

APPENDIX F:
PROPOSED CONSERVATION MEASURES
FOR OIL SHALE AND TAR SANDS LEASING AND DEVELOPMENT

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The following conservation measures were developed for the oil shale and tar sands program in consultations between the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS) (both in the U.S. Department of the Interior) to support the conservation of species listed under the Endangered Species Act (ESA), BLM-listed sensitive, and state-listed species, as well as those species that may be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. For purposes of this programmatic environmental impact statement (PEIS), these conservation measures are assumed to be generally consistent with existing conservation agreements, recovery plans, and completed consultations. It is the intent of the BLM and USFWS to ensure that the conservation measures presented here are consistent with those currently applied to other land management actions whose associated impacts are similar. However, it is presumed that potential impacts from the development alternatives described in this PEIS are likely to vary in scale and intensity when compared with the impacts associated with other land management actions (e.g., oil and gas exploration and production, surface mining, and underground mining). Hence, final conservation measures will be developed to be commensurate with the expected levels of impact on selected alternatives and to be consistent with agency policies. Current BLM guidance on similar actions (e.g., fluid mineral leasing) requires that the stipulation that is least restrictive yet effectively accomplishes the resource objectives or resource uses for a given alternative shall be used, while compliance with the ESA is maintained.

F.1 GENERAL CONSERVATION MEASURES

1. All post-lease activities will be required to comply with the ESA, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act.
2. Surveys will be required prior to operations, unless information on species occupancy and distribution in the area under consideration is complete and available. All surveys must be conducted by qualified individual(s) approved by the BLM. For bald and golden eagles, Mexican spotted owls, and other raptors, surveys shall be conducted up to 1 mi from the proposed disturbance to determine nest and roost status and will be conducted in accordance with existing guidelines. Surveys for listed plant and animal species will follow established protocols approved by the USFWS.
3. Lease activities, upon the start of their implementation, will require monitoring throughout the duration of the project. To ensure that the desired results are being achieved, mitigation measures will be evaluated, and, if necessary, Section 7 consultation will be reinitiated.

4. Water production will be managed to ensure the maintenance or enhancement of riparian habitat and surface water quality.
5. Loss of riparian and wetland habitats resulting from mining and in situ processing activities will be avoided where possible. Loss of riparian and wetland habitats resulting from activities associated with roads, pipelines, and other ancillary facilities will be minimized. Wetland and riparian habitats will be restored when it has not been possible to avoid impacts from facilities on them. Avoidance is particularly important when facilities are within or adjacent to designated critical habitat for listed species.
6. Transportation management plans will be developed in a manner that minimizes habitat fragmentation and destruction.

F.2 SPECIES-SPECIFIC CONSERVATION MEASURES

F.2.1 Colorado River Endangered Fishes: Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker

1. Within 0.5 mi of critical habitat, (a) all mining and drilling activities will be avoided and (b) surface disturbance and the removal of vegetation for roads, pipelines, water diversion and acquisition facilities, and other ancillary facilities will be minimized. When surface disturbance within 0.5 mi of critical habitat is needed to address any of the elements in item b, the BLM shall confer with the USFWS regarding minimizing potential impacts on critical habitat and/or endangered fish.
2. With regard to tributaries of major rivers that contain listed fish species or their designated critical habitat, no building of permanent structures, no drilling, and no mining will occur in the 100-year floodplains or riparian corridors that are within those rivers' zones of influence.
3. To avoid excessive stream sedimentation during the spawning period, construction activities (e.g., for roads, pipelines, utilities) will be avoided within critical habitat from April 1 through September 30 of any year.
4. The installation of water diversion structures that might pose a risk to Colorado River fishes or their critical habitat will be avoided (e.g., screens or baffles will be used to minimize entrainment or impingement). If water withdrawal or diversion structures are installed, they will have to incorporate 3/32-in. fish screens.
5. Pump intakes are prohibited from backwaters or off channel floodplain wetlands to minimize impacts on fish larvae.

6. The release of selenium into surface waters will be avoided, and, where possible, measures will be implemented to reduce selenium concentrations in the Upper Colorado River Basin. For example, (a) erosion in areas with selenium-rich soils (e.g., shale-derived soils) will be decreased, (b) adequate vegetative cover will be maintained on work areas where possible, (c) ephemeral stream flow will be controlled with water-spreading structures, (d) areas with selenium-rich soils will not be irrigated, and (e) causing impacts on selenium-rich soils on steep (>50%) slopes will be avoided. If selenium-rich slag/waste piles are created, they shall be isolated and located so this material does not reach critical habitat.
7. All new pipelines and other controlled surface uses that cross within 0.5 mi of critical habitat or areas that drain into critical habitat of the Colorado River fishes will adhere to the following stipulations:
 - a. Pipelines shall not be constructed in known spawning sites or backwaters.
 - b. No work in the active river channel will take place between July 1 and September 30 in order to avoid adverse effects from sedimentation during spawning and times when larval fishes are drifting in the river channel.
 - c. After construction, the streambed will be returned to preconstruction contours.
 - d. Pipelines transporting substances other than water will have automatic shut-off valves.
 - e. Pipelines transporting substances other than water will be double-walled wherever they cross the 100-year floodplain and river.
 - f. A spill/leak contingency plan will be developed prior to pipeline use.
8. The Utah Oil and Gas Pipeline Crossing Guidance (from the BLM National Science and Technology Center) will be implemented.
9. If water for project-related activities is obtained from any surface water source (stream, pond, etc.) or from any groundwater source that has a connection to surface water, the BLM will require that all water withdrawals undergo appropriate Section 7 consultation in accordance with procedures existing at the time of the proposed action. Currently, according to the Colorado River Recovery Program's Section 7 Agreement, new water depletions are handled as follows:
 - a. For average annual depletions that are more than 100 acre-ft but less than or equal to 4,500 acre-ft (i.e., the USFWS's current "sufficient progress" threshold), the applicant pays a one-time depletion fee (which is adjusted

annually to the consumer price index); the fiscal year (FY) 2012 rate is \$19.21/acre-ft.

- b. For average annual depletions that are more than 4,500 acre-ft, the applicant pays the depletion fee, and the BLM (acting on behalf of the applicant) and USFWS select (an) action(s) from the Colorado River Recovery Implementation Plan's Recovery Action Plan that must be completed before the impacts of the proposed action occur.
10. The following best management practices for in-stream work that is upstream from or near critical habitat will be carried out:
- a. Flows shall be allowed to bypass the construction activity at all times. Earthen dams and dewatering activities that will create fish barriers shall be avoided.
 - b. Hazardous fish habitats, such as isolated areas (i.e., ponds or puddles), shall not be created or shall be cleared by trained professionals with adequate permits.
 - c. Care shall be taken to minimize sedimentation inputs to the river that result from stream bed disturbance by storing excavated material outside the stream channel.
 - d. Best management practices shall be used to ensure construction-related by-products do not enter the riverine ecosystem and have negative effects on aquatic organisms.
 - e. Equipment shall be cleaned to remove noxious weeds, seeds, and petroleum products before it is moved on-site.
 - f. Machinery shall be fueled outside the ephemeral channel to prevent spillage into waterways.
 - g. Fill materials shall be free of waste, pollutants, and noxious weeds and seeds.
 - h. Excavated soils shall be sorted into mineral soils and topsoils. When a disturbed site is being backfilled, topsoils shall be placed on top to provide a seed bed for native plants. After construction, disturbed areas (work sites, ingress, egress, stockpile sites, pit) shall be revegetated with native plants or certified as weed-free native seed. The planting shall be monitored for success. If the planting fails, the soil shall be reseeded/planted.

F.2.2 Colorado River Cutthroat Trout

1. A buffer that is a minimum of 0.25-mi wide on both sides of occupied cutthroat trout streams and upstream tributaries will be maintained. The buffer will be extended beyond the 0.25-mi minimum in areas where slopes exceed 50%; it will extend out to where the land is relatively level. The idea is to keep any sediment from reaching occupied cutthroat trout reaches by ensuring that mining and drilling take place on flat ground in areas where these fish occur. Linear features, such as roads and pipelines, may be allowed within the buffer zones. Only a handful of known cutthroat trout populations occur in the oil shale and tar sands planning area, and these conservation measures will affect only a very small portion of the area proposed for leasing (5% or less).
2. No water will be withdrawn from waters occupied by Colorado River cutthroat trout.
3. Oil shale and tar sands activities will be consistent with the June 2006 *Conservation Agreement for Colorado River Cutthroat Trout* (*Oncorhynchus clarkia pleuriticus*) in the States of Colorado, Utah, and Wyoming (CRCT Conservation Team 2006).

F.2.3 Bald Eagle and Golden Eagle¹

1. A buffer of 1 mi from known bald eagle nests and 0.5 mi from golden eagle nests will be maintained year-round. This buffer can be reduced if topographic and/or vegetative buffers exist between the nest and the potentially disturbing activity. This avoidance requirement may be adjusted on the basis of a demonstration of nonoccupancy during the last 7 years. Any modification will be done in coordination with the USFWS.
2. A year-round avoidance requirement of 0.5 mi from known winter roost sites will be maintained. This buffer can be reduced if topographic and/or vegetation buffers exist between the roost and development activity. This avoidance requirement may be adjusted on the basis of a demonstration of

¹ Nesting and wintering dates can vary by location. Contact local USFWS office for dates specific to a given area. The USFWS issued updated regulations for take of bald and golden eagles and their nests under Title 50, Part 22, Sections 22.26 and 22.27 of the *Code of Federal Regulations* (50 CFR Part 22, §§ 22.26 and 22.27) to define “take” of an eagle to include actions such as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.” In 2009, the USFWS issued regulations (50 CFR 22.3) that define “disturb” as to “agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” Take of bald and golden eagles, including any disturbance defined above, would require a permit from the USFWS.

- nonoccupancy during the last 7 years. Any modification will be done in coordination with the USFWS.
3. Loss of or disturbance to riparian habitats containing cottonwoods, conifers, or other tree species that, when mature, may provide roost or nest trees for bald eagles will be avoided. Loss of any other riparian plant species (including box elders, willows, and river birch) will be minimized. The alteration or removal of cliff habitat in golden eagle nesting habitats will be avoided.
 4. The USFWS recommends that the BLM and contractors be informed of the risk or potential for vehicle collisions with wildlife (particularly eagles) in the project area and be requested to limit vehicle speed to reduce this potential. In addition, contractors shall move any big game carcasses found along project area roads away from the roadway by 30 ft (generally 60-ft-wide rights-of-way [ROWs]) to minimize potential vehicle collisions with eagles while they feed on roadside carrion. Moreover, in an additional effort to protect eagles, the BLM and contractors will coordinate with appropriate officials regarding any required removal of big game carcasses along county or state roads.
 5. To preclude eagles or other raptors from nesting on human-made structures, such as cell phone towers and condensate tanks, and to avoid impeding operation or maintenance activities, anti-perching devices will be installed on structures to discourage their use by eagles and other raptors.
 6. Electric lines will be buried wherever practicable, especially in areas heavily used by eagles. If power lines cannot be buried, they will be built so that they, at a minimum, meet the standards identified by the Avian Power Line Interaction Committee (2006) to decrease the potential for electrocution (see *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006*, http://www.eei.org/products_and_services/descriptions_and_access/suggested_pract.htm). Moreover, power lines will be built according to the additional specifications listed below. The project proponent shall ensure that these additional standards to minimize eagle deaths associated with electric utility distribution lines will be incorporated into the stipulations for all project actions. Note that the effectiveness of these measures in minimizing mortality varies; thus, the measures may be modified as they are tested in the field and laboratory. Local habitat conditions shall be considered in determining their use. The USFWS does not endorse any specific product that can be used to prevent and/or minimize mortality. The following recommendations shall be incorporated into the design plans for new distribution lines or when existing facilities are being modified.

For new distribution lines and facilities:

- a. Raptor-safe structures (e.g., with increased conductor-conductor spacing) that address adequate spacing for eagles (i.e., minimum of 60 in. for bald eagles) are to be used.
- b. Equipment installations (e.g., overhead service transformers, capacitors, reclosers) shall be made eagle-safe (e.g., by insulating the bushing conductor terminations and using covered jumper conductors).
- c. Jumper conductor installations (e.g., corner and tap structures) shall be made eagle-safe by using covered jumpers or providing adequate separation.
- d. Arrestor and cutout covers shall be employed when necessary.
- e. Lines shall avoid high-avian-use areas, such as wetlands, prairie dog towns, and grouse leks.

For modification of existing facilities:

- a. Problem structures that include dead ends, tap or junction poles, transformers, reclosers and capacitor banks, or other structures with less than 60 in. between conductors or a conductor and ground shall be identified and rectified.
- b. Exposed jumpers will be covered.
- c. Any pole-top ground wires will be capped.
- d. Grounded guy wires shall be isolated by installing an insulating link.
- e. On transformers, insulated bushing covers, covered jumpers, and cutout covers and arrestor covers shall be installed, if necessary.
- f. When bald eagle mortalities occur on existing lines and structures, bald eagle protection measures shall be applied (e.g., modify for raptor-safe construction, install safe perches or perching deterrents, install nesting platforms or nest-deterrent devices).
- g. In areas where mid-span collisions are a problem, install line-marking devices that have been proven effective. All transmission lines that span streams and rivers shall maintain proper spacing and have markers installed.
- h. If topographic issues or impacts on vegetative or wildlife resources have been identified at the construction site, poles will be moved

7. When communication towers are being constructed, refer to the USFWS *Guidance on the Siting, Construction, Operation, and Decommissioning of Communication Towers*, found at <http://www.fws.gov/migratorybirds/currentbirdissues/hazards/towers/comtow.html>.

F.2.4 Mexican Spotted Owl²

1. Within the range of the Mexican spotted owl, surface disturbance will be avoided wherever suitable nesting habitat for the species occurs (steep-walled, rocky canyons, typically with a closed canopy of mature, mixed coniferous forest) (USFWS 1995, *Recovery Plan for the Mexican Spotted Owl*, particularly Table III.B.1). (The range of the Mexican spotted owl that was published in the recovery plan shall be extended to include the individuals observed within Dinosaur National Monument.)
2. In areas in which Mexican spotted owl habitat has not been analyzed, the BLM will assess and map the potential habitat for this species by using established protocols prior to leasing of mineral rights for oil shale and tar sands. This mapping effort will be a broad-based approach, from which more specific and intensified habitat analyses could be initiated. The BLM will notify prospective bidders of the presence of Mexican spotted owl habitat and the need for special considerations for managing this species.
3. Where possible, field surveys for the Mexican spotted owl will be conducted in areas of suitable habitat. The surveys shall follow established USFWS protocols. This information will increase the knowledge base on the distribution and status of Mexican spotted owls throughout areas with oil shale and tar sands potential in Utah and Colorado. Field surveys will emphasize areas that have not been previously or recently surveyed. Areas of particular interest include the southern Book Cliffs and areas surrounding Dinosaur National Monument.
4. Once leases are issued, a more in-depth analysis of Mexican spotted owl habitat will be required in areas where leases overlap with potential habitat for the species. The habitat needs to be assessed for both nesting and foraging by using accepted habitat models in conjunction with field reviews. If the habitat is determined to be suitable, management considerations shall include the avoidance of suitable habitat by at least 0.5 mi. If avoidance is not possible, then, unless species occupancy and distribution information is complete and available, site-specific surveys will be needed to determine occupancy.
5. Apply the conservation measures below if project activities occur within 0.5 mi of suitable owl habitat:

² Contact local USFWS office for breeding season dates specific to a given area.

- a. Determine the potential effects of actions on owls and their habitat.
 - b. Document the type of activity, the acreage and locations of direct habitat impacts, and the type and extent of indirect impacts relative to the location of suitable owl habitat.
 - c. Document if the action is temporary or permanent. A temporary action is one that is completed prior to the following breeding season, leaves no permanent structures, and results in no permanent habitat loss. A permanent action is one that continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances (such as the creation of a permanent structure).
6. For all temporary actions that may impact owls or suitable habitat:
- a. If the action will occur entirely outside the owl breeding season (e.g., March 1 to August 31 in Utah) and leaves no permanent structure or permanent habitat disturbance, the action can proceed without the need for an occupancy survey.
 - b. If the action will occur during a breeding season, a survey for owls shall be performed before the activity commences. If owls are found, the action must be delayed until it occurs outside the breeding season.
 - c. Access routes created by the project shall be rehabilitated through measures such as raking out scars, revegetation, and gating access points.
7. For all permanent actions that may impact owls or suitable habitat:
- a. For 2 consecutive years before activities commence, a survey for owls will be conducted according to an accepted protocol.
 - b. If owls are found, no actions will occur within 0.5 mi of any identified nest site. If the nest site is unknown, no activity will occur within the designated protected activity center.
 - c. Drilling and the establishment of permanent structures within 0.5 mi of a location with suitable habitat will be avoided, unless the location has been surveyed and found to not be occupied.
 - d. Noise will be reduced (e.g., by using hospital-grade mufflers) to 45 dBA at 0.5 mi from suitable habitat, including canyon rims. The placement of permanent noise-generating facilities shall be determined by a noise analysis to ensure that noise does not encroach upon a 0.5-mi buffer for suitable habitat, including canyon rims.

- e. Disturbances to and within suitable habitat will be limited by staying on approved routes.
 - f. The number of new access routes created by the project will be limited.
8. Surface disturbance (e.g., facilities, roads, pipelines) and vegetation removal will be avoided within designated critical habitat and locations where any of the primary constituent elements are present at the project scale.

F.2.5 Southwestern Willow Flycatcher

1. All potential habitats for southwestern willow flycatcher within prospective lease areas will be identified prior to leasing for oil shale and tar sands exploration and development. The BLM will notify prospective bidders of the presence of flycatcher habitat and the need for special considerations for managing this species.
2. Surveys for the southwestern willow flycatcher shall be conducted in project areas near suitable habitat for the species and in project areas potentially occupied by the species.
3. Project activities will maintain a 300-ft buffer from suitable riparian habitat all year long.
4. Project activities within 0.25 mi of occupied breeding habitat will not occur during the breeding season of May 1 to August 15.
5. The USFWS recommends that post-activity surveys for southwestern willow flycatchers be conducted for any project or mitigation areas authorized by the BLM. Surveys must be conducted by individuals who have been properly trained in the approved survey protocol. Surveyors must be familiar with and adhere to the general survey techniques and guidelines found in Sogge et al. (2010). Surveyors must complete flycatcher survey training prior to being permitted to conduct surveys. All reporting requirements must be followed.
6. For projects that may alter or destroy habitat and are located in or near occupied, suitable, potentially suitable, or potential habitat, the USFWS recommends using fences instead of flags to delineate the project area. Fencing is more visible to construction workers and more clearly demarcates the construction zone.
7. If nest parasitism is monitored, when flycatcher nest parasitism exceeds 10% of surveyed nests, the USFWS will be consulted with regard to implementing any measures to reduce parasitism rates.

F.2.6 Black-Footed Ferret

1. Prior to leasing for oil shale or tar sands exploration or development, prairie dog towns that could potentially be occupied by black-footed ferrets or are within 1 mi of prairie dog towns that are occupied by black-footed ferrets shall be surveyed and mapped by qualified individuals approved by the BLM before surface-disturbing activities are conducted. Surveys shall be in accordance with the 1989 *Black-Footed Ferret Survey Guidelines* (USFWS 1989) or with other methods that the USFWS has reviewed and approved. The BLM will notify prospective bidders of the presence of black-footed ferrets and the need for special considerations managing this species. Mapping shall be conducted in accordance with Biggins et al. (1993). If black-footed ferrets or signs of them are observed within a prairie dog town or complex where project-related activities are proposed, the BLM shall coordinate Section 7 consultation or conferencing with the USFWS on the proposed action. This measure applies to (1) all habitats occupied by ferrets and (2) all suitable habitats within the oil shale and tar sands area. The BLM will confer with the appropriate USFWS field office for definitions of suitable habitat within each state.

In Wyoming, if no ferrets or signs of them are observed during the survey, ground-disturbing activities may occur within 1 year of the date of survey completion within the town surveyed. However, surveys shall be completed as close to the date of project initiation as possible to avoid the possibility of a ferret moving into the area after surveys have cleared the area. Alternatively, all suitable habitat within the entire complex in which the town is located may be surveyed. If no ferrets or sign are found, the complex will be designated “ferret-free,” and no further Section 7 review for the black-footed ferret will be required for activities occurring within any prairie dog town within the complex. Future observations of ferrets or their sign shall, however, require re-initiation of Section 7 consultation. The BLM and the project proponent are encouraged to work with the USFWS to “block clear” all prairie dog towns within or contiguous to the analysis area. Future actions (including maintenance, work over, and reclamation within towns previously cleared of ferrets) may require additional survey work unless the entire complex containing the town has been block cleared.

Results of all surveys shall be reported to the appropriate USFWS field office. Results can include maps of the areas surveyed; information on surveyor qualifications and the survey method, length, dates, weather, snow cover, and results; and copies of field data sheets.

2. The placement of structures that provide suitable nest or perch sites for avian predators will be avoided within large prairie dog towns. Garbage will be contained so it does not attract coyotes, skunks, and other predators. This measure will apply to (1) all habitats occupied by ferrets and (2) all suitable

- habitat within the oil shale and tar sands area. The BLM will confer with the appropriate USFWS field office regarding definitions of suitable habitat within each state.
3. Reduced vehicle speeds at night will be posted and encouraged on roads in or near occupied habitat to reduce the chance of vehicles causing mortalities.
 4. Reclamation will be conducted so that impacts to active prairie dog colonies are minimized. This measure applies to all suitable habitats within the oil shale and tar sands area. The BLM will confer with the appropriate USFWS field office regarding definitions of suitable habitat within each state.
 5. In areas where black-footed ferrets could be encountered, employees, operators, and contractors shall be educated on the natural history of the black-footed ferret, the identification of ferrets and their sign, the potential impacts associated with the transmission of diseases from dogs to ferrets, activities that may affect ferret behavior, and ways to minimize these effects. This measure applies to all suitable habitats within the oil shale and tar sands area. The BLM will confer with the appropriate USFWS field office regarding definitions of suitable habitat within each state.
 6. Observations of black-footed ferrets, their sign, or carcasses shall be reported to the nearest BLM and USFWS office within 24 hours. This measure applies throughout the oil shale and tar sands area.
 7. The use of “White-Tailed Prairie Dog Conservation Measures” (as revised) will be encouraged in white-tailed prairie dog habitat.
 8. Whenever possible, project activities will be designed to avoid any adverse influence on prairie dog habitat occupied by black-footed ferrets. If adverse impacts to occupied prairie dog habitat are unavoidable, activities will be designed in coordination with the USFWS to (1) impact the smallest area practicable, (2) impact those areas with the lowest prairie dog densities, and (3) minimize habitat fragmentation in prairie dog towns occupied by black-footed ferrets or towns suitable for their reintroduction. Off-site mitigation may also be recommended. Impacts on black-footed ferret habitat will be monitored to evaluate cumulative effects.
 9. Whenever possible, project activities will be designed to not adversely impact black-footed ferret populations. A monitoring program will be developed, when necessary, to evaluate impacts. This measure applies to all habitats occupied by ferrets within the oil shale and tar sands area.
 10. Project activities in Uintah and Duchesne Counties, Utah, will be conducted in a manner consistent with the Utah Division of Wildlife Resources 2007 publication, *Northeastern Region Black-Footed Ferret Management Plan*, and

the BLM 1999 publication, *Book Cliffs Resource Area Management Plan Amendment for Black-Footed Ferret Reintroduction, Coyote Basin Area, Utah*.

11. This measure applies specifically to the black-footed ferret management area and subcomplexes described by the Utah Division of Wildlife Resources' 2007 publication, *Northeastern Region Black-Footed Ferret Management Plan*. Within the boundaries of the three subcomplexes (Coyote Basin, Snake John Reef, Bohemian Bottom), activities involving the development or construction of features that could cause permanent surface disturbances will be prohibited within 0.125 mi of the home range of any black-footed ferret. Within the boundaries of the management area, if the observation of a ferret has been recorded within the last 5 years, no surface disturbance will be allowed within 0.44 mi of the observation location if the following two criteria are met: (1) if the ferret observed in suitable habitat (the BLM will confer with the appropriate USFWS field office regarding definitions of suitable habitat within the management area) and (2) if the ferret has established residency in the immediate locale (i.e., if a documented home range has been established). The appropriate size of the protected area surrounding a ferret's home range may be adjusted in coordination with the USFWS to coincide with future research and new information and pursuant to the relevant local, site-specific species management plan, if available.

F.2.7 Canada Lynx³

1. Within a Lynx Analysis Unit (LAU), ensure that mapping of lynx habitat, nonhabitat, and denning habitat occurs. Foraging habitat and topographic features important for lynx movement shall also be mapped. All lynx habitat within an LAU shall be identified as being in suitable or unsuitable condition. This effort involves interagency coordination where LAUs cross administrative boundaries.
2. Disturbance within each LAU shall be limited to 30% of the suitable habitat within the LAU. If 30% of the habitat within an LAU is currently in unsuitable condition, no further reduction in the amount of suitable conditions shall be allowed to occur as a result of management activities. To assess cumulative effects, oil and gas production and transmission facilities, mining activities and facilities, dams, timber harvests, and agricultural lands shall be mapped on public lands, and projects on adjacent private lands shall be evaluated. This effort will involve interagency coordination where LAUs cross administrative boundaries, primarily with the U.S. Forest Service.

³ Landscape linkages may be the only issues.

3. Management actions shall not change more than 15% of lynx habitat within an LAU to an unsuitable condition within a 10-year period. This effort will involve interagency coordination where LAUs cross administrative boundaries.
4. Denning habitat shall be maintained in patches that are generally larger than 5 acres and compose at least 10% of lynx habitat. Where less than 10% is currently present within an LAU, any management actions that will delay development of denning habitat structures will be deferred. This effort will involve interagency coordination where LAUs cross administrative boundaries.
5. Key linkage areas that may be important in providing landscape connectivity within and between geographic areas across all ownerships will be identified by using the best available science.
6. Habitat connectivity within and between LAUs will be maintained.
7. Observations of lynx (tracks or sightings, along with date, location, and habitat) will be documented and provided to the state natural heritage database. An annual update on all sightings will be requested from the database for review.
8. If there has been a large wildfire, a post-disturbance assessment will be conducted prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate their potential for lynx denning and foraging habitat.
9. On projects that require over-snow access, such access will be restricted to designated routes.
10. Within lynx habitat, the BLM shall ensure that key linkage areas and potential highway crossing areas are identified by using the best available science.
11. The BLM shall ensure that proposed land exchanges, land sales, and special use permits are evaluated for their effects on key linkage areas.
12. If activities in lynx habitat are proposed, the BLM shall ensure that stipulations and conditions of approval for limitations on the timing of activities and surface use and occupancy are developed for leasing, and that more site-specific conditions of approval are developed at the permitting stage. Examples include requiring that activities not be conducted at night (when lynx are active) and avoiding activity near denning habitat during the breeding season (April or May to July) to protect vulnerable kittens.

13. The continuation of foraging habitat in proximity to denning habitat shall be provided for.
14. Habitat conditions that support dense, horizontal, understory cover and high densities of snowshoe hares shall be provided through time. An example of such a habitat is mature, multistoried, conifer vegetation. Vegetation management, including timber harvests and the use of prescribed fires, will focus on areas that have the potential to improve snowshoe hare habitat (dense, horizontal cover) but presently have poorly developed understories of little value to snowshoe hares.
15. Areas where high total road densities (more than 2 mi of roads per mi²) coincide with lynx habitat shall be determined, and roads in those areas will be priorities for seasonal restrictions or reclamation.
16. Public use of temporary roads constructed for project activities will be limited. New roads, especially at the entrance, will be designed so they can be effectively closed upon completion of project activities. Upon project completion, these roads will be reclaimed or obliterated.
17. The building of roads directly on ridge tops or areas identified as important for lynx habitat connectivity will be minimized.
18. Where needed, measures to reduce mortality risk, such as wildlife fencing and associated underpasses or overpasses, will be developed.
19. Existing snowshoe hare and red squirrel habitats will be protected.
20. Remote sensing equipment will be used and bunch maintenance activities will be implemented to reduce activity in the area and to reduce the compaction of snow.

F.2.8 Threatened, Endangered, and Proposed Plants⁴

1. All potential habitat for proposed, candidate, and listed species shall be identified prior to leasing for oil shale or tar sands exploration and development. The BLM will notify prospective bidders of the presence of these sensitive plant species and the need for special considerations for managing these species. Within these potential habitat areas, surveys that follow established protocols shall be conducted to better understand these populations and where conservation efforts shall be focused.

⁴ Refer to the PEIS for a list of all threatened, endangered, and proposed plants.

- On leased parcels with the potential to impact sensitive plant species, surveys that follow established protocols will be conducted prior to any development activities. Surveys shall be conducted when the plant can be detected and during appropriate flowering periods. Surveys shall extend at least 600 ft beyond the perimeter of work areas. Surveys are generally valid for 1 year.
2. Consistent with existing or current recovery plans, the proposed action will be designed to support recovery objectives. For example:
 - a. Designs will prevent surface runoff from work areas from entering plant-occupied habitat.
 - b. Construction will occur below and away from the slope of occupied habitat, where feasible, to avoid slope failure or accelerated erosion.
 - c. No surface disturbance will occur within 300 ft of a listed plant. If an area that is less than 600 ft from a listed plant must be disturbed (e.g., for mining, drilling, roads, pipelines), the edge shall be temporarily fenced to keep disturbance from further approaching the listed plant's habitat. To avoid working in listed plant habitats and to avoid drawing attention to listed plants, the edge of disturbance, not the nearby plant population, shall be fenced. This measure could be modified with the approval of the BLM and USFWS.
 - d. If a surface disturbance must be located less than 600 ft from a listed plant, appropriate dust-abatement actions, commensurate with the level of use, must be conducted, in consultation with the USFWS and BLM.
 3. If ground-disturbing activities occur within 600 ft of listed plants, the plants shall be monitored in accordance with the 1998 publication, *Measuring and Monitoring of Plant Populations*, BLM Technical Reference 1730-1, during the blooming period to track the plants' health and vigor and the occurrence of dust transported from project activities. Data shall also include a site description with global positioning system (GPS) coordinates, the size of the area occupied, the estimated number and range in age of the plants, and evidence of habitat disturbance and plant damage or mortality. Post-construction monitoring for invasive species must also be conducted. Annual reports shall be provided to the BLM and USFWS.
 4. "Translocation" (transplanting) will not be considered as a conservation measure.
 5. Vehicle travel will avoid suitable and occupied habitat.
 6. In consultation with USFWS, projects that remove topsoil in areas of suitable habitat for listed species shall be evaluated. The topsoil shall be set aside and

replaced when ground work is completed to preserve the seed bank and associated mycorrhizal species and to discourage invasive species.

7. When possible, revegetation shall be limited to native species that will not compete with the rare species at the site. Revegetation projects shall require a site-specific plan for areas with listed plant species, to be developed in consultation with the BLM and USFWS.
8. Protective stipulations for endangered or threatened species shall include appropriate measures to protect pollinator species that have been identified.
9. When listed plant species are near project areas, dust control measures will be determined in consultation with the BLM and USFWS. These measures shall be employed to minimize the deposition of fugitive dust on plant surfaces.
10. For riparian and wetland-associated species (e.g., Ute ladies'-tresses), any water extraction or disposal practices shall not result in a change in the hydrologic regime outside the range of natural variability.
11. Produced oil, water, or condensate tanks will be placed in centralized locations away from occupied habitat. Evaporation ponds shall be located so their overspray falls at least 600 ft away from listed plant locations, if such ponds are necessary.

F.2.9 Species Determined Not To Be within the Action Area

F.2.9.1 Gray Wolf

(Per discussion with USFWS, wolves are not within the action area, so they will not be addressed in the PEIS or biological assessment [BA].)

F.3 CANDIDATE ANIMAL SPECIES DETERMINED TO BE WITHIN THE ACTION AREA

F.3.1 Greater Sage-Grouse

The greater sage-grouse may occur in lease areas in all three states. Suggested measures for the management of greater sage-grouse populations and their habitat are provided in Section 4.8.1.4. These measures include the following:

1. Identify and avoid both local (daily) and seasonal migration routes.

2. Consider greater sage-grouse and sagebrush habitats when designing, constructing, and utilizing project access roads and trails.
3. When possible, avoid siting energy developments in breeding habitats.
4. Adjust the timing of activities to minimize disturbance to greater sage-grouse during critical periods.
5. When possible, locate energy-related facilities away from active leks or other greater sage-grouse habitat.
6. When possible, restrict noise levels to 10 dB above background noise levels at lek sites.
7. Minimize nearby human activities when birds are near or on leks.
8. As practicable, do not conduct surface-use activities within crucial greater sage-grouse wintering areas from December 1 through March 15.
9. Maintain sagebrush communities on a landscape scale.
10. Provide compensatory habitat restoration for impacted sagebrush habitat.
11. Avoid the use of pesticides at greater sage-grouse breeding habitats during the brood-rearing season.
12. Develop and implement appropriate measures to prevent the introduction or dispersal of noxious weeds.
13. Avoid creating attractions for raptors and mammalian predators in greater sage-grouse habitat.
14. Consider measures to mitigate impacts at off-site locations to offset the unavoidable alteration and reduction of greater sage-grouse habitat at the project site.
15. When possible, avoid establishing artificial water bodies (e.g., stormwater and liquid industrial wastewater ponds) that could serve as breeding habitat for mosquitoes.

F.3.2 Yellow-Billed Cuckoo

(This species is within the action area only in Utah, and because it is a candidate species, it will not be addressed in the BA, but these conservation measures will be in the PEIS.)

1. All riparian areas shall be surveyed to identify suitable habitat for this species prior to leasing for oil shale or tar sands exploration and development. The BLM will notify prospective bidders of the presence of these sensitive plant species and the need for special considerations for managing these species.
2. Potential habitat for this species shall be avoided by maintaining a 0.25-mi buffer. If suitable habitat for this species is present within a proposed development area, surveys shall be conducted to determine species occupancy.
3. If mining activities cannot be avoided in riparian habitat, the project shall be designed to avoid the removal of large cottonwood trees and shall not occur from June 1 through August 1.
4. To avoid direct impacts on or changes in riparian habitat, stream channel morphology or annual streamflow regimes in suitable habitat shall not be adversely modified.
5. Non-surface-disturbing activities within yellow-billed cuckoo habitat that will have adverse effects on the bird or its habitat (e.g., boat and raft landings, outfitting camps, firewood collection) shall be prohibited within 0.25 mi of occupied habitat.
6. Pesticides shall not be applied within 0.25 mi of habitat occupied by the yellow-billed cuckoo.
7. If technically feasible, biological control shall be used in place of chemical pest control.

F.4 MIGRATORY BIRDS

During site-specific post-leasing activities, impacts on migratory birds and their habitats will be evaluated and minimized, with emphasis on species that are on *Birds of Conservation Concern 2008* (USFWS 2008) and species that are listed among the “Partners in Flight” Priority Species. To help meet the responsibilities identified in Executive Order 13186 (“Responsibilities of Federal Agencies to Protect Migratory Birds”), BLM recommends that (a) exploration and mining activities be conducted outside critical breeding seasons for migratory birds, (b) temporary and long-term habitat losses be minimized, and (c) unavoidable habitat losses be compensated for.

F.5 REFERENCES

Note to Reader: This list of references identifies Web pages and associated URLs where reference data were obtained. It is likely that at the time of publication of this PEIS, some of these Web pages may no longer be available or their URL addresses may have changed.

Biggins, D.E., et al., 1993, "A Technique for Evaluating Black-Footed Ferret Habitat," pp. 73–87 in *Management of Prairie Dog Complexes for Reintroduction of the Black-Footed Ferret*, Biological Report 1993-13, J.L. Oldemeyer et al. (editors), U.S. Fish and Wildlife Service.

CRCT Conservation Team, 2006, *Conservation Agreement for Colorado River Cutthroat Trout (Oncorhynchus clarkii pleuriticus) in the States of Colorado, Utah, and Wyoming*, Colorado Division of Wildlife, Fort Collins, Colo.

Sogge, M.K., et al., 2010, *A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher* (Chapter 10 of Section A, *Biological Science*, of Book 2, *Collection of Environmental Data*), Techniques and Methods 2A-10, U.S. Geological Survey in cooperation with Bureau of Reclamation and U.S. Fish and Wildlife Service.

USFWS (U.S. Fish and Wildlife Service), 1989, *Black-Footed Ferret Survey Guidelines for Compliance with the Endangered Species Act*, Denver, Colo., and Albuquerque, N.M., April. Available at <http://www.fws.gov/mountain-prairie/endspp/protocols/BFFSurveyGuideline1989.pdf>. Accessed Nov. 17, 2011.

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