Appendix A: Recommended Best Management Practices and Mitigation for Special Status Species

BEST MANAGEMENT PRACTICES AND MITIGATION, THREATENED, ENDANGERED, OR CANDIDATE SPECIES

KANAB FIELD OFFICE APPROVED RESOURCE MANAGEMENT PLAN (BLM 2008)

Areas subject to surface disturbance would be evaluated for the presence of threatened, endangered, or candidate animal or plant species. This is usually accomplished through the completion of a biological clearance. An on-the-ground inspection by a qualified biologist is required. In cases where threatened, endangered, or candidate species are affected, the preferred response would be to modify the proposed action to avoid the species or its habitat (avoidance). If avoidance of a threatened, endangered, or candidate species or its habitat is not possible, a Section 7 consultation with USFWS would be required and a biological assessment would be prepared to recommend actions to protect the species or its habitat.

Mexican Spotted Owl (*Strix occidentalis lucida*)

Implement conservation measures (numbers 1-10, below) on actions affecting MSOs or their habitat. Restrictions (from the Utah Field Office Guidelines for Raptor Protection From Human and Land Use Disturbances, Appendix 2) include:

- Permit no surface disturbing activities from March 1 to August 31 in PACs, breeding habitats, or designated critical habitat to avoid disturbance to breeding MSOs.
- If a disruptive or surface disturbing action occurs entirely outside of the MSO breeding season (March 1 to August 31) and leaves no permanent structure or permanent habitat disturbance, the action may proceed without an occupancy survey. Land disposal actions would require breeding season surveys (see Lands and Realty management actions).
- If disruptive actions would occur during the season restriction (March 1 to August 31), surveys according to USFWS protocol for MSOs would be required prior to commencement of activities. If MSOs are detected, activities should be delayed until after the seasonal restriction.
- Retain, where appropriate, large down logs, large trees (generally greater than 24 inches in diameter at breast height [DBH]), and snags as prey habitats in occupied and suitable MSO habitat.
- Allow fuels treatments and prescribed fire on a case-by-case basis to reduce fire hazard and improve habitat condition for MSO prey.
- Meet or make significant progress toward meeting BLM Utah's *Standards for Rangeland Health* in protected and restricted (as defined in recovery plan) MSO habitats.
- Prohibit new recreation facilities or trails within PACs. Continue maintenance restrictions and seasonal closure (March 1 to August 31) of existing facilities. Comply with conservation measures in Appendix 9.
- Limit special recreation permit (SRP) group size to 12 or fewer according to the recovery plan in protected and restricted (as defined in the recovery plan) MSO habitat.

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Mexican spotted owl (MSO). This list is not comprehensive. Additional conservation measures or other modified versions of these measures may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS:

1. The BLM will place restrictions on all authorized (permitted) activities that may adversely affect the MSO in identified protected activity centers (PAC), breeding habitat, or designated critical habitat in order to reduce the potential for adverse impacts to the species:

- Restrictions and procedures have been adapted from guidance published in the *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin & Muck 2002), as well as coordination between the BLM and USFWS. Measures include:
    - Surveys, according to USFWS protocol, will be required prior to any disturbance-related activities that have been identified to have the potential to impact MSO, unless current species occupancy and distribution information is complete and available. All surveys must be conducted by USFWS-certified individuals and approved by the BLM authorized officer:
    - Assess habitat suitability for nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the appropriate conservation measures below if project activities occur within ½ mile of suitable owl habitat, dependent in part on whether the action is temporary (i.e., those completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss) or permanent (i.e., continuing for more than one breeding season and/or causing the loss of owl habitat or displacement of owls through disturbances such as creation of a permanent structure such as a power line).
- For all temporary actions that may impact owls or suitable habitat:
    - If action occurs entirely outside of the owl breeding season and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.
    - If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season.
    - Eliminate access routes created by a project through such means as raking out scars, revegetation, and gating access points.
- For all permanent actions that may impact owls or suitable habitat:
    - Survey two consecutive years for owls according to established protocol prior to commencing activity.
        a. If owls are found, no actions will occur within ½ mile of identified nest site. If nest site is unknown, no activity will occur within the designated PACs.
        b. Avoid placing permanent structures within ½ mile of suitable habitat unless surveyed and not occupied.
        c. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at ½ mile from suitable habitat, including canyon rims (Delaney et al. 1997). Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a ½-mile buffer for suitable habitat, including canyon rims.
        d. Limit disturbances to and within suitable owl habitat by staying on designated routes.
        e. Limit new access routes created by the project.

2. The BLM will, as a condition of approval (COA) on any project proposed within identified PACs and designated critical habitat or within spatial buffers for MSO nests (½ mile), ensure that project proponents are notified as to their responsibilities for rehabilitation of temporary access routes and other temporary surface disturbances created by their project according to individual BLM field office standards and procedures or those determined in the project-specific Section 7 consultation.
3. The BLM will require monitoring of activities in designated critical habitat, identified PACs, or breeding habitats wherein it has been determined that there is a potential for take. If any adverse impacts are observed to occur in a manner or to an extent that was not considered in the project specific Section 7 consultation, then consultation must be reinitiated. Monitoring results should document what, if any, impacts on individuals or habitat occur during project construction/implementation. In addition, monitoring should document successes or failures of any impact minimization or mitigation measures. Monitoring results would be considered an opportunity for adaptive management, and as such would be carried forward in the design and implementation of future projects.
4. For all survey and monitoring actions:

- Provide reports to the affected field offices within 15 days of completion of survey or monitoring efforts.
- Report any detection of MSO during survey or monitoring activities to the authorized officer within 48 hours.

5. The BLM will, in areas of designated critical habitat, ensure that any physical or biological factors (i.e., the primary constituent elements), as identified in determining and designating such habitat, remain intact during implementation of any BLM-authorized activity.
6. For all BLM actions that "may adversely affect" the primary constituent elements in any suitable MSO habitat, the BLM will implement measures as appropriate to minimize habitat loss or fragmentation, including rehabilitation of access routes created by the project through such means as raking out scars, revegetation, and gating access points.
7. Where technically and economically feasible, use directional drilling from single drilling pads to reduce surface disturbance, and minimize or eliminate need to drill in canyon habitats suitable for MSO nesting.
8. Prior to surface disturbing activities in MSO PACs, breeding habitats, or designated critical habitat, specific principles should be considered to control erosion. These principles include:

- Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This will result in less total surface disturbance.
- Avoid surface disturbance in areas with high erosion hazards to the extent possible. Avoid mid-slope locations, headwalls at the source of tributary drainages, inner valley gorges, and excessively wet slopes such as those near springs. In addition, areas where large cuts and fills would be required should be avoided.
- Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.

9. Project developments should be designed and located to avoid direct or indirect loss or modification of MSO nesting and/or identified roosting habitats.

10. Water production associated with BLM-authorized actions should be managed to ensure maintenance or enhancement of riparian habitats.

Utah Prairie Dog (*Cynomys parvidens*)

- Implement conservation measures (#1-13, BELOW) on actions affecting Utah prairie dogs or their habitat.
- Permit no surface disturbing activities or surface occupancy within ½ mile of active, suitable (currently inactive), or potential reintroduction (BLM 2002b) Utah prairie dog habitats/sites. Seismic activities would avoid these areas, particularly during the active season (April 1 to September 30).
- Allow introduction, augmentation, restocking, translocations, transplantation, and/or reestablishments of special status species in cooperation and collaboration with USFWS, UDWR, and other agencies as necessary, subject to guidance provided by BLM's 6840 policy and by existing or future memoranda of understanding (MOU).
- Require deterrent devices designed to prevent raptors from perching on powerline structures on all new construction (including upgrades and reconstruction) to discourage predation on Utah prairie dogs.
- Reroute renewed or amended ROWs on public land that have the potential to disturb active and inactive Utah prairie dog colonies.
- Preclude cross-country OHV use in occupied or inactive Utah prairie dog colonies.
- Allow for the treatment of plague and other diseases that may impact Utah prairie dogs.

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Utah prairie dog. This list is not comprehensive. Additional conservation measures or other modified versions of these measures may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS:

1. Surveys according to approved protocols and procedures will be required prior to surface disturbance unless species occupancy and distribution information is complete, current, and available. Surveys would be conducted by BLM-approved biologists. In the event species occurrence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include additional, appropriate protection measures or practices for the minimization of impacts on the Utah prairie dog and its habitat.

2. The BLM will restrict surface disturbing activities within ½ mile of active Utah prairie dog colonies when and where necessary, upon the recommendation of BLM Field Office (FO) staff biologists to BLM management and as necessary in coordination or consultation with USFWS.

3. No permanent surface disturbance or facility will be allowed within ½ mile of potentially suitable Utah prairie dog habitat, as identified and mapped by the BLM or UDWR since 1976.

4. Unavoidable surface disturbing activities in Utah prairie dog habitat should be conducted between April 1 and September 30 (the period when prairie dogs are most likely to be found above ground). BLM projects will be designed to avoid direct disturbance to Utah prairie dog populations and habitat wherever possible. Designs should consider flow of water, slope, buffers, possible fencing, and pre-activity flagging of critical areas for avoidance.

5. Reclamation and restoration efforts in Utah prairie dog habitat will be conducted using native seed unless otherwise specified in coordination with USFWS.
6. As funding allows, the BLM should complete a comprehensive assessment locating and mapping off-highway vehicle (OHV) use areas that interface with Utah prairie dog populations. Comparison of geographic information system (GIS) layers for Utah prairie dog populations and OHV use should give BLM personnel another tool to manage and/or minimize impacts from OHV use near known Utah prairie dog populations and habitat. Based on the information that is developed via GIS applications, appropriate actions should be taken to prevent OHV use in occupied territories.
7. The BLM will consider emergency OHV closure or additional restrictions to protect, conserve, and recover the species.
8. Where technically and economically feasible, the use of directional drilling or drilling of multiple wells from a single pad will be required to reduce surface disturbance in Utah prairie dog habitat.
9. For existing facilities, BLM and facility operators will consider if fencing infrastructure on well pads (e.g., drill pads, tank batteries, and compressors) would be needed to protect equipment from burrowing activities. In addition, BLM and project proponents should consider if future surface disturbing activities would be required at the site.
10. The BLM will provide educational information for project proponents and the general public pertaining to appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife, and to improve general ecological awareness of habitat disturbance.
11. Project-related vehicle maintenance activities will be conducted in maintenance facilities. Should it become necessary to perform vehicle or equipment maintenance on site, these activities will not be conducted on identified Utah prairie dog colonies or within a 350-foot distance from colonies. Precautions shall be taken to ensure that contamination of maintenance sites by fuels, motor oils, grease, etc. does not occur and such materials are contained and properly disposed of offsite. Inadvertent spills of petroleum-based or other toxic materials shall be cleaned up and removed immediately.
12. The BLM will coordinate with interested private and governmental agencies and landowners to identify voluntary opportunities to modify current land stewardship practices that may have detrimental impacts on the Utah prairie dog and its habitat.
13. BLM-authorized equipment and vehicles planned for use within Utah prairie dog habitat will be cleaned to minimize the spread of noxious weeds or other undesirable vegetation types.

National Park Service Management Policies (NPS 2006)

Management of Threatened or Endangered Plants and Animals

The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species. To meet these obligations, the Service will:

- Cooperate with both the U.S. Fish and Wildlife Service and the NOAA Fisheries to ensure that NPS actions comply with both the written requirements and the spirit of the Endangered Species Act. This cooperation should include the full range of activities associated with the

Endangered Species Act, including consultation, conferencing, informal discussions, and securing all necessary scientific and/or recovery permits;
- Undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats; control detrimental nonnative species; manage detrimental visitor access; and reestablish extirpated populations as necessary to maintain the species and the habitats upon which they depend;
- Manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;
- Cooperate with other agencies to ensure that the delineation of critical habitat, essential habitat, and/or recovery areas on park-managed lands provides needed conservation benefi ts to the total recovery efforts being conducted by all the participating agencies;
- Participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;
- Cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and
- Conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

The National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance.

The Service will determine all management actions for the protection and perpetuation of federally, state, or locally listed species through the park management planning process, and will include consultation with lead federal and state agencies as appropriate.

Utah Prairie Dog Interim Conservation Strategy (NPS et al. 1997)

No project-specific measures.

Utah Prairie Dog Recovery Plan (USFWS 1991)

No project-specific measures.

BEST MANAGEMENT PRACTICES AND MITIGATION FOR SENSITIVE SPECIES

GREATER SAGE-GROUSE (*CENTROCERCUS UROPHASIANUS*)

Kanab Field Office Approved Resource Management Plan (BLM 2008)

• Implement the UDWR Sage-Grouse Strategic Management Plan, BLM National Sage-Grouse Habitat Conservation Strategy, and recommendations from local sage-grouse working groups to protect, maintain, or enhance current Greater sage-grouse populations and habitat.
• Preclude cross-country OHV use in Greater sage-grouse nesting and brood-rearing habitats.
• Avoid new ROWs with high-profile structures (e.g., buildings, storage tanks, overhead powerlines, wind turbines, towers, and windmills) within 1 mile of an active Greater sage-grouse lek or in nesting and brood-rearing habitat.
• Manage oil and gas leasing as open subject to major constraints (NSO) within ½ mile of a Greater sage-grouse lek site.
• Allow no surface disturbing or otherwise disruptive activities (e.g., construction and maintenance) within 2 miles of a Greater sage-grouse lek in nesting and brood-rearing habitat from March 15 to July 15 and in winter habitat from December 1 to March 14.
• Avoid insecticide use in Greater sage-grouse nesting and early brood-rearing habitats during the early developmental stage (March 15 to July 15) of Greater sage-grouse chicks.
• Prioritize habitat vegetation treatments to maintain and/or improve habitat function in Sage-grouse nesting and brood-rearing habitat, and Sage-grouse winter range areas (Map 5).

A Blueprint for Sage-grouse Conservation and Recovery (Braun 2006)

Management of Habitat Fragmentation

Management of sagebrush steppe should focus on maintaining large (>1 cadastral section [2.59 km² or 1 mi²]) blocks of sagebrush steppe and preferably in excess of 20 cadastral sections [51.8 km² or 20 mi²] in size. These blocks should conserve habitat at the landscape scale with at least 1 large block per Township (36 cadastral sections [93.2 km² or 36 mi²]) throughout the sagebrush steppe.

Management of Structures

Utility companies should be required to fit all potential perch sites (poles, towers) for golden eagles with devices to deter perching (including power poles associated with oil and gas development). All unused power poles (and towers) should be removed and consideration should be given to elimination (and removal) of unnecessary power lines that traverse sage-grouse habitats. Existing power lines should be placed in corridors that follow road systems, especially those that are paved, to minimize impacts on the landscape. First priority for fitting power poles with raptor guards and or for removal of power lines should be given to areas within 5.5 km (3.3 miles) of active leks (at least line of sight). Second priority should be given to known sage-grouse winter-use areas, especially along windswept ridges and near large expanses of sagebrush that are not typically covered by snow in winter. Raptor predation during summer and early fall is usually a local problem and more a product of habitat quality (i.e., sage-grouse are limited to few areas of suitable habitat) than at other times of the year. Metal fence posts are preferable to wooden posts for fencing as the former better discourage raptors from using them as perches. Fencing within 2 km of active leks should be discouraged as sage-grouse are more likely to collide with them as they fly to and from leks, frequently at low levels and in low light. Fences designed to prevent domestic sheep from escaping pastures should be eliminated as walking sage-grouse frequently will follow and not readily fly over them. Fences in sage-grouse areas

should be of no more than 3-strands of wire with both the top and bottom wires being barbless. All unnecessary fences should be removed (wire and posts). If fences known to result in sage-grouse mortality cannot be removed, the top wire should be marked with permanent visual flagging.

Recommendations:

- No roads should be constructed within 5.5 km of active sage-grouse leks.
- Existing roads within 5.5 km of active sage-grouse leks should have seasonal closures (1 March-20 June).-Power lines should be placed only into existing road/utility corridors.
- Power poles and other existing human structures should either be removed, if not used, or fitted with raptor-deterrence devices.
- Fences in sage-grouse use areas should be no more than 3 strands with the top and bottom wires being barbless. Unused fences should be removed.

Guidelines to Manage Sage-grouse Populations and their Habitats (Connelly et al. 2000)

General Habitat Management 4)

Avoid building powerlines and other tall structures that provide perch sites for raptors within 3 km of seasonal habitats. If these structures must be built, or presently exist, the lines should be buried or poles modified to prevent their use as raptor perch sites.

Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004)

No project-specific measures.

PYGMY RABBIT (*BRACHYLAGUS IDAHOENSIS*)

Kanab Field Office Approved Resource Management Plan (BLM 2008)

Apply restrictions (e.g., avoidance or mitigation) to surface disturbing and disruptive activities on a case by- case basis in occupied and potential pygmy rabbit habitat for the protection of this species and its associated habitat. Site-specific NEPA documentation would address restrictions around pygmy rabbit habitat.

SENSITIVE RAPTORS

Kanab Field Office Approved Resource Management Plan (BLM 2008: Appendix B)

To adequately manage raptors and their habitats, and to reduce the likelihood of a raptor species being listed under the ESA, BLM-authorized or BLM-proposed management activities and/or land disturbing actions would be subject to the criteria and processes specified within these BMPs. The implementation of raptor spatial and seasonal buffers under the BMPs would be consistent with Table 2 of the Guidelines, included here as Attachment 2. As specified in the Guidelines, modifications of spatial and seasonal buffers for BLM-authorized actions would be permitted as long as protection of nesting raptors is ensured. State and/or federally listed, proposed, and candidate raptor species, as well as BLM state sensitive raptor species, should be afforded the highest level of protection through this BMP process; however, all raptor species would continue to receive protection under the MBTA. Modification of the buffers for threatened or endangered species would be considered pending results of Section 7 consultations with USFWS.

As stated in the Guidelines, spatial and seasonal buffers should be considered as the best available recommendations for protecting nesting raptors under a wide range of activities statewide. However, they are not necessarily site-specific to proposed projects. Land managers should evaluate the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local raptor nesting density when determining site-specific buffers. BLM would be encouraged to informally coordinate with UDWR and USFWS any time a site-specific analysis shows that an action may have an adverse impact on nesting raptors. The coordination would determine if the impact could be avoided or must be mitigated and, if so, determine appropriate and effective mitigation strategies. Potential modifications of the spatial and seasonal buffers identified in the Guidelines may provide a viable management option. Modifications would ensure that nest protection would occur, while allowing various management options that may deviate from the suggested buffers within the Guidelines, which if adequately monitored could provide valuable information for incorporation into future management actions.

Seasonal raptor buffers from Attachment 2 should be reviewed by local raptor nesting authorities who are knowledgeable of raptor nesting chronologies within their local areas. For those nesting raptors for which local nesting chronologies remain uncertain, the seasonal buffers provided in Attachment 2 should serve as the default. However, for those raptor species whose known nesting chronologies differ from the seasonal buffers provided in Attachment 2, the local seasonal buffers may be used as a modification of the Guidelines.

Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the Guidelines, include the following:

1. Completion of a site-specific analysis by a wildlife biologist or other qualified individual.
2. Written documentation by the BLM Field Office wildlife biologist, identifying the proposed modification and affirming that implementation of the proposed modification would not affect nest success or the suitability of the site for future nesting. Modification of the Guidelines would not be recommended if it is determined that adverse impacts on nesting raptors would occur or that the suitability of the site for future nesting would be compromised.
3. Development of a monitoring and mitigation strategy by a BLM biologist or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or COA and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize, or mitigate the impact, or, with the approval of UDWR and USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program raptor database.

In a further effort to provide additional support and expertise to local BLM field biologists, a network of biologists from various agencies with specific expertise in raptor management has been identified and included as Attachment 3. The personnel identified have extensive backgrounds in raptor management issues and are available, upon request, to assist BLM field biologists on a case-by-case basis. Field biologists are encouraged to use this network, via informal conferences, with one or more of the individuals identified. This coordination should be clearly distinguished from the consultation process required under ESA Section 7. Individuals on the expert panel should not be expected to provide formal advice, but should serve as a sounding board for discussing potential affects of a

proposal as well as potential mitigation measures on specific projects that may be useful to BLM biologists.

Habitat Enhancements

As recommended in the Guidelines, raptor habitat management and enhancement, both within and outside of buffers, would be an integral part of these BMPs, with the understanding that in order for raptors to maintain high densities and maximum diversity, it is necessary that the habitat upon which they and their prey species depend be managed to promote healthy and productive ecosystems. Habitat loss or fragmentation would be minimized and/or mitigated to the extent practical and may include such measures as drilling multiple wellheads per pad, limiting access roads and avoiding loop roads to well pads, effectively rehabilitating or restoring plugged and abandoned well locations and access roads that are no longer required, rehabilitating or restoring areas affected by wildland fires to prevent domination by non-native invasive annual species, or implementing vegetation treatments and riparian restoration projects to achieve *Standards for Rangeland Health*.

In some cases, artificial nesting structures located in areas where preferred nesting substrates are limited, but where prey base populations are adequate and human disturbances are limited, may enhance some raptor populations or may serve as mitigation for impacts occurring in other areas.

Protection of Nest Sites and Buffer Zones

As stated in the Guidelines, protection of occupied and unoccupied nests is important because not all raptor pairs breed every year, nor do they always use the same nest within a nesting territory. Individual raptor nests left unused for a number of years are frequently reoccupied if all the nesting attributes that originally attracted a nesting pair to a location are still present. Nest sites are selected by breeding pairs for the preferred habitat attributes provided by that location.

Raptor nest buffer zones are established for planning purposes because the nest serves as the focal point for a nesting pair of raptors. The buffer should serve as a threshold for potential adverse impacts on nest initiation and productivity. Actions proposed within these buffer zones are considered potentially impacting, and therefore trigger the need for consideration of site-specific recommendations. Seasonal (temporal) buffer zones are conservation measures intended to schedule potentially impacting activities to periods outside of the nesting season for a particular raptor species. These seasonal limitations are particularly applicable to actions proposed within the spatial buffer zone of a nest for short duration activities, such as pipeline or powerline construction, seismic exploration activity, vegetative treatments, fence or reservoir construction, or permitted recreational events, where subsequent human activity would not be expected to occur.

Spatial buffer zones are those physical areas around raptor nest sites where seasonal conservation measures or surface occupancy restrictions may be applied, depending on the type and duration of activity, distance and visibility of the activity from the nest site, adaptability of the raptor species to disturbance, etc. Surface occupancy restrictions should be used for actions that would involve human activities within the buffer zone for a long duration (more than one nesting season) and that would cause an occupied nest site to become unsuitable for nesting in subsequent years.

Unoccupied Nests

All Activities, Including All Mineral Leases: Surface disturbing activities occurring outside of the breeding season (seasonal buffer), but within the spatial buffer, would be allowed during a minimum 3- year nest monitoring period, as long as the activity would not cause the nest site to become unsuitable for future nesting, as determined by a wildlife biologist. Facilities and other permanent structures would be allowed if they meet the above criteria.

Examples of typical surface disturbing actions occurring outside of the seasonal buffer that may not be expected to affect nest production or future nesting suitability include pipelines, powerlines, seismographic exploration, communication sites, an oil or gas well with offsite facilities that does not require routine maintenance, recreation events, fence or reservoir construction, vegetative treatments, and other actions with discrete starting and ending times and for which subsequent human activity or heavy equipment operation within the spatial buffer would not be expected to occur or could be scheduled outside of the seasonal buffer in subsequent years.

Surface disturbing activities that would be expected to potentially affect nest production or nest site suitability include oil and gas facilities requiring regular maintenance, sand and gravel operations, road systems, wind energy projects, mining operations, and other actions requiring continual, random human activity or heavy equipment operation during subsequent nesting seasons.

A nest site that does not exhibit evidence of use, such as greenery in the nest, fresh whitewash, obvious nest maintenance, and the observed presence of adults or young at the nest, for a period of 3 consecutive years (verified through monitoring) would be deemed abandoned and all seasonal and spatial restrictions would cease to apply to that nest. All subsequent authorizations for permanent activities within the spatial buffer of the nest could be permitted. If the nest becomes reoccupied after authorized activities are completed, conservation measures would be considered to reduce potential adverse affects and to comply with the MBTA and the Eagle Protection Act.

The 3-year non-use standard varies from the Guidelines' suggested 7-year non-use standard before declaring nest abandonment. This variation is based upon a similar standard that has been applied for more than 20 years in two administrative areas within Utah. Empirical evidence would suggest that the 3- year non-use standard has been effective in conserving raptor species. The 3-year standard has been applied without legal challenge or violation of "Take" under the MBTA or the Eagle Protection Act.

Because prey base populations are known to be cyclic, and because raptor nest initiation or nesting success can be affected by drought and other random natural events, care should be taken when applying the 3-year non-activity standard. The 3-year nest occupancy monitoring requirement should be viewed as a minimum time period during those years of optimal raptor nesting conditions. During suboptimal raptor nesting years, when nesting habitat may be affected by drought, low prey base populations, fire, or other events, the monitoring standard should be increased to allow raptors the opportunity to reoccupy nesting sites when nesting conditions become more favorable.

Occupied Nests

All Activities: Land use activities that would have an adverse impact on an occupied raptor nest would not be allowed within the spatial or seasonal buffer.

Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002)

Guidelines for Mitigating Unavoidable Impacts

Mitigation Techniques

Examples of techniques to mitigate unavoidable impacts to raptors and their habitats follow. These recommendations are not all-inclusive of available strategies, but provide a framework for land use planners to follow. Project proponents should select management recommendations and/or develop other techniques based on the raptor species, the project and its potential impacts. Success of these techniques is generally varied and somewhat dependent on the species, individual raptors, individual breeding pairs, and type of disturbance:

1. *Relocation of young and nests*

Extensive coordination with Service, UDWR, and/or resource management wildlife biologists is highly encouraged when attempting relocation of young and nests of raptors. Techniques involving relocation of raptor young and nests have been successfully accomplished for some species and are intended to maintain a breeding pair's use of their home range despite disturbance or loss of the traditional nest site (Postovit et al. 1982). Non-migratory species such as golden eagles, which maintain an average of four to six nests per nesting territory in Utah, may be more accepting of this strategy than migratory raptors which may shift territories in response to prey availability (Postovit and Postovit 1987). Case studies in Wyoming (Postovit et al. 1982, Parrish et al. 1994) showed high success rates for relocation of golden eagle and ferruginous hawk nests and nestlings. Relocations of great horned owls, short-eared owls, prairie falcons, and red-tailed hawks also have met with success. The following recommendations from Postovit and Postovit 1987 have been provided to foster successful relocation efforts:

a. Determine a raptor pair's home range and movement patterns.

b. Select a relocation site as far from disturbance as possible, but within the home range and near preferred use areas such as roosts, perches, and foraging sites.

Line of sight visibility to original nest sight should be considered. If distant or not visible from original nest, the relocation may be made in stages with a mobile platform. Moves greater than 1/4 mile distant from the original nest are not recommended. Selection of previously used nest locations or natural substrates for relocation is preferred.

c. Establish new nest sites at least two years prior to planned relocation to allow acclimation by the adult birds.

d. Schedule nest relocations to occur outside the raptor's breeding season.

e. Nestlings should only be moved when they are one-half way through the nestling period since they no longer require continuous brooding by the adults.

2. *Deterring use of an existing nest*

Extensive coordination with Service, UDWR, and/or resource management wildlife biologists is highly encouraged when attempting to discourage use of an existing nest by raptors. Deterrence measures are restricted to non-lethal methods intended to prevent nesting in areas under active development and at nests where destruction or high levels of disturbance are likely to occur.

Nesting raptors would be afforded complete protection until fledging of young is completed. Deterrence is not always successful; consideration should be given to whether other potential nests or nests sites are available within the area. Postovit and Postovit (1987) recommended the following deterrence methods:

a. Blocking access to nests with welded wire to prevent egg laying.

Blocking access to nests has resulted in breeding pairs building new nest sites and accepting existing alternate nests (Parrish et al. 1994). At a coal mine in southeastern Utah, a golden eagle pair succeeded at removing the nesting material from beneath the wire cage, to rebuild the nest at a nearby location (B. Bates, UDWR, 1998, pers. comm.).

b. Removing nest starts or rendering a nesting substrate unusable.

c. Repeated disturbance using loud noises.

Some wildlife may become habituated over time to loud noises or scare tactics, so this may provide only short-lived deterrence.

3. *Habituating raptors to increased disturbance or noise levels*

Beginning land use, human activities, or construction prior to the breeding season will allow a pair of raptors to "choose" whether the nest site is still acceptable considering the disturbance.

Warning sirens at regular intervals have also been used to alert raptor pairs to potentially startling noises such as blasting. This technique has generally been used where there is no acceptable alternative to the proposed action. While loss of the nest site may occur, the goal of this technique is to avoid the loss of eggs or young and allow the adults an opportunity to select an alternate nesting site.

Monitoring and documentation of results is recommended following any of the aforementioned techniques to maximize success of efforts. Publishing data and results should also be considered to widely circulate information regarding success of raptor mitigation techniques.

NORTHERN GOSHAWK (*ACCIPITER GENTILIS*)

Conservation Strategy and Agreement for the Management of Northern goshawk Habitat in Utah (USFS et al. 1997)

No project-specific measures.

BURROWING OWL (*ATHENE CUNICULARIA*)

Status Assessment and Conservation Plan for the Western Burrowing owl in the United States (USFWS 2003)

Habitat Protection

Habitat protection and management, and protection and management of burrowing mammals was suggested in several states. Recommendations included the following: introduce fire in shrub-steppe to increase grassland near cropland, reduce the conversion of grasslands and pasture to cultivation, and maintain pesticide- and herbicide-free zones of 600-m radius around burrows (Idaho); leave drain ditches unburned and ditch banks and turnrows undisturbed (Nevada); protect burrow sites (Colorado, Idaho, and Nevada); establish conservation easements with private landowners to secure good owl habitats (Nevada); maintain open ground cover >40%, and native grass cover <40% and <40 cm tall on average, and maintain a 200-m buffer around nest burrows where human activities are prohibited (Oregon and Washington); maintain 100-300 m buffers around nest burrows (Colorado); preserve shortgrass habitat and manage for ground squirrels and badgers (Minnesota); preserve salt desert scrub habitat and its burrowing mammal community (Nevada); manage plague in prairie dog towns and change regulations regarding shooting of prairie dogs and ground squirrels (Montana); survey prairie dog colonies for burrowing owls and reevaluate hunting of prairie dogs (Nebraska and South Dakota); manage habitats for prairie dogs (North Dakota) and restore former prairie dog colonies on National Grasslands (Wyoming); preserve habitat for burrow providers (Oregon and Washington); and work with developers in urban and suburban areas to preserve open space within developments for Burrowing Owls (Nevada).

SENSITIVE PLANTS

Red Canyon Botanical Area Conservation Plan (USFS 2000)

General Actions: Follow established land management policies that enable adequate protection of rare plants (seven) listed in the Conservation Plan, and their associated habitats within the Red Canyon area. Any proposed action within suitable habitat will be evaluated through the Biological Evaluation

(BE) process to determine compatibility with the objectives maintained within the Strategy and existing Forest Service policies.

Botanical field reconnaissance will be conducted using standardized botanical survey techniques and performed by trained personnel for each proposed action area where the habitat is deemed suitable for any of the seven rare plant species. Mitigation measures, in addition to Standards and Guidelines prescribed by the Forest Plan will be implemented to provide for persistence of occurring populations.

Grand Staircase Escalante National Monument Management Plan (BLM 2000)

Special Status Animal and Plant Species

In cases where special status species may be affected by a project, the project will be relocated or modified to avoid species or their habitat in consultation with the United States Fish and Wildlife Service (USFWS). Specific restrictions include:

- Surface disturbing projects or activities (such as designated fuelwood cutting areas) will not be allowed in identified special status plant populations.
- Surface disturbing research will generally not be allowed in special status species habitat, except where deemed appropriate in consultation with the USFWS.
- Surface disturbing projects or activities will not be allowed within 1/2 mile of Mexican spotted owl nests or within 1 mile of peregrine falcon nests unless USFWS consultation shows no impacts will occur.
- Surface disturbing projects or activities will not be allowed in areas of known bald eagle roost sites unless consultation with the USFWS shows no impacts will occur.
- No designated climbing areas will be allowed within known sensitive species nesting areas.
- Use of chemical substances that may affect the Colorado pikeminnow or the razorback sucker downstream may not be used.

Kanab Field Office Approved Resource Management Plan (BLM 2008)

Surveys would be required prior to surface disturbance unless species presence and distribution information is complete and available. Surveys would be conducted by a BLM-approved botanist. In the event species presence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include appropriate protection and/or avoidance measures or practices for the minimization of impacts on listed and candidate plants and their habitats. Initiate Section 7 consultation with USFWS for any planned or authorized activity that is determined to have the potential to result in an impact on listed and candidate plants and their habitats.

BEST MANAGEMENT PRACTICES AND MITIGATION - OTHER

MIGRATORY BIRDS (ALL)

USFWS and USFS Migratory Bird Strategy (USFS 2007)

Strategy for Implementing MBTA and E.O. 13186 on National Forest Administered Lands in Utah

1. Identify management actions that will assist in the successful implementation of projects that occur within landscapes occupied by migratory birds while minimizing direct take of individual migratory birds when feasible.
2. Timing considerations. The goal in setting seasonal restrictions for management actions is to avoid unintentional take (primarily nesting birds) and to minimize potential effects on migratory birds; however, the use of blanket timing restrictions (e.g., April 15 to July 15) may not be sufficient to cover all species (e.g., some raptors) and at the same time may be too restrictive for certain projects. In evaluating projects, timing restrictions would depend on the species involved and the timing needs for project implementation.
3. Consider short-term vs. long-term benefits relative to types of projects and the effects of projects on migratory birds. There is a need to recognize the potential that projects may have short-term effects on individual birds, local populations, and/or their habitat that are necessary to meet long-term conservation goals
4. The effects of management actions/activities on migratory birds vary considerably depending on the type, scale and vegetation community of the project. Projects such as vegetation manipulation, oil and gas development, road construction or maintenance, recreation developments, etc. have different implications for migratory birds that need to be evaluated. Similarly, benefits and consequences vary among species; for example, changes in the landscape will increase habitat for some species and decrease habitat for others.
5. The scale and context of a project need to be evaluated relative to managing for and conserving habitats and populations of migratory birds, not just individuals (except in the case of threatened, endangered, and certain rare and sensitive species). Issues of scale relate to the size of the project, treatment type, potential for fragmentation of habitats, and the relationship of treated to untreated habitat (e.g., amount and juxtaposition). The amount and quality of suitable habitat that surrounds the proposed project area is an important consideration in assessing the effects of a project on migratory birds. Guidelines for addressing vegetation structure, composition, processes, function and pattern will be related to and addressed in context of the Historic Range of Variability or Properly Functioning Condition for baseline and comparative purposes.
6. Evaluate management practices (other than blanket timing constraints) that will meet the MBTA and successfully mitigate or minimize the effects of unintentional take. Examples of these considerations would be the amount of remaining habitat that is not affected, and managing specific habitat preferences for affected species. Timing limitations are only one method for minimizing unintentional take. However, there is a need to focus on conservation efforts that will sustain key habitats for species over time. This will involve managing habitat for short and long-term need.

7. Project analyses will include a discussion of activities that Forests perform in support of habitat improvement that may cause unintentional take. Some management actions may put individual birds at risk for unintentional take, while the overall population of the species is managed to persist through time. The goal of conserving migratory birds is to minimize unintentional take while conserving habitats and populations. These populations will cycle through time as all populations do as a result of climatic factors and other influences such as wildland fire, wind events and succession.
8. The Forest Service will work cooperatively with the Utah Division of Wildlife Resources and the FWS when necessary to identify, conserve, and manage important bird habitats, or sites that occur on National Forest administered lands in Utah. When appropriate, the FS incorporates conservation measures addressed in the State Bird Conservation Plan, Partners in Flight Avian Conservation Strategy, and the Birds of Conservation Concern.
9. The definitions of unintentional and intentional take are defined as follows:
    a. Intentional take constitutes the deliberate and intentional taking of migratory birds.
    b. Unintentional take is the accidental taking of a migratory bird as a result of implementing other management actions.
10. Most Forests in Utah have developed protocols for addressing migratory birds in NEPA documents that include the aforementioned concepts.

Process for Addressing Migratory Birds in NEPA Documents

Prior to initiating any activity that may affect populations of migratory birds, the Forest Service will:

1. Review the general area of the proposed action and identify migratory birds that may be present, including those found in the Utah Partners in Flight Avian Conservation Strategy, Birds of Conservation Concern, and the Comprehensive Wildlife Conservation Strategy. Identify species including listed, rare and sensitive and determine those that may be affected by the proposed activity.
2. In NEPA documents, the FS will assess and document the potential effects of alternatives on migratory birds. Available demographic, population, and habitat data will be used in the assessment of effects on migratory birds
3. Engage the FWS in early project planning and scoping relative to potential impacts of a proposed action on migratory birds; proactively address migratory bird conservation and initiate appropriate actions to avoid or minimize the unintentional take of migratory birds.
4. Evaluate the potential short-term, long-term and cumulative effects of projects on migratory bird habitats
5. Identify conservation and mitigation measures in the project aimed at conserving migratory bird habitats and populations

The Forest Service recognizes that migratory birds are an important component of the biological diversity of the landscapes in Utah, and looks forward to managing these habitats. In closing, we appreciate your support in the development of this state-wide strategy, and look forward to continuing our relationship in managing for migratory birds on the National Forests in Utah.

Utah Partners in Flight Draft Avian Conservation Strategy (Parrish et al. 2002)

No project-specific measures.

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