimum of 80 percent of potential groundcover following the first year of closure.

24. Prepare a Stormwater Management Plan for all construction sites, as required by law, statute, regulation, permit, and/or policy.
25. Route surface runoff from well pads into reserve pits, where appropriate.

Routes and Crossings

NOTE: For the general purpose of this PRMP/FEIS, the use of the word “road” in the DRMP/DEIS has been changed to “route”. As per BLM Instruction Memorandum No. 2008-014, the definition of a route is “a group or set of roads, trails and primitive roads that represent less than 100% (excludes non-designated routes) of the BLM transportation system”. In general, components of the transportation system are described as “routes”. All designated routes within the Monument are identified on the attached transportation map. Travel off a designated route is considered “cross-country” or “off-road”. County improved routes are still referred to as roads.

1. Routes should be constructed to the minimum dimensions needed in order to function properly, and should roll with the terrain, when possible, in order to minimize excavation and reduce surface runoff.
2. Renovate existing routes, as a preferred BMP, rather than construct new routes, where such renovations would sufficiently reduce environmental impacts as compared with new construction.
3. Evaluate placing seasonal restrictions on public vehicular access where there are wildlife conflicts or route damage/maintenance issues.
4. Renovate/reconstruct routes in order to reduce erosion and improve drainage. Such practices may include resurfacing; crowning or outsloping of the route prism; revegetating cut and fill slopes and ditchlines; and/or replacing undersized, deteriorating, and/or damaged crossings.
5. Establish vegetation groundcover on disturbed areas (excluding running surface) to at least 60 percent of potential within two years. On low productivity sites, establish to at least 4 percent of potential groundcover.
6. Grade routes at 2 to 10 percent, with a maximum grade of 15 percent, when possible. Steeper grades may be considered where they would result in lesser environmental impact. Avoid grades of less than 2 percent.
7. Conduct route construction activities during dry or frozen soil conditions, as practicable.
8. Consider using drain dips and/or water bars on routes that have gradients of less than 10 percent, and avoid dips on route gradients of over 10 percent.
9. Install cross drains to disperse runoff into filter strips and minimize connected disturbance areas. Make cuts, fills and route surfaces strongly resistant to erosion between each stream crossing and at least the nearest cross drain. Revegetate using certified local native plants as practicable; avoid persistent or invasive exotic plants.
10. Revegetate all disturbed surfaces using certified local native plants, where practicable.
11. Use dust control measures, as needed, in order to minimize the production of fugitive dust during the construction phase. Dust control measures used during the production phase would be assessed on a site-specific basis, and implemented as needed.

12. Design route ditches and crossdrains in order to limit flow to ditch capacity and to prevent ditch erosion and failure.
13. Design placement of all crossdrains in a manner that avoids discharge onto erodible and/or unprotected slopes, including slumps, side-cast fills, and headwalls, and that avoids discharge directly into stream channels. Provide a buffer or sediment basin between the crossdrain outlet and stream channels, where needed. Stabilize the route surface between crossdrains in order to limit erosion and sediment entering surface runoff.
14. Provide energy dissipaters (i.e., rock weirs) at culvert outlets and/or drain dips where water is discharged onto loose and/or erodible material.
15. Install road-grade culverts in areas of excessive runoff and follow construction BMPs in order to minimize runoff and erosion.
16. Space crossdrains according to route grade and soil type, as indicated below. Do not divert water from one stream to another.

Maximum Cross-Drain Spacing in Feet, Based on Soil Types				
Route Grade (%)	ML, SM Extra Erodible Silts-Sands with Little or No Binder	MH, SC, CL Highly Erodible Silts-Sands with Moderate Binder	SW, SP, GM, GC Moderately Erodible Gravels, Plus Fines and Sands with Little or No Fines	GW, GP Low Erodible Gravels with Little or No Fines
1 - 3	600	1000	1000	1000
4 - 6	300	540	680	1000
7 - 9	200	360	450	670
10 - 12	150	270	340	510
13 - 15	120	220	270	410

Note: These maximum spacing guidelines should be reduced, if warranted, by onsite factors such as expected route use, downslope stability, erosion hazards, and/or filter strip capability in order to trap runoff and sediment and to conserve ground cover integrity given the extra water. Combine these spacing guidelines with additional measures in order to minimize damage to ditches, slopes, and/or streams. For example, shorten or extend the spacing, where needed, in order to move a crossdrain outlet from a stream headwall to a convex slope.

17. Install stream crossings to meet Corps of Engineers and State permit requirements, pass normal flows, and be armored to withstand design flows.
18. Consider the natural width-to-depth ratio of the stream when constructing, renovating, and/or replacing channel crossings.
19. Design culverts and/or bridges in a manner designed to not inhibit the natural passage of debris and/or materials downstream, under typical conditions.
20. Install, where practicable, stream crossings on straight and resilient stream reaches, as perpendicular to flow as practicable, and provide for the passage of fish and other aquatic life, where present.
21. Locate culverts or drainage dips in such a manner to avoid outflows onto unstable terrain such as slumps, side-cast fills, and headwalls. Provide adequate drainage features along a route prism to avoid accumulation of water in ditches or surfaces.

22. Discontinue heavy equipment use when soil compaction, rutting, and puddling are present.
23. Minimize the time and area of disturbance for route and pipeline at surface water crossings.
24. Keep routes out of wetlands unless there is no other practicable alternative. If routes must enter wetlands, use bridges or raised prisms with permeable fill to sustain flow patterns.
25. Set crossings bottoms at natural levels of channel beds and wet meadow surfaces. Avoid actions that may dewater or reduce water budgets in wetlands.
26. When practicable, keep buried utility and pipelines out of wetlands. If such a line must enter a wetland, use measures that sustain long-term wetland function.

Livestock Management

1. Design grazing management systems that require a minimum investment in range improvements, but that will meet grazing and management objectives.
2. Provide rest from grazing in order to allow for the establishment of vegetation in rehabilitated areas. Install cattle guards and fences, as needed, in order to control livestock movement into these areas.
3. Manage livestock use through control of timing, intensity, and duration/frequency of use in riparian areas and wetlands in order to maintain or improve long-term stream health. Exclude livestock from riparian areas and wetlands that are not meeting, or moving towards meeting, desired condition objectives or where monitoring information shows continued livestock grazing would prevent attainment of those objectives.
4. Monitor livestock use and resulting levels of utilization in order to determine the proper carrying capacity of allotments.
5. Locate and store stock tanks, salt supplements, and similar features out of riparian areas and/or wetlands. Keep stock driveways out of riparian areas, except to cross at designated points. Armor water gaps and designated stock crossings, where needed and as feasible.
6. Do not allow livestock to graze an entire growing season in pastures that contain riparian areas and/or wetlands. Apply short-duration grazing, as practicable (generally less than 20 days). During warm weather, manage livestock herds in a manner that avoids their concentration in riparian areas and/or wetlands.
7. Design grazing systems to limit utilization of woody species, especially in riparian areas. Where woody species have been historically suppressed, or where the plant community is below its desired condition and livestock are a key contributing factor, manage livestock through control of time/timing, intensity, and duration/frequency of use, to allow for riparian hardwood growth extension and reproduction.
8. Consider, when timing livestock moves between units, the degree of livestock trampling and riparian vegetation utilization on or immediately adjacent to stream banks. Strive to maintain the extent of stable banks in stream reaches at 74 percent or more of reference conditions.

9. Manage pastures in order to minimize soil compaction and restore soil structure, especially in riparian areas and wetlands. Increase productivity of these sites through mechanical treatment and/or through seeding with native species or well-adapted and desirable introduced species.
10. Emphasize natural stabilization processes consistent with the stream type and capability (Rosgen and Proper Functioning Condition processes) when restoring damaged streambanks. Use native vegetation for streambank stabilization, where practicable.
11. Minimize grazing conflicts with recreation activities by limiting use levels and season of use, providing fences designed to exclude livestock from high-use areas, and siting water sources and/or other facilities away from recreation-use areas.
12. Fence specific archaeological sites, as necessary. Continue to perform site-specific clearance on range improvements projects.

Fire Management

1. Maintain organic groundcover, where possible, in order to minimize the formation of pedestals, rills, and/or surface runoff.
2. Do not build firelines in or around wetlands, unless they are needed to protect life, property, and/or wetland resources. Use natural features as preferred firebreaks over constructed firelines. When possible, use hand crews to construct firelines within, or adjacent to, wetlands and/or riparian areas.
3. Retain organic groundcover in filter strips during prescribed fires. As a firebreak, build firelines outside filter strips, unless tied into a stream, lake, and/or wetlands.
4. Build firelines with rolling grades and minimum downhill convergence, where practicable. Outslope or backblade, permanently drain, and revegetate firelines shortly after the burn. Use certified local native plants, where practicable, to revegetate burned areas.
5. Conduct prescribed fires in a manner that minimizes the residence time on the soil while, at the same time, conducting them in a manner that meets the burn objectives (such as when soils are moist).
6. Locate temporary labor, spike, logging, and/or fire camps in a manner that protects surface and subsurface water resources. Consideration should be given to the disposal of human waste, wastewater, garbage, and/or other solid wastes.

Noxious Weed Management

1. Inspect and clean off-road motorized equipment of all soil, plant, and/or other organic materials before entering into relatively weed-free areas. In areas of heavy noxious weed infestations, equipment must be cleaned prior to leaving the area.
2. Include monitoring provisions for reclamation, revegetation, and post-reclamation in all soil-disturbing project proposals.
3. Seed all disturbed soil (except traveled roadways) upon work completion at each site, unless ongoing disturbance at the site would prevent seed establishment, for all construction, reconstruction, and/or maintenance activities. In the case of continued disturbance, seed upon completion of final disturbance. Seed mixes must be approved by the Authorized Officer. Seed must be certified weed-free and/or analyzed (as deemed

appropriate by the Authorized Officer) before purchase in order to ensure minimum weed content.

4. Use weed-free sources for gravel and fill to be placed in relatively weed-free areas, as approved by the Authorized Officer.
5. All pack and/or saddle stock feed and straw brought into the Monument must be certified weed-free.
6. Time pasture rotations in order to prevent livestock movement from infested to non-infested pastures.
7. Use broadcast burning, where appropriate, rather than dozer piles, during prescribed fire operations in order to prevent excessive heat transfer to the soil.
8. Resource Coordinators on Incident Overhead Teams and Fire Rehabilitation Teams will consider weed-risk factors and weed-prevention measures in developing resource protection recommendations.
9. Do not allow bare-ground treatments around oil and gas and/or pipeline production facilities during the 12-month period prior to abandonment.

Mineral Operations

All BMPs established within the BLM Gold Book will be incorporated to reduce impacts to the natural landscape character. This list also incorporates the Director's program evaluation (IM 2008-176) BMPs. Allowances and consideration for human health and property safety must be included in every instance of application of BMPs.

Planning:

1. Require Geographic Area Development Plans (GADPs), sometimes called Master Development Plans (MDPs). Require pre-permitting meetings with the BLM, proper construction techniques, the maintenance of production facilities, and full-site reclamation at the final abandonment stage for all mining and energy operations.
2. Conduct route/pipeline transportation network planning

Set up and Operations:

3. Bury all powerlines and flow lines in the planned surface disturbance of the access routes.
4. Centralize production facilities to avoid tanks and associated facilities on each well pad.
5. Evaluate and implement as mitigation the use of multiple wells from a single well pad.
6. Utilize to the maximum extent possible, common utility corridors and/or rights-of-way.
7. Final reclamation will involve recontouring of all disturbed areas, including access routes, to the original contour or a contour that blends with the surrounding topography, and revegetating all disturbed areas.
8. Install outfall structures/materials to reduce erosion at culvert, major water-dips, and wing-ditch outlets.

9. Control of noxious weeds by (a) prompt initiation of reclamation, (b) use of weed-free materials, (c) washing vehicles/equipment when moving to other locations when appropriate, and (d) integrated pest management.
10. Minimize well pad size.
11. Co-locate/directionally drill multiple wells from a single location.
12. Centralize tank batteries and above-ground facilities.
13. Recontour sites for final reclamation to the original contour or a contour which blends seamlessly with the surrounding topography.
14. Use irregular shapes for well pads to minimize cut/fill.
15. Use appropriate construction equipment for location/action.
16. Segregate topsoil stockpiles from other spoils, protect from wind/water erosion.
17. Maintain 2 foot freeboard in reserve pits.
18. Use closed-loop drilling system or line reserve pits.
19. Fence reserve pits.
20. Keep reserve pits free from surface accumulations of hydrocarbons.
21. Routinely check secondary containment/drip pans for hydrocarbon accumulations and remove contaminants.
22. Remove/cut pit liners prior to pit reclamation.

Visuals:

23. Avoid placement of production facilities on hilltops and ridgelines where they are highly visible.
24. Screen facilities from view whenever possible and especially in high scenic areas.
25. Because energy facilities within the Monument may be sited within the visual foreground of sensitive visitor travelways, a program of accelerated restoration of landform and plant cover should be applied to projects within foreground views of High Sensitivity KOPs (Key Observation Points), such as routes, trailheads, etc. Accelerated reclamation may include irrigation, placement of large woody debris, and lithic mulch. The goal of accelerated restoration is to achieve the VRM Class within 5 years.
26. Minimize the height of the pumping unit where possible to be at or below the predominant tree height. Use motionless pumpjacks where possible (Rotaflex Pumping Units). Design well pad and facilities with scalloped edges in wooded areas, and avoid high wall cuts.

27. At energy sites, install the minimum lighting needed and use light sensitive, motion activated lighting systems that are illuminated only when needed for security or maintenance. Light fixtures should be hooded to prevent horizontal and upward light pollution.
28. Interim reclamation of the well and access route will begin as soon as practicable after the well is placed on production. Facilities will be grouped to allow for maximum interim reclamation. Interim reclamation will include route cuts and fills and will extend to within close proximity of the wellhead and production facilities.
29. All above ground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background.
30. Evaluate and analyze during the site-specific NEPA process, the use of submersible pumps, especially in VRM Class I, II or III areas or any area visible by the visiting public.
31. Evaluate and analyze during the site-specific NEPA process, placing wellheads below ground in high visibility areas.
32. Reduce Impacts on visual resources from activities by: repeating elements of form, line, color, and texture found in the landscape; considering visual elements in the location of routes and well pads, and the selection of structures; reducing unnecessary disturbances; and by reclaiming and restoring abandoned sites.

Routes:

33. Design and construct all new routes to a safe and appropriate standard, "no higher than necessary" to accommodate intended vehicular use. Routes will follow the contour of the land where practical.
34. Use existing routes and/or eliminate redundant routes.
35. Apply primitive/'lowest safe' route designs, where possible.
36. Use remote well monitoring/automation/telemetry to reduce traffic.
37. Use dust suppression on access routes.

Wildlife:

38. Install raptor perch avoidance devices on all new powerlines and existing lines that present a potential hazard to raptors.
39. Utilize noise reduction techniques and designs to reduce noise from compressors or other motorized equipment.
40. Evaluate and analyze during the site-specific NEPA process, placing seasonal restrictions on public vehicular access where there are wildlife conflict or route damage/maintenance issues.

41. Minimize wildlife habitat fragmentation by mining operations by: minimizing the number and extent of routes, utilities and well pads; drilling multiple wells from a single pad; mitigating hazards to wildlife; reducing noise in sensitive areas; monitoring production facilities remotely; and conducting intermediate and full reclamations.
42. Use remote well monitoring-automation telemetry to reduce traffic and associated impacts to wildlife. This would also reduce particulate matter from fugitive dust and vehicle emissions.
43. Eliminate hazards to wildlife such as open pits, tanks, and drip pans.
44. Conduct interim reclamation as close to the well head as is operationally safe.
45. Use centralize/remote frac'ing and drilling water delivery.
46. Cover/fence/net tanks or pits accessible by wildlife.

Spills:

47. Conduct routine inspections of facilities, pipelines, and/or well sites in order to evaluate whether or not there are spills and/or leaks; take corrective actions, as appropriate.
48. Install a secondary containment around oil/water storage facilities, load-out valves, etc.
49. Require operations to develop and implement Spill Prevention Control and Countermeasure (SPCC) and emergency response plans in order to prevent, contain, and/or remediate spills. Workers should also be well trained in the implementation of these plans.
50. Use non-toxic, non-hazardous drilling fluids, when practicable.
51. Employ proper handling, labeling, storage, and disposition of hazardous chemicals/materials.
52. Report spills and appropriate clean-up actions taken, in accordance with applicable State and Federal laws, rules, and regulations. Remove contaminated soil and/or other material from the Monument and dispose of it, in accordance with applicable State and Federal laws, rules, and regulations.
53. Promptly plug and retire non-productive wells, and associated flowlines and equipment, in order to avoid leaks, breaks, and/or subsequent spills.
54. Bioremediate all oil field wastes and spills immediately.

Wildlife Management

In addition to the BMPs listed above under specific topics, the following BMPs are based on the latest information for protecting sensitive wildlife species. Changes have occurred since the DRMP was released and will continue as new information is obtained on the various species. Therefore, recommendations for protecting wildlife both in Table 2.2 and here as BMPs will need to be analyzed and updated during the NEPA process for site-specific projects.

Mexican Spotted Owls(MSO):

1. Implement recovery actions as described in the Mexican Spotted Owl Final Recovery Plan (USFWS 1995).

2. If an owl is located, work with the U.S. Fish and Wildlife Service (USFWS) to identify a protected activity center (PAC).
3. Constructed improvements (i.e., routes, trails, fences, livestock tanks, corrals, etc.) should not occur in protected activity centers (PACs) unless the improvement protects or improves Mexican Spotted Owl habitat.
4. Management activities (other than livestock grazing) in PACs, occupied habitat and unsurveyed suitable habitat should avoid the MSO breeding season (March 1 through August 31).
5. Within MSO canyon habitats (as defined in the recovery plan), trees greater than 9-inches dbh should not be removed unless the project is designed to protect or improve MSO habitat conditions.
6. Within "restricted" habitats (as defined in the recovery plan), management priority should be placed on reducing risks to MSO habitat and/or improving conditions for MSO prey. Wildland fire use should be encouraged.
7. Livestock grazing should maintain suitable habitat conditions for MSO (see MSO Recovery Plan).
8. The presence and intensity of recreational activities within PACs, occupied habitat and unsurveyed suitable habitat should be evaluated on a case-by-case basis. Restrictions may be implemented where impacts from recreational activities are a concern.
9. Permitted or ground-disturbing activities within a PAC, occupied habitat, or potential habitat, should be limited to mesa tops and rims to reduce impacts to canyon floors.
10. Prior to approving activity within a PAC, occupied, or within potential habitat surveys would be required using the protocol approved by USFWS.
11. If management actions such as tree removal, fuel reduction, or vegetation treatments are deemed critical to another resource value within the PAC, consult with USFWS to establish design criteria for these activities.

Southwestern Willow Flycatcher (SWWF):

1. Implement pertinent recovery actions as described in the Southwestern Willow Flycatcher Final Recovery Plan, as well as other actions prescribed with this consultation (USFWS 2002).
2. Establish baseline data for suitable habitat areas.
3. Where practicable and necessary to protect occupied habitat, fence suitable SWWF habitat to exclude livestock grazing
4. Location, size, shape, and spacing of flycatcher habitat must be mapped once every five years on BLM lands within the Upper Colorado recovery unit using the best GIS information available.
5. Within project areas, all SWWF patches must be field verified and designated as to their occupancy status through protocol surveys, (i.e., suitable-occupied, suitable-unoccupied, or suitable-unsurveyed).
6. SWWF protocol surveys must be conducted in suitable habitat (Table 4-17).
7. SWWF protocol surveys are conducted from May 15 through July 17.

8. If protocol surveys are not conducted in suitable habitat, then the habitat patch must be assumed to be occupied by SWWF. Livestock must be managed in accordance with the standards for an occupied site.
9. If/when previously unknown suitable SWWF habitat patches are discovered, protocol surveys for SWWF occupancy must be conducted.
10. Protocol surveys must be conducted for 2 consecutive years, or until SWWF are detected. If SWWF are detected, three years may lapse before the next 2-year protocol survey is initiated (Five Year Survey Rotation).
11. If SWWF are not detected during the 2 year protocol survey, five years may lapse before the next 2-year protocol survey is initiated (Seven Year Survey Rotation).
12. A report on the status of habitat, survey results, and monitoring of SWWF must be provided annually to the USFWS.
13. Regardless of SWWF occupancy status, public land health standards for upland and riparian areas must be monitored in suitable SWWF habitat every 5 years.
14. Regardless of SWWF occupancy status, rangeland and riparian health guidelines should be met in suitable SWWF habitat. If riparian health guidelines are not being met, then adaptive management strategies must be applied and an upward trend must be demonstrated by the end of the 5-year habitat monitoring period.
15. Manage riparian areas and vegetation to promote regeneration and/or recruitment of willow or other woody vegetation suitable for SWWF.
16. Tree and/or shrub removal within SWWF habitat should only be conducted to benefit the SWWF and/or its habitat.
17. Management activities in occupied or unsurveyed suitable SWWF habitat must occur outside the SWWF breeding season (May 15 through August 15), unless it is a necessary direct benefit to the SWWF and can be implemented without detriment to breeding success of the SWWF.
18. Current livestock management practices may continue while surveys are being conducted, as long as SWWF are not detected. If SWWF are detected, then livestock management practices must follow the guidelines for occupied habitat.
19. Protocol surveys are not required in closed grazing allotments.
20. Protocol surveys are not required in vacant grazing allotments, unless that allotment becomes active again.
21. Current livestock management practices can continue but periodic monitoring is still required (Table 4-17).
22. Livestock grazing must not be allowed in occupied habitat patches during the SWWF breeding season (May 15 through August 15). Methods for excluding livestock from occupied habitat could include the construction of temporary (i.e., electric) or permanent fencing, riding with intensive animal supervision, modification of pasture rotation schedules, and/or other adaptive measures.
23. Controlled livestock trailing may be allowed along existing stock driveways within occupied habitat during the nesting season.

24. If livestock cannot be excluded from occupied habitat patches or if SWWF are discovered in an active allotment then the USFWS must be contacted immediately. Mitigation/conservation measures would be developed jointly on a case-by-case basis. Temporary closure of occupied grazing pastures, or other conservation measures, may be required in order to protect SWWF and their habitat.
25. Current livestock grazing practices may continue during the time period(s) that protocol surveys are being conducted.

Project Type	Survey Requirements	When is a 5 year survey rotation applicable?	When is a 7 year survey rotation applicable?
Single Year Projects	Must be completed prior to project implementation	N/A	N/A
Multi-Year Projects	Must be completed prior to project implementation	When a project occurs in suitable occupied habitat	When a project occurs in suitable unoccupied habitat
Active Grazing Allotments	Surveys must be conducted during this ongoing activity	In suitable occupied habitat	In suitable unoccupied habitat
Vacant and Closed Allotments	N/A	N/A	N/A

General Wildlife:

1. The Proposed Plan would allow up to 880 acres of currently unleased lands to be leased for fluid mineral development. This acreage would be developed for drainage purposes only and would include appropriate NGD/NSO stipulations for protection of surface resources.
2. Projects should maintain habitat effectiveness for raptor species when conducting vegetation treatments. This may include habitat improvements and forest restoration.
3. No new structural improvements will be allowed within the buffers identified in the Table 4-16. Structural improvements include, but are not limited to: routes, all structures associated with oil and gas development, radio towers etc. Buffer distances for some species may vary based on site-specific information, current science and wildlife biologist's professional judgment.
4. Area closures to protect nesting raptors will be considered where appropriate. Table 4-18 identifies standards and guidelines for protecting raptors across the Monument. They are designed to protect birds during their nesting season and reduce human impact. Nesting season dates would not change, as these are based on raptor biology and local knowledge.

Table 4-18 Raptor Protection Standards and Guidelines				
Species	Impact/Risk	Time Frame	Buffer Distance	Reference
Golden Eagle	Disturbance	December 15- July 15	Human encroachment should not occur within ½ mile of nest during nesting season.	CDOW 2008
Golden Eagle	Structural Improvements	Year round	New structures will not occur within ¼ mile radius of active nest.	CDOW 2008
Bald Eagle	Disturbance	November 15- July 15	Human encroachment should not occur within ½ mile of nest during nesting season.	SJPL
Bald Eagle	Structural Improvements	Year round	New structures will not occur within ½ mile radius of active nest.	SJPL
Bald Eagle	Disturbance	November 15- March 15	Human encroachment should not occur within ¼ mile radius (indirect line of sight) or ½ mile radius (direct line of sight) of communal winter roost site. Limit activity between 1000 and 1400 hours if encroachment will occur within buffer zones.	CDOW 2008
Bald Eagle	Structural Improvements	Year round	New structures will not occur within ½ mile of communal roost site.	SJPL
Bald Eagle	Disturbance and Structural Improvements	Site specific, to be determined by the project Biologist	For preferred diurnal hunting perch.	CDOW 2008
Red-tailed Hawk	Disturbance	March 1- July 15	Human encroachment should not occur within 1/8 to ¼ mile of nest during nesting season. As determined by the project Biologist.	SJPL
Red-tailed Hawk	Structural Improvements	Year-round	New structures should not occur within ¼ mile radius of active nest.	SJPL
Peregrine Falcon	Disturbance	March 15 – July 31	Human encroachment should not occur within ½ mile of nest during nesting season.	CDOW 2008

Species	Impact/Risk	Time Frame	Buffer Distance	Reference
Peregrine Falcon	Structural Improvements	Year-round	New structures will not occur within ½ mile radius of active cliff nest complex.	CDOW 2008
Prairie Falcon	Disturbance	March 15 – July 15	Human encroachment should not occur within ½ mile of nest during nesting season.	CDOW 2008
Prairie Falcon	Structural Improvements	Year-round	New structures will not occur within ½ mile radius of active nest.	CDOW 2008
Burrowing Owl	Disturbance	April 1 – August 15	Human encroachment should not occur within 225 feet of nest burrows when owls may be present during nesting season.	SJPL

1. Avoid vegetation removal or treatment from mid-April to mid-July to protect nesting migratory birds and other wildlife;
2. Prepare a HMP for sensitive lizard species;
3. Restrict predator control by prohibiting APHIS from culling or shooting individual animals or destroying their dens, except when individual animals pose a safety risk to humans or for specific reasons, as agreed upon ahead of time;
4. Protection or improvement of habitat through:
 - the establishment of native grasses and forbs;
 - the maintenance or improvement of habitat;
 - the prohibition of ground-disturbance activities within 150 feet of bodies of water that support native amphibian breeding;
 - the consideration of habitat management for deer;
 - prescribed fires;
 - changes in livestock grazing;
 - the implementation of weed control and revegetation; and
 - the management of cheatgrass and other noxious weeds in vegetation communities that support sensitive reptiles and reestablishment of native vegetation.