



DIVISION OF WILDLIFE RESOURCES

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Director

Reply To SOUTHEASTERN REGIONAL OFFICE
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RECEIVED
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DIVISION OF
OIL, GAS & MINING

May 2, 1980

Mr. Dan Guy
Beaver Creek Coal Company
1109 South Carbon Avenue
Price, UT 84501

Dear Dan:

I want to take this opportunity to extend thanks for the assistance you have provided Larry Dalton in becoming familiar with existing and planned surface facilities on the mine plan area encompassed by the Castle Valley Spur project. I believe that you will find the enclosed information helpful at filing a mine and reclamation plan.

In response to your request for wildlife resource information (30 CFR, parts 779.20 and 783.20) and the Division's recommendations concerning a wildlife plan (30 CFR, parts 780.16 and 784.21) to accompany your permit application, the attached map delineating high value habitats for wildlife and supporting narrative for those use areas and other high interest wildlife species are provided. Since the primary or secondary premining and assumed postmining use of the project area was and will be wildlands inhabited by wildlife, suggested vegetative species (seed list along with potential material supply sources for seed and seedlings) for use in enhancement and/or reclamation work that would benefit wildlife are included (30 CFR, parts 816.97 d 4 and 817.97 d 4; 816.97 d 5 and 817.97 d 5; 816.97 d 9 and 817.97 d 9; 816.116 b 3 IV and 817.116 b 3 IV; and 816.117 c 2 and 817.117 c 2). Also, note that Utah's Division of Oil, Gas and Mining is the regulatory authority for approval of the mining and reclamation plan.

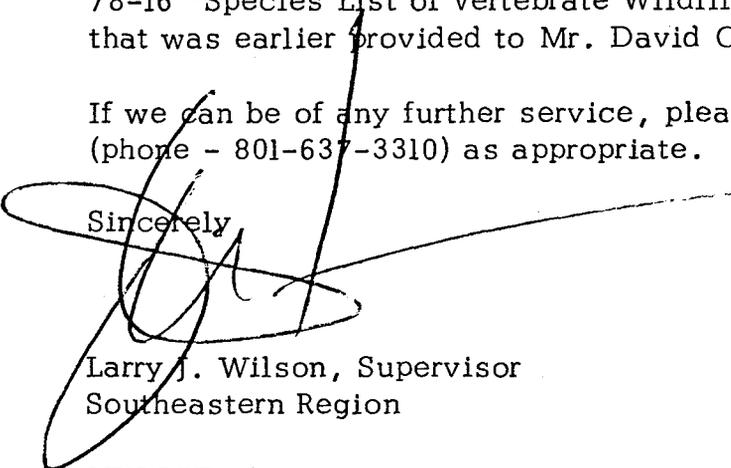
Thank you for an opportunity to assist Beaver Creek Coal Company in complying with OSM's permanent regulatory program and the state's permanent program for surface mining and reclamation and the resultant protection of Utah's wildlife resources. If the scientific name or other information relative to status of any wildlife species referenced is needed, please consult the Division publication

Mr. Dan Guy
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78-16 "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah"
that was earlier provided to Mr. David Chenoweth.

If we can be of any further service, please coordinate with Larry Dalton
(phone - 801-637-3310) as appropriate.

Sincerely



Larry J. Wilson, Supervisor
Southeastern Region

LJW:LBD: ah

Attachment

cc: Darrell Nish, Chief Resource Analyst
Jack Topham, Carbon Conservation Officer
Clark Johnson, Coal Coordinator, U.S. Fish and Wildlife Service
Leon Berggren, Area Manager, Bureau of Land Management
Cleon B. Feight, Director, Division of Oil, Gas and Mining
Dave Chenoweth, Biologist, ARCO Coal

30 CFR, PART 784.21; FISH AND WILDLIFE PLAN
BEAVER CREEK COAL COMPANY, CASTLE VALLEY SPUR

Utah Division of Wildlife Resources provides the following recommendations in order to secure needed base line data and to minimize disturbances and impacts on wildlife and their habitats that could be impacted during coal handling and reclamation operations at the Castle Valley Spur project. The recommendations also address how enhancement of the wildlife resource and their habitats as discussed in 30 CFR, part 783.20 can be achieved. These are consistent with the performance standards of 30 CFR, part 817.97. In instances where it would be necessary to restore or could be beneficial to enhance high value habitats for fish and wildlife (30 CFR, part 817.97 d 9) or that the primary or secondary postmining land use will be for wildlife habitat (30 CFR, part 817.97 d 9) and rangeland seedings are to be used, recommended seed lists and rates of application are provided (30 CFR, part 817.111 through 817.117; note 817.116 b 3 IV and 817.117 c 2).

Although Utah's Division of Oil, Gas and Mining and the U.S. Fish and Wildlife Service have each been provided with a copy of the publication "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah," it may be advisable for the company to secure the services of a qualified private consultant to prepare a list of wildlife species having potential to occur on the mine plan and adjacent areas. The list should include their relative abundance, status, population trend and preferred habitat use areas. All of this information is provided for the mine project under biogeographic area "D" in the afore mentioned publication.

The project and adjacent areas are inhabited on occasion and during different seasons of the year by about 321 species of vertebrate wildlife. Use areas for the "high interest" species from this group of wildlife have been ranked into four levels of importance. The most valuable to an individual species or ecological assemblage are the crucial-critical areas followed in respective importance by high-priority, substantial value and limited value use areas. Each type of use area requires various and specific levels of protection from man's activities. Additionally, due to the variability of vegetation communities in each use area, various and specific technologies in reclamation will need to be evaluated for possible enhancements of wildland habitats or the required level of reclamation.

It is recommended that the company make significant efforts to educate all employees associated with their coal handling operation of the intricate values of the wildlife resource associated with the project and adjacent areas and the local area. Each employee should be advised not to unnecessarily or without proper permits harass or take any wildlife. (Apprehension of wildlife violators has increased by nearly 250 percent during recent years in the region). It is especially important that wildlife not be harassed during winter periods, breeding seasons and early in the rearing process. Exploration should be limited as much as possible during these crucial-critical periods.

During winter wildlife are always in a depleted condition. Unnecessary disturbance by man causes them to use up critical and limited energy reserves which, often times, results in mortality. In less severe cases, the fetus being carried by mammals may be aborted or absorbed by the animal, thus reducing reproductive success of a population.

During breeding seasons, disturbance by man can negatively affect the number of breeding territories for some species of wildlife. Disturbance can also interrupt courtship displays and preclude timely interactions between breeding animals. This could result in reduced reproductive success and ultimate reductions in population levels.

Early in the rearing process, young animals need the peace and tranquility normally afforded by remote wildlands. It is also during this period that young animals gain the strength and ability to elude man and other predators. This allows the young animal to develop in relatively unstressed situations and to utilize habitats that are secure from predators. Disturbance by man can compromise this situation and result in abandonment of the young by the female, increased accidents that result in mortality to young animals or increased natural predation. It is recommended that employees be cautioned against disturbing young animals or females with young if accidentally located.

Employees associated with coal handling operations should be instructed that when wildlife are encountered during routine work that they not stop vehicles for viewing purposes. Moving traffic is less disturbing

to wildlife than traffic that stops or results in out-of-the-vehicle activities. If viewing is desirable, the vehicle should only be slowed, but not stopped.

There are no recommendations for a wildlife plan that would enhance any fisheries since none are associated with the company's project operation.

If ultimate operations are planned or occur that could physically or chemically damage any perennial stream beyond the impact of mere crossings, detailed reclamation plans will be required. Since no impacts are expected that would affect any fishery, and no threatened or endangered fish species inhabit the company's project or adjacent areas, reclamation plans need not address macrophytes or macroinvertebrates.

If reclamation of streams do become a consideration, the company would have to provide for measurement of the physical characters of the stream prior to disturbance. Such measurements should consider surface water information required in 30 CFR, part 779.16, data on stream velocity, gradient, width, depth, pool-riffle ratio and substrata types.

Reclamation that would achieve development of a stream channel similar in character to the channel that existed prior to mining would allow for natural reestablishment of macroinvertebrates, macrophytes and a non-game fish population. This would adequately mitigate for disturbance and temporary loss of those resources. There would be no mitigate for displacement and possible loss of other wildlife species dependent upon the non-game fishes as a prey source. It is believed that impacts on these species would not be significant.

It is also recommended that adequate precautions be taken to keep all forms of coal from being inadvertently deposited in perennial stream channels or other drainages that would allow coal to be transported to a perennial stream during periods of run-off. This would include blow coal from haulage trucks, railroads or other transportation systems or storage piles along with larger particles from similar and other sources. If needed to control blow coal, haulage systems should be covered, or the surface of the coal appropriately sprayed in order to solidify it against wind movement or travel speeds reduced so that no coal is allowed to blow from the transportation system. The impacts of coal on aquatic ecosystems are many and varied; therefore, coal must be kept out of aquatic systems.

Utah Division of Wildlife Resources reaffirms all of the recommendations in 30 CFR, parts 817.44, 817.57 and 817.126 for protecting stream channels and their associated riparian and wetland zones. It is recommended that all natural wetlands and riparian vegetation along streams, drainage bottoms, or around seeps and springs be maintained. Roads and other facility developments should not destroy these limited, highly productive and specialized habitats. Roads crossing through those areas should do

so in a manner that is least damaging to the habitat. Wetlands and riparian habitats are ranked as crucial-critical habitats and are the most productive sites in terms of herbage and biota produced as compared to other local habitat types. It is probable that a majority of the vertebrate wildlife that inhabit the project area make some use of riparian or wetland areas.

It is important to note that roads and other surface facilities to be constructed should as far as practicable be placed at sites where they will not compromise wildlife or their use areas. Also, surface facilities, including roads, should be screened if possible from wildlife use areas by vegetation or terrain.

Haulage of coal between the various mine projects and Castle Valley Spur or distribution points should be planned so that impacts to wildlife are lessened; of special concern is haulage of coal through wintering areas for big game. It is recommended that the company advise personnel involved with coal haulage to use extreme caution so that accidental collisions between motor vehicles and big game are reduced. Without doubt, a reduction in speed across winter ranges would alleviate this problem during the period when big game are physically present between November 1 and May 15 each year.

There are no specific recommendations for enhancement of habitats for amphibians and reptiles. However, any enhancement of habitat that provides a greater diversity of vegetation will also benefit amphibians and reptiles. It is important to note that all of these species are protected

by Utah law. It is urged that individual specimens not be destroyed. This is especially true for snakes since they are a valuable component of the ecosystem.

Snake dens are ranked as being crucial-critical to the population and are protected by law. If a den is located, it should be reported to the Utah Division of Wildlife Resources. Snake dens can be moved, but only with intensive efforts that may take a year or more (snakes are caught and removed in the spring and fall). Thus, construction of facility developments may take place in denning locations if there is sufficient lead time to relocate the occupants.

No specific procedures are recommended for purposes of determining mitigation, enhancement projects or reclamation techniques relative to potential loss of pheasant habitat. Where practicable, it is recommended that agricultural lands not be impacted by coal development due to their value as wildlife habitat and the limited local acreage.

It is recognizable that development and operation of a mining project will in some cases negatively impact many wildlife species through physical destruction of habitats and continual disturbance that makes other habitats unavailable or less desirable to an individual animal. It is also true that impacts that are negative to one species may be beneficial to another species. In the instance of avifauna, it is recommended that the company

plant native and/or ornamental berry producing shrubs around surface facilities. This will provide food and cover for many of the smaller species of birds, resulting in enhancement of their substantial value and high-priority habitats. This action would also mitigate for disturbances and destruction of avifauna habitats at other sites associated with Beaver Creek Coal Company operations.

No studies concerning small birds, mourning doves or waterfowl are recommended for purposes of determining mitigation, enhancement projects or reclamation techniques.

It is important to note that the nests of all birds (except the house sparrow, starling and ferral pigeon) when active and their eggs are protected by federal (Federal Migratory Bird Treaty Act) or state laws (Utah Code 23-17-1 and 23-17-2).

Several species of raptors may frequent the project area. It is unlikely any species of raptor nesting on the project area; however, if located, nests when active should not be disturbed and abandoned stick nests are never to be damaged during inactive periods. Every effort should be made to eliminate man's disturbance within visual sight or one-half kilometer of an active raptor nest. This effort is demanded in the instance of golden eagles since they are sensitive to disturbance and could abandon the nest. Termination of man's use of a site would not be required if eagles constructed the nest after mining had been initiated, since it would demonstrate the bird's willingness to tolerate mining activities and the associated disturbance by man. Disturbance that would come from above and within view of a raptor nest should be precluded if possible for a distance of at least one kilometer.

Roost trees for eagles, if located, must not be disturbed.

As a general comment, whenever active raptor nests are observed or roost trees located, they should be reported to the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service.

Design and construction of all electrical power lines and other transmission facilities shall be designed in accordance with guidelines set forth in "Environmental Criteria for Electric Transmission System" published by the USDA and USDI in 1970 and/or the REA Bulletin 61-10 "Powerline Contacts by Eagles and Other Large Birds." It is also recommended that placement of utility poles be planned so that they are out of view of roads or at least 100 meters away from any roads. This will lessen opportunity for illegal killing of these valuable birds.

Mule deer and cottontail rabbits, populations are in low densities, are the only game mammals that inhabit the project area. There are no recommendations to lessen impacts to game mammals except those suggestions made earlier and recommended reclamation that will be discussed later.

No studies concerning game mammals are recommended for purposes of determining mitigations, enhancement projects or reclamation techniques.

The project and adjacent areas provide habitats for several of Utah's furbearers and a multitude of non-game animals. For all of these species, there are no recommendations to lessen impacts except those suggestions made earlier and recommended reclamation that will be discussed later.

No studies concerning furbearers and non-game animals are recommended for purposes of determining mitigations, enhancement projects or reclamation techniques.

In situations where wildland habitats have been or will be disturbed, reclamation is required. Also, there are sites where enhancement of wildland habitats through vegetation treatments and/or seedings and transplants of seedlings could benefit wildlife. The attached tables (1 through 10) depict recommended seed lists for several vegetative associations and application rates for rangeland seedings that would benefit wildlife. If seed for a plant species is not available, suitable alternates are also listed. For some vegetation associations, plant species are recommended that will assist in erosion control of special sites such as roadbanks. Seedling transplants from nursery stock or nearby rangelands would also be acceptable for enhancement or reclamation of wildlands. In either instance, tables 1 through 10 provide lists of vegetation species by habitat association that would benefit wildlife.

Temporary control of rodents may be required to ensure a successful rangeland treatment. It is recommended that the county agent be consulted in this area of concern. Poisoned oats are the most common and acceptable method for rodent control; however, only licensed persons may apply the treatment.

Currently, there are some new concepts in methodology for revegetation that are being successfully implemented in other parts of the nation and world. One promising method is a procedure where a large scoop removes,

from a natural and stabilized site, a small area of earth intact with vegetation and subsurface soils for placement on a site to be reclaimed. This same procedure can be utilized when disturbing pristine sites, except that the native vegetation is stored for use in latent reclamation. Another meritorious method for stimulating natural revegetation, in combination with other reclamation techniques, is to plan facility developments so that islands of natural, native vegetation remain. This will allow for natural vegetation to spread from the islands. These techniques can also be useful for enhancement of poor quality sites that currently exist on the mine plan area.

Encapsulation of seed and fertilizer for several releases over a period of years after a single application is a new and possibly advantageous procedure. This technique along with soil stabilizing structures has been successfully used in South Africa. Dr. J. Van Wyk in the Department of Botany at Potchefstroom University in South Africa could provide additional information on this new technique.

There are also new specialized techniques coming to the forefront for stabilization of problem sites such as roadbanks and steep slopes. It is important that these sites be promptly and permanently revegetated in order to reduce siltation into local riverine systems. This will mitigate for damage to aquatic wildlife populations and habitats from siltation. Enhancement of existing problems, sites or reclamation of disturbed sites can mitigate for salt loading of local river systems. It is believed

that natural, nonpoint sources represent 50 percent of the salinity in the upper basin of the Colorado River system into which this mine plan area drains.

It is recommended the company make numerous contacts with appropriate agencies, institutions and persons to ensure that enhancement or reclamation projects achieve the required degree of permanency, plant diversity, extent of cover and capability of regeneration to ensure plant succession. Generally speaking, seeding should be accomplished as late in the fall as possible. Seedling transplants need to be coordinated with local soil moisture conditions. It is paramount that suitable vegetation be maintained and/or reestablished if the life requirements of wildlife are to be satisfied in the postmining period. Success in this area of concern along with cessation of man's disturbances will likely result in a natural reinvasion and the resultant inhabitation by most wildlife species of an impacted site.

It is important to note that enhancement or reclamation projects that are to benefit wildlife must be properly designed so that all the life requirements of the target species are considered in conjunction with forage. Water must be provided or be present and thermal cover along with escape and hiding cover has to be in abundance. Loafing areas and travelways between the many types of use areas must also be provided. In order to meet these goals, a considerable degree of consultation will be required between the company and Utah Division of Wildlife Resources.

As a service and also to ensure that the needs of wildlife are met, the various expertise within the Division of Wildlife Resources are available to the company for consultation. For the most part, Larry Dalton, Resource Analyst, for the Southeastern Regional office at 455 West Railroad Avenue in Price, Utah 84501 (phone 637-3310) will coordinate any needed contacts. Richard Stevens, Wildlife Biologist, at the Great Basin Research Center, Box 704, in Ephraim, Utah 84627 (phone 283-4441) is available for consultation and site specific analysis concerning species for vegetation plantings, timing and techniques to achieve the best results.

In instances where revegetation projects are to be planned over coal waste areas, heavy metal uptake by the plants must be evaluated. It is recommended that the company initiate an appropriate long-term monitoring program to determine the magnitude and resolutions, if needed, for this problem.

It is recommended that persistent pesticides not be utilized on the project area. Other alternate pesticides or forms of control should be utilized. Additionally, all hazards associated with the project operation should be fenced or covered to preclude use by wildlife; of special concern would be toxic materials.

Hunting and other state and federal wildlife regulations must be adhered to by sportsmen utilizing the project area.

30 CFR, PART 783.20; FISH AND WILDLIFE RESOURCE INFORMATION
BEAVER CREEK COAL COMPANY, CASTLE VALLEY SPUR

General Wildlife Resource Information--All Species of Vertebrate Wildlife

The mine plan area for the Castle Valley Spur Project encompasses a portion of the San Rafael Swell and Desert in Carbon County, Utah. This area drains into the Price River, which flows into the Green River and ultimately into the Colorado River and Lake Powell. The Division publication No. 78-16 "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah" represents a low level of study and adequately identifies occurrence, relative abundance, status, population trend and habitat use areas for wildlife species that inhabit the San Rafael Swell and Desert. Generally speaking, the area in which the mine plan and adjacent areas lie could be inhabited on occasion and during different seasons of the year by about 321 species of vertebrate wildlife (no fish species, 7 amphibian species, 14 reptile species, 235 bird species and 65 mammal species). Some of these species are considered to be of high interest for the habitats and local area represented. It is interesting to note that 84 percent of these species are protected. High interest wildlife are defined as all game species; any economically important species; and any species of special aesthetic, scientific or educational significance. This definition would include all federally listed, threatened and endangered species of wildlife.

Utah's Division of Oil, Gas and Mining and the U.S. Fish and Wildlife Service have each been provided with a copy of the publication "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah." Dependent upon anticipated impacts, data from low level or high level studies should be included with the mining permit application. The company will likely need the services of a qualified, private consultant in order to assimilate such data once it is secured through the various agencies and/or original field work.

A ranking and display (figure 1) of vertebrate, terrestrial and aquatic wildlife use areas has been developed. Crucial-Critical wildlife use areas followed in respective importance by High-Priority, Substantial Value and Limited Value wildlife use areas require various levels of protection from man's activities and developments.

Crucial-Critical wildlife use areas are "sensitive use areas" necessary to sustain the existence and perpetuation of one or more species of wildlife during critical periods in their life cycles. These areas are limited and lie within high-priority wildlife use areas. All stream sections, reservoirs, lakes and ponds identified by Utah Division of Wildlife Resources as Class 1 or 2 are classified as being crucial-critical. Biological intricacies dictate that significant disturbances cannot be tolerated by the members of an ecological assemblage on crucial-critical sites. Professional opinion is that disturbance to crucial-critical use areas or habitats will result in irreversible changes in species composition and/or biological productivity of an area.

High-priority wildlife use areas are "intensive use areas" for one or more species of wildlife. "Intensive use areas" are not limited and in conjunction with limited value use areas form the substantial value distribution for a wildlife species. All stream sections, reservoirs, lakes and ponds identified by Utah Division of Wildlife Resources as Class 3 are classified as being of high-priority. In addition, wildlife use areas where

surface disturbance or underground activities may result in subsidence that could interrupt underground aquifers and could result in a potential for local loss of ground water and decreased flows in seeps and springs should be considered as being of high-priority to wildlife.

Substantial value wildlife use areas are "existence areas" for one or more species of wildlife. "Existence areas" represent a herd or population distribution and are formed by the merging of high-priority and limited value wildlife use areas for a species. All stream sections, reservoirs, lakes and ponds identified by Utah Division of Wildlife Resources as Class 4 are classified as being of substantial value.

Limited value wildlife use areas are "occasional use areas" for one or more species of wildlife. "Occasional use areas" are not limited and are part of the substantial value wildlife use area for a species. All stream sections, reservoirs, lakes and ponds identified by Utah Division of Wildlife Resources as Class 5 or 6 are classified as being of limited value.

MAPPING

Vegetation

It is recommended that the company's primary effort be placed on identifying species of vegetation in each habitat association within the wildlife use areas for purposes of reclamation. Identification of each vegetation association on

appropriately scaled maps along with supportive narration will probably be required as part of the demands of state and federal regulations for a mine permit application.

It is believed that if satisfactory reclamation is achieved and man's disturbance does not continue or become a factor, that most species of wildlife displaced from the mine plan area will return. Without doubt, the key to success for enhancing or restoring wildlands will be development of habitats so that the postmining condition as compared to the premining condition will have similar species, frequency and distribution of permanent plants in each vegetative type that will allow for natural plant succession.

Wildlife Use Areas

Figure 1 displays mapable, high value habitat use areas for high interest wildlife on and adjacent to the mine plan area. This display includes stream sections and bodies of water, if any, used by high interest fish species and known seeps, springs, wetlands, and riparian zones. It should be noted that there are high interest wildlife distributions that are so broad that they cover the entire map and therefore are not illustrated. However, all vertebrate species of high interest wildlife and their distributions are discussed in the following narrative. The narrative also identifies the need, if any, for studies that would be recommended in order to prepare and evaluate a Fish and Wildlife plan for 30 CFR, part 784.21.

Water

Due to demands of state and federal regulations, the company will probably be required to identify and monitor all surface waters for potential impacts from subsidence. This information should be plotted on the same map with the wildlife use area distributions due to the value of water to wildlife.

Fish and Wildlife Inventory

Aquatic Use Areas

Macrophytes

Since no perennial streams cross or lie adjacent to the Castle Valley Spur area, there is no practicality for information relative to macrophytes to be addressed by the mine permit application.

Macroinvertebrates

The comments provided for macrophytes represent the same situation and recommendations that should be considered for macroinvertebrates.

Fish--High Interest Species

Comments provided for macrophytes and macroinvertebrates represent the same situation and recommendations that should be considered for fishes.

If project operations are planned that would alter, destroy or discharge effluents into any perennial streams, appropriate state and federal permits along with reclamation plans would be required of the company. Achievement of reclamation would demand detailed studies of stream velocity correlated to flow, representatives of the stream channel profile, gradient, pool-riffle ratio, substrata types identifying percent representation of each type and surface water information required for 30 CFR, part 779.16. If modification of flows is anticipated, instream flow requirements must be considered to meet the needs of the existing nongame fisheries,

"biological community" and maintenance of existing riparian or wetland zones. Such base line information would allow for development of mitigation or reclamation plans that would allow for maintenance or reestablishment of unique habitat types. This information is not generally available and would necessitate the services of a private consultant.

It is important to note that no federally listed threatened or endangered fish species inhabit the mine plan or adjacent areas. The endangered humpback chub and Colorado squawfish inhabit the Green and Colorado Rivers. Additionally, the humpback (razorback) sucker and the bonytail chub also inhabit those rivers. It is likely that these species will one day be listed as threatened and endangered, respectively. It is not believed that implementation and operation of the company's project will impact these species.

Terrestrial Use Areas

Unique Habitat Types

The riparian zones associated with drainage bottoms (ephemeral or intermittent), or perennial streams (30 CFR, part 701.5), seeps, springs, wetlands and flood plains are ranked as being crucial-critical to all aquatic and terrestrial wildlife species. These areas are highly productive in terms of herbage produced and use by wildlife as compared to surrounding areas. These unique habitat types must be identified in the permit application as crucial-critical wildlife use areas. Figure 1 displays unique habitat types that are currently known; however, the applicant must identify and protect all such use areas on the mine plan and adjacent areas.

Amphibians

Seven species of amphibians, all of which are protected, are known to inhabit the biogeographic area in which the mine plan and adjacent areas are located (reference the "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah"). None of these amphibians are federally listed as threatened or endangered species. It is not recommended that the company provide for any studies concerning amphibians. Utah Division of Wildlife Resources has already conducted low levels of study surrounding the project area; these are sufficient since species occurrence, relative abundance, status, population trend and preferred habitat use areas are documented in the afore mentioned publication.

Reptiles

Fourteen species of reptiles, all of which are protected, are known to inhabit the biogeographic area in which the mine plan and adjacent areas are located (reference the "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah"). None of those reptiles are federally listed as threatened or endangered species. It is not recommended that the company provide for any studies concerning reptiles. Utah Division of Wildlife Resources has already conducted low levels of study surrounding the project area; these are sufficient since species occurrence, relative abundance, status, population trend and preferred habitat use areas are documented in the afore mentioned publication.

To date no snake dens, which are protected, have been identified on or adjacent to the project area.

Birds

Two hundred thirty-five species of birds, all of which are protected, are known to

Inhabit the biogeographic area in which the project and adjacent areas are located (reference the "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah"). For all of those species of avifauna, Utah Division of Wildlife Resources has already conducted low levels of study surrounding the project area; these are sufficient since species occurrence, season of inhabitation, relative abundance, status, population trend and preferred habitat use areas are documented in the aforementioned publication. In many instances, the Division already has sufficient data concerning high interest species of birds. The existing, needed data is provided in later discussions.

Agricultural areas and adjoining wildlands associated with the project and adjacent areas provide year-long, substantial value habitats for ring-necked pheasants. Due to the pheasants dependency on agricultural systems, all cultivated fields are ranked as being of crucial-critical importance to the birds. Pheasants initiate nesting as early as mid-April and continue into mid-July. This period of time and successful nesting activities is of crucial-critical importance to the maintenance of the pheasant population. The applicant need not provide additional data in the mine permit application concerning pheasants.

Mourning doves are of high interest to the state of Utah and normally inhabit the entire project and adjacent area (substantial value use area) between May 1 and September 15 each year; they nest throughout most of this period. Successful nesting activities and any water sources are crucial-critical to maintenance of the

mourning dove population. The applicant need not provide additional data in the permit application concerning doves.

Generally speaking, the area surrounding the project and adjacent areas provide substantial value habitats for waterfowl, all of which are of high interest to the state. Stock ponds and all perennial streams can become locally important as high-priority habitat use areas during peak migration periods in the spring (March 15 to May 15) and fall (August 15 to October 15). To a lesser extent, the perennial streams with their associated wetland and riparian habitats represent high-priority use areas for brooding of a limited number of young waterfowl and the moulting process for low numbers of adult birds between July 16 and August 15 each year. Additionally, these areas represent crucial-critical nesting to the few waterfowl inhabiting the areas between March 15 and July 15 each year. The applicant need not provide additional data in the permit application concerning waterfowl.

The project and adjacent areas provide habitats for turkey vultures, bald and golden eagles, four species of falcons, eight species of hawks, osprey and nine species of owls. Many of these species are of high federal interest pursuant to 43 CFR, 3461.1 (n-1). All of these species are of high interest to the state of Utah. Realistically, nesting habitat does not exist on the project or adjacent areas for most, if not all, of these species. However, if a species were to nest on or adjacent to the project area, it would have a specific crucial-critical period for which the aerie needs protection from disturbance. Generally speaking, aeries need protection from significant or continual disturbance within a radius of one-half kilometer of the nest, but only during the period of time that the nest is occupied. Species specific protective stipulations are available from the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service.

It is important to note that golden eagles are year-round residents of the mine plan and adjacent areas. It is unlikely that they would nest on the project or adjacent areas, but to date no inventory of breeding territories or aerie sites has been conducted. An eagle aerie would be extremely sensitive to disturbance within a one-half kilometer radius when active between the period of April 15 and July 15. The one-half kilometer buffer zone may need to be increased to one kilometer if the disturbance originates from above and in direct line of sight to the eagle aerie.

The endangered bald eagle could be expected as a winter resident (November 15 to March 15) on the project or adjacent areas. As a result, the area represents a substantial value, winter use area for bald eagles. There are no known or suspected high-priority concentration areas or crucial-critical roost trees for bald eagles on or adjacent to the project area. Utah Division of Wildlife Resources has and continues to maintain a constant vigilance concerning use areas for bald eagles. Therefore, it is not currently recommended that the company provide for any studies relevant to bald eagles.

The endangered peregrine falcon is a year-round resident of Carbon and Emery Counties. No sightings are known to have been made on or adjacent to the project area; however, their occasional presence would not be unlikely. Additionally, no aeries are known or suspected to be on or adjacent to the project area.

It is unlikely that any nonraptorial species of avifauna having high federal interest pursuant to 43 CFR, 3461.1 (n-1) would inhabit or make significant use of the project or adjacent areas. If plans change so that the project operations will physically impact any of these birds, interfere significantly with any population's behavioral processes or destroy portions of their high-priority habitat use areas,

high levels of study would then be recommended. Currently, it is not believed that this project operation will impact nonraptorial birds having high federal interest. Therefore, data relative to these birds need not be included with the mine permit application.

Sixty-five species of mammals, of which 22 percent are protected, are known to inhabit the biogeographic area in which the project and adjacent areas are located (reference the "Species List of Vertebrate Wildlife that Inhabit Southeastern Utah"). For all of those species of mammals, Utah Division of Wildlife Resources has already conducted low levels of study. Species occurrence, relative abundance, status, population trend and preferred habitat use areas are documented in the afore mentioned publication. Those studies along with data provided in later paragraphs are sufficient; therefore, it is recommended that the company not provide any additional data in the permit application concerning mammals.

Low numbers of mule deer (herd unit 29) normally utilize the project and adjacent areas on a year-round basis. The habitat is of only limited value to the deer herd (Figure 1).

Agriculture areas nearby to the project area are utilized year-long by mule deer. Their use is sometimes intensified during the winter and spring periods.

Fawning and rearing processes for deer take place between May 16 and July 15. (Fig. 1)

The entire project area and adjacent areas provide substantial value, year-long habitats for cottontail rabbits. The young are born between April and July each year. This is a crucial-critical period for maintenance of the population.

The mine plan and adjacent areas provide substantial value habitats for kit fox and possibly bobcat; both are high interest species of wildlife. Almost nothing

is known of their population dynamics and habitat use areas on or adjacent to the project area. Without doubt, a crucial-critical period for both species is when they are rearing young. Dens while being inhabited are also crucial-critical use areas.

Portions of the project and adjacent areas provide substantial value habitats for several of Utah's furbearer--badger, striped skunk and possibly spotted skunk. Muskrats can be found associated with most irrigation ditches (note the muskrat is not a furbearer but is a high interest species). For all of these species, their breeding/rearing seasons, dens or lodges are of crucial-critical value to maintenance of the populations.

Currently, there are no other known high interest wildlife species or their habitat use areas on or adjacent to the project area. It is not unreasonable to suspect that in the future, some additional species of wildlife may become of high interest to the local area, Utah or the Nation. If such is the case, the required periodic updates of project permits and reclamation plans can be adjusted and appropriate recommendations made.