



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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February 21, 1995

Deane Zeller, Acting Forest Supervisor
U.S. Forest Service
Manti-LaSal National Forest
599 West Price River Road
Price, Utah 84501

Re: Response to January 13, 1995 Division Stipulation Requirements, LBA #9,
Crandall Canyon Mine, Genwal Coal Company, ACT/015/032-94F, Folder #2,
Emery County, Utah

Dear Mr. Zeller:

Enclosed please find a copy of the responses to the Division letter of January 13, 1995 for the Crandall Canyon Mine stipulations. Please review these responses by March 31, 1995 and notify the Division if the Forest Service concurs with these responses.

If you have any questions, please call me.

Sincerely,

A handwritten signature in cursive script, reading "Pamela Grubaugh-Littig".

Pamela Grubaugh-Littig
Permit Coordinator

Enclosure

cc: Daron Haddock



APPLICATION FOR PERMIT CHANGE

Title of Change: Response to January 13, 1995 Stipulation Requirements

Permit Number: ACT/015/032

Mine: Crandall Canyon

Permittee: Genwal Coal Company

Description, include reason for change and timing required to implement: Response to DOGM Stipulated Requirements LBA#9

Table with 23 rows of questions regarding permit changes, such as 'Change in the size of the Permit Area?' and 'Will permit change include operations outside the Cumulative Hydrologic Impact Area?'. Each row has 'Yes' and 'No' checkboxes with handwritten marks.

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein. Signed - Name - Position - Date

Received by Div. Gas & Mining FEB 15 1995

Subscribed and sworn to before me this 14th day of February 1995. Notary Public My Commission Expires: 5/28/1997 Attest: STATE OF

NOTARY PUBLIC - STATE OF UTAH ROSINA SIAPERAS 778 EAST BRIARWOOD CIRCLE PACE, UT 84061 COMM. EXPIRES 5-28-97



GENWAL COAL COMPANY

February 15, 1995

Mr. Darron Haddock
Permit Supervisor
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Response to January 13, 1995 Stipulations associated with LBA #9, Genwal Coal Company, Crandall Canyon Mine, ACT/015/032.

Dear Darron:

Genwal is pleased to submit this response to the Special Conditions and Stipulations outlined in your September 26, 1994 letter. Each requirement of the stipulation will be addressed separately. Where warranted, changes have been made to the text within the MRP to satisfy the requirements.

REQUIREMENT #1

"Correct two typographical errors....." Page 3 - The two typographical errors on page 3-18 of the MRP have been corrected (Gashawk and the Sharp-skinned Hawk)

REQUIREMENT #2

Page 3 - Genwal must commit to conducting spring and fall macroinvertebrate studies every three years. Genwal has revised the MRP and has committed to conducting spring and fall macroinvertebrate studies in Crandall Canyon in 1997 and again in the year 2000.

REQUIREMENT #3

Page 5 - "On page 3-7 Genwal has included a list of "5 bird species" which are known or suspected threatened..... this list includes Townsends Big-Eared Bats. Bats are not birds" (Well they are when a geologist tries to modify the text). The reference on page 3-7 has been changed to correctly identify the Townsends Big-Eared Bat as a mammal.

REQUIREMENT #4

"The peregrine falcon is an endangered species.....Yet it is not included on the list....." The list has been modified to

Mr. Darron Haddock
ACT/015/032
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page 3

REQUIREMENT #9

"Coopers Hawk needs to be added to the list.; Forest Service stipulated macroinvertebrate studies every three years; Rewrite the entire section dealing with inaccuracies and inconsistencies associated with T&E Species, etc; Information about Golden Eagle nests should be updated; and the MRP should reference the 1980 macroinvertebrate study."

Coopers hawk has been added to the list. Genwal has agreed to conduct additional aquatic studies in 1997 and the year 2000. Genwal is in the process of collecting additional data associated with the T&E species and working with the Forest Service and USFWS to clarify the differences. (Please note that with LBA#9 Genwal is not creating additional surface disturbances. Also, Genwal has been conducting raptor surveys in the mine permit area. Genwal agrees that portions of Chapter 3 could benefit by being updated. Genwal Commits to updating the portion of Chapter 3 (Threatened, Endangered, Proposed, or Sensitive Species and the results of the 1994 Macroinvertebrate Study by July 1, 1995).

REQUIREMENT #9

Genwal must consider the Archaeological sites as confidential. Genwal specifically requests that the Division consider Appendix 4-1A as confidential and that Genwal gives its permission to DOGM to hold that portion of the MRP separate from the remainder of the MRP.

REQUIREMENT #10

The operator must remove th statement on page 3-10 "(Taken in its entirety form 5/22/92 submittal)" as this is not a true statement. Genwal has removed the reference in page 3-10. However, please note that while I (Randy Gainer) did not prepare the above referenced document, I did copy verbatim that portion of the text which was pertinent to the comment and stated "Taken in its entirety". Thus, the DOGM reviewer and Genwal may be referencing different sections or have a distinctly different understanding of what the comment was referencing. But, Genwal and I strongly objected that Genwal had intent to provide less than what is true and accurate, irrespective of what the Division reviewer considers to be true or not true statements.

Migratory Birds of High Federal Interest

This group of especially significant species is comprised of 22 bird species identified by FWS as occurring in the Uintah-Southwestern Utah Coal Production Region.

- | | |
|---------------------|--------------------------|
| 1. Bald Eagle | 12. Sandhill Crane |
| 2. Golden Eagle | 13. Great Blue Heron |
| 3. Ferruginous Hawk | 14. Long-billed Curlew |
| 4. Cooper's Hawk | 15. Band-tailed Pigeon |
| 5. Peregrine Falcon | 16. Pileated Woodpecker |
| 6. Prairie Falcon | 17. Williamson Sapsucker |
| 7. Merlin | 18. Lewis Woodpecker |
| 8. Osprey | 19. Black Swift |
| 9. Spotted Owl | 20. Western Bluebird |
| 10. Burrowing Owl | 21. Scott's Oriole |
| 11. Flammulated Owl | 22. Grace's Warbler |

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Fish		
Bonytail chub	<i>Gila elegans</i>	E
Colorado squawfish	<i>Ptychocheilus lucius</i>	E
Humpback chub	<i>Gila cypha</i>	E
Lahontan cutthroat trout	<i>Oncorhynchus (=Salmo) clarki henshawii</i>	T
June sucker	<i>Chasmistes liorus</i>	E
Virgin River chub	<i>Gila seminuda</i>	E
Virgin spinedace	<i>Lepidomeda mollispinis mollispinis</i>	PT
Woundfin	<i>Plagopterus argentissimus</i>	E
Razorback sucker	<i>Xyrauchen texanus</i>	E
Reptiles		
Desert tortoise	<i>Gopherus agassizii</i>	T
Snails		
Kanab ambersnail	<i>Oxyloma haydeni kanabensis</i>	E
Utah valvata snail	<i>Valvata utahensis</i>	E

-
1. Two confirmed sightings were made in Utah in 1982.
 2. Nests in Utah
 3. Migrates through Utah, no resident populations
 4. Wintering populations (only three known nesting pairs in southeastern Utah).
 5. Critical habitat designated.
 6. Critical habitat proposed.
 7. Emergency listing.
 8. Only known historically.
 9. Proposed for delisting.
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For additional information contact: U.S. Fish and Wildlife Service, 145 East 1300 South, Lincoln Plaza Suite 404, Salt Lake City, Utah 84115 Telephone: (801) 525-5001.

Spruce/Fir (8) and Alpine Grassland (9) are found on the highest summits and ridges. In addition to the 10 naturally occurring vegetative communities the previously disturbed areas around the existing mine portals exhibit a vegetation association all their own.

Vegetative Communities Falling Within Areas to be Disturbed

Portions of 6 plant communities will be disturbed by mine site construction and road building. They are: Cottonwood; Sagebrush; Mountain Shrub/Grassland; Mixed Mountain Shrub/Conifer/Aspen; Spruce/Fir/Aspen; and Riparian. In addition, portion of the proposed disturbed are have been previously disturbed.

Representative areas of each community, other than Riparian, were sampled by means of three randomly laced 30 meter transects. Ten 1-square meter plots were randomly selected by lot in each of the 3 transects and sampled for cover and productivity. The Riparian community was sampled in two locations by means of 10 transects, 10 meters or more long placed at right angles to the thread of the stream and spaced from 1 to 10 meters apart (spacing randomly selected by lot). Each of the 20 transects was sampled by 2 dm x 1 meter plots spaced at 1 meter intervals for 5 meters or more (as needed to reach limits of Riparian community) on either side of the centerline of the stream. The Riparian transects were likewise sampled for cover and productivity.

The Seven communities sampled (including the previously disturbed area) are summarized in Tables 3-A through 3-H. A complete species list is provided in Table 1 and a community/species list is provided in Table 2. Each of the communities is roughly described by visual dominants below.

Cottonwood

Along the lower 200 meters of Crandall Creek and along the bottomlands of Huntington Creek and one short section of Crandall Creek near the portals, the vegetative community is dominated by Narrowleaf Cottonwood (*Populus augustifolia*) and Rocky Mountain Juniper (*Juniperus Scopulerum*) in the upper story and by Wood's Rose (*Rosa Woodsil*), Big Sage (*Artemisia tridentata*), Squaw Currant (*Ribes cerium*) and Rocky Mountain Juniper (*Juniperus scopulorum*) in the understory.

Sagebrush

The several small sagebrush flats occurring in the canyon are dominated by Big Sage (*Artemisia tridentata*).

Common Juniper (*Juniperus communis*). The dominant herbs are Thistle (*Cirsium pulchellum*), an Aster (*Aster glaucodes*), and Richardson's Geranium (*Geranium richardsonii*). The dominant grasses are Redtop (*Agrostis stolonifera*) and a Fescue (*Festuca Pratensis*).

The dominant shrubs of Riparian #2 are Wood's Rose (*Rosa Woodsil*), a Willow (*Salix myrtilifolia*), and Mountain Snowberry (*Symphoricarpos oreophilus*). The Dominant herbs are the same three as in Riparian #1: Aster (*Aster Glaucodes*), Richardson's Geranium (*Geranium richardsonii*), and Thistle (*Cirsium pulchellum*) plus Heartleaf Bittercress (*Cardamine cordifolia*). The dominant grasses are Smooth Brome (*Bromus inermis*), Redtop (*Agostis stolonifera*), and an unidentified grass. Also dominant in the grass and herb layer is horsetail (*Equisetum arvense*).

Previously Disturbed Areas

The previously disturbed areas around the existing mine portals are located in areas that were probably Spruce/Fir/Aspen and Mixed Mountain Shrub/Conifer/Aspen before 1939 when mining was just undertaken. Since mining stopped around 1955 three shrubs have taken over; Mountain Snowberry (*Symphoricarpos Oreophilus*), Rubber Rabbitbrush (*Chrysothamnus nauseosus*), and Big Sagebrush (*Artemisia tridentata*).

TREES

Trees in the Cottonwood, Mixed Mountain Shrub/grassland, and Spruce/Fir/Aspen communities were sampled by the Point-centered Quarter Method with tree diameters taken at breast height. Twenty stations were randomly selected in each community. Data are reported as part of Tables 3-B, 3-D, 3-E, and 3-F.

3.21.2 Productivity of lands prior to mining activities.

The only historic commercial utilization of Crandall Canyon and the adjacent lease area over the last 50 to 100 years appears to be domestic grazing. The disturbed area associated with the current mining operations appears to be 6.09 acres.

Approximately two dozen elk cows and calves were in the canyon during the summer of 1980. This game level of use seems to be consistent annually and only varies depending on available forage which is largely dependent on seasonal climate variations. The balance of productivity estimates are included in Appendix 3-1, along with the corresponding reference areas and tables of species.

3.22 Fish and Wildlife Information.

Independent consultants were utilized to assess the fish and wildlife resources associated with the Crandall Canyon mine site.

to Larry Dalton.) Eleven of the twenty-two migratory birds are raptors (Appendix 3-3).

Reptiles and Amphibians.

The published ranges and habitat preferences of the vertebrate species of southeastern Utah have been compared with the location and available habitats of Crandall and Huntington Canyons. Reptiles are found throughout the mine permit area from the riparian areas to the mesic hillslopes and ridgetops. Table 3 in Appendix 3-3 presents a list of the reptiles which may be found in the area and their relative abundance.

Amphibians are always found near water with the habitats associated with Huntington and Crandall Creeks and in springs and seeps located on the hillsides above the creeks. (See Appendices 3-2 & 3-3 and refer to Table 5 included within Appendix 3-3).

3.22.21 Listed or Proposed Endangered or Threatened Species of Plants and Animals as well as Critical Habitat.

No endangered or threatened plant species were encountered in the vegetation survey. This conclusion was reached after reviewing the field data and presenting the data in a meeting with Mr. Bob Thompson of USFS, Manti-La Sal National Forest.

Wildlife-Threatened and Endangered Species.

Listed threatened and endangered species potentially present in the region are the American Peregrine Falcon (*Falco peregrinus anatum*) (E), which nests in Utah; Arctic Peregrine Falcon (*Falco peregrinus tundrius*) (T and is proposed for delisting) which migrates through Utah; and Bald Eagle (*Haliaeetus leucocephalus*) (E), which winters in Utah (Source: U.S. Fish and Wildlife Service, July, 1994)

None of the species are likely to occur within the mine permit area, because habitats for these species in the permit area are marginal. However, areas of potential occurrence include riparian forests along Huntington Canyon for the Bald Eagle, cliff areas in the region for the American Peregrine Falcon, and upland areas for the Arctic Peregrine Falcon. (Note letters from UDWR and USF&W Service Appendix 3-3).

Migratory Birds of High Federal Interest

This group of especially significant species is comprised of 22 bird species identified by FWS (Figure 3-3) as occurring in the Uintah-Southwestern Utah Coal Production Region. Of the 22 species 7 species have the potential of migrating within the region where the mine is permitted.

Some areas of the canyon are being used as a hunting range by raptors. A listing of the raptors are included in Table 5 within Appendix 3-3.

3.22.22 Habitats of Unusual High Value for Fish and Wildlife.

Plate 3-1 identifies all wildlife usage area of high value or critical value.

The haul road and surface facilities within the permit area will not disturb any winter range for deer or elk. Plate 3-1 shows elk and deer winter range in the valley bottoms.

Crandall Canyon represents only a portion of winter habitat for moose, the winter range encompasses all the Huntington drainage, with a tremendous amount of unoccupied adjacent habitat, reference Larry Dalton, the impacts will be minimal. The 0.5 acre winter range to be disturbed, of which the riparian habitats are ranked as being of critical value, only approximately 3000 square feet of riparian Habitat will be disturbed. According to Larry Dalton of the State of Utah Division of Wildlife Resources, there is a tremendous volume of adjacent unoccupied habitat suitable to absorb displaced moose. The southeastern Utah moose herd is proliferating at a normal pace. There is an abundance of suitable habitat that is not occupied. This is due, in part to a low initial transplant population of moose and some illegal killing.

As a majority of the road is outside of the permit area with the USFS requesting the haul road remain as a permanent improvement after mining ceases, the USFS as surface owner has jurisdiction over the road.

Genwal recognizes the fact that the Division of Wildlife Resources and the Division of Oil, Gas & Mining consider all seeps and springs to be important to wildlife. If, during the monitoring of the springs, it is proven that mining activities have dewatered any seep or spring in the area, Genwal will notify the Division of Wildlife Resources, the Division of Oil, Gas & Mining and the U.S. Forest service and begin working on an acceptable mitigation plan involving the use of guzzlers or other approved methods. The method used will be designed in cooperation with the Division of Wildlife Resources, the Division of Oil, Gas & Mining and the U.S. Forest Service and placed in the area of the effected spring. No other sources of water, other than the springs located by the seep and spring survey, are known to exist in the mine plan area. Genwal owns shares in the Huntington-Cleveland Irrigation Company that can be transferred if required, to meet the demands of an alternate water supply.

3.22.230 Other Species or habitat that Require Special Protection Under State or Federal Regulations.

landscape boulders/riprap stockpile at the topsoil storage site will provide shelter for the smaller animals.

Surface disturbance will be kept to a minimum. The road will be designed as narrow as practically possible. Encroachment on Crandall Creek will be kept to a minimum to protect the creek as a source of potential food for trout downstream in Huntington Creek.

During construction of the mine facility Genwal Coal Company, committed to the following:

The applicant's proposal for minimizing and monitoring impacts to the Crandall Creek drainage during construction activities in addition to the detail of operational plans as outlined under R645-301-731 & R645-301-552.400 and as outlined in this document, justify granting a variance to the 100 foot buffer zone requirements of Section R645-301-731.600. The Division has determined that the proposal to construct surface facilities connected with the proposed underground coal mine, within 100 feet of Crandall Creek, a perennial stream, is in compliance if the following are adhered to:

1. The Applicant states that no further blasting will be done that might deposit rubble in the creek. Temporary sediment control measures will be utilized which include the use of straw dams similar to those used and approved during access road construction, under the USFS road use permit during the summer and fall of 1981. Throughout construction activity, the straw dam provided an acceptable job of retaining sediment.
2. Two more straw dams are proposed for installation in Crandall Creek in the vicinity of stations 71+00 and 79+00. The dams consist of two rows of straw bales laid across the creek with off set ends. The dams will be built high enough so that the water must flow over the center portion of the dam. After construction is completed, the trapped sediment will be removed and then the bales.
3. Embankment erosion control measures will consist of riprapping those sections which will encroach upon Crandall Creek, refer to Plates 5-3, 5-4, 5-16, and 5-17.
4. It is specified in Chapter 5 that pillars are to be designed to ensure that no unplanned subsidence should occur within 200 feet of the center line of Crandall Creek.
5. The area not to be disturbed will be designated a buffer zone and marked as specified in R645-301-521.200.

between the coal stockpiles and the creek. Refer to the narrative in Chapter 3 pertaining to the mine site plans. Temporary sediment control measures as described above will be installed as per the design narrative. It will not be necessary to disturb the creek with vehicles or equipment used in construction. Most of the riparian vegetation along the creek can be saved. Installation of a culvert would destroy the riparian vegetation and the food producing ability of the creek.

3.30 Operation Plan.

Each application will contain a plan for protection of vegetation, fish, and wildlife resources throughout the life of the mine.

Genwal Coal Company has prepared a plan to mitigate any adverse effects on vegetation, fish or wildlife. This plan is addressed in the following Sections 3.31, 3.32, 3.33, 3.41, and 3.40.

3.31

As agreed to by the United States Forest Service and Genwal Coal Company, land above and within the 20 degree angle of draw of all second mined workings shall be monitored by infrared aerial photography techniques every five (5) years by the operator. This monitoring will begin in 1995 and continue once every five (5) years thereafter. Comparisons of vegetative cover will be made to determine if any adverse changes to the vegetative cover have occurred.

A description of the measures taken to disturb the smallest practicable area at any one time and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion. This may include part or all of the plan for final revegetation as described in R645-301-341.100 and R645-301-341.200.

Mitigating Measures to be Employed to Reduce Impacts on Vegetative Resources.

The disturbed area within the permit area, including the three topsoil stockpiles, will be reclaimed upon permanent cessation of mining operations. During the operational phase on the property, water will be applied to the coal and roads within the permit area and adjacent forest development road, when needed, to reduce fugitive dust emissions. Additionally magnesium chloride may be applied to the roads to reduce dust emissions. Prior to the use of this product on the forest access road, the forest service will be contacted and arrangement made for the application under their direction.

The disturbed areas within the mine plan area over which the water reports to the sediment pond and which have been contemporaneously reclaimed will achieve an 80% cover on the slopes. The other contemporaneously reclaimed area will be seeded with enough vegetation to prevent erosion. Refer to Appendix 3-5 for details of the irrigation plan to maintain 80% cover.

3.32 Subsidence Control Plan

Applicant's survey, as stated in the mine plan, indicates that no structure exists above the areas where there is potential subsidence on the surface. Renewable resource protection is addressed in Chapter 5, Section 5.25.

For the purpose of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES a description of the anticipated impacts of subsidence on renewable resource lands identified in R645-301-320, and how such impact will be mitigated.

Project Impacts of Subsidence.

For a more complete discussion refer to Chapter 5, Section 5.25. Relative to potential impacts to wildlife (tree nesting raptors and cliff nests for raptors see Appendix 3-8 letter UDWR.

Control Measures to Mitigate Impacts.

Any area that appears to have been impacted through subsidence will be inventoried to determine if any damage to vegetation or wildlife is apparent. In the event damage has occurred the management agency responsible will be notified and a joint plan of mitigation will be formulated and forwarded to UDOGM for their approval prior to implementation.

Project Impact of Mining on Fish and Wildlife.

Operation will unavoidably impact small vertebrate species and increase hunting pressure on big game species. Impact to the fishery in Crandall Creek which is adjacent to the permit area will be kept to a minimum.

The applicant will protect wildlife habitat on the permit area by careful design and construction of mining facilities and transportation corridors, keeping surface disturbance to a minimum. The applicant has committed to report to the regulatory authority the presence of any threatened or endangered species in the area. The substation and transformer located within the permit supplies all the power for the mine site. The power lines from the substation are in underground conduit providing no threat to raptors.

Mitigating Measures to be Employed to Protect Fish and Wildlife.

Crandall Canyon is used as a grazing area for elk and deer during the summer months. Lower Crandall Canyon is critical winter range for deer. Migration of elk and mule deer of the Manti-La Sal range occurs as a wide spread migration with no specific corridors as such.

Impacts on the lower 2km. of the canyon will remove approximately 0.5 acre of moose habitat, winter habitat in particular. This represents only a minute portion of the moose winter habitat as the moose habitat encompasses all the Huntington drainage. Of the 0.5 acre winter range to be disturbed, of which the riparian habitats are ranked as being of critical value, only approximately 3000 square feet of wooded area will be disturbed. According to Larry Dalton of the State of Utah Division of Wildlife Resources, there is a tremendous volume of adjacent unoccupied habitat suitable to absorb displaced moose. The southeastern Utah moose herd is proliferating at a normal pace. There is an abundance of suitable unoccupied habitat. This is due, in part, to a low initial transplant population of moose and to some illegal killing.

Moose are drawn to Crandall Canyon because of the water and vegetation which grows along the Crandall Creek. The Division of Wildlife Resources provided a map of moose wintering habitat in the area, the information from that map is shown on plate 3-1. Crandall Canyon is of critical grazing value to moose all year long.

As per Larry Dalton, State of Utah, Division of Wildlife Resources, there are no known locations of drumming logs in Crandall Canyon or near the proposed surface or haul road areas to be disturbed.

recommendations. An annual survey will only be conducted: (1) in the event that UDWR recommends it, (2) this course of action will not unduly harass or stress nesting eagles, and (3) if prudent to insure their safety and/or habitat.

Wildlife.

In addition to cliff nesting raptors, there is a potential for 5 tree nesting raptors inhabiting the permit area. They are: the (1) Goshawk, (2) Sharp Shinned Hawk, (3) Red Tailed Hawk, (4) Swainson's Hawk and the (5) Ferruginous Hawk (the Price office of the U.S. Forest Service is of the opinion that the Ferruginous Hawk is unlikely to occur in the mine permit area).

All of these species are condo-nestors and will normally have a number of nest locations and only utilize one per any one season. Other than surface disturbances the only potential impact to these species would be the loss of an active nest during the egg incubation period or when flightless young were occupying the nest. This could possibly occur as a result of subsidence with this possible impact, Genwal Coal Company representative contacted the UDWR and the U.S. Forest Service as per their recommendations. Appendix 3-8 outlines the course of action Genwal has agreed to implement.

3.40 Reclamation Plan.

3.41 Revegetation.

The revised acreage is correct in itemizing 6.65 acres of proposed disturbance within the permit area of 2165.42 acres (total lease acreage, including new leases), refer to Plates 1-1, 2-2 and 5-3.

Each application will contain a reclamation plan for final revegetation of all lands disturbed by coal mining and reclamation operations, except water areas and the surface of roads approved as part of the postmining land use, as required in R645-301-353 through R645-301-357, showing how the applicant will comply with the biological protection performance standards of the State Program. The plan will include, at a minimum, as described in the following Sections 3.41.100 through 3.41.300.

3.41.100 A Detailed Schedule and Timetable for the Completion of each Major Step in the Revegetation Plan.

All reclamation, other than areas handled in contemporaneous reclamation, (see section in this chapter) will commence with final grading of disturbed surface areas, which should be completed in approximately one month. Within 30 days following completion of final grading (which should be in late September or early October), topsoil from the stockpile will be redistributed. Nutrients and

actual procedures involve a three phase program: (1) hydro and drill seeding, (2) hydromulch the entire area to supplement revegetation and control run-off until stabilization is complete, and (3) to plant seedling to further stabilize the soil and to provide necessary wildlife, hydrological and aesthetic commitments as required under R645 regulations.

3.41.220 Methods to be used in Planting and Seeding:

Phase 1 Seeding

The entire area of disturbance will be drilled and hydroseeded during the first fall following the completion of the earth work (October through November). Spring seeding was considered too speculative to be implemented based on the variation in spring moisture regimes.

A small portion of the recontoured site will facilitate drill seeding. In order to lessen compaction, a rangeland drill seeder pulled behind a small tractor should be utilized using 1/2 of the # of seed as indicated in Table 4. A tentative estimate of the area to drill seed is approximately .3 acres. Drill seeding is preferred method of application on those areas that are suitable to utilize a drill (less than 30% slope and relatively rock free). the drill assures that the majority of the seed is covered with soil; it also creates small indentations which concentrate available moisture in the proximity of the seed. Unfortunately, the drill has limitations both, in the areas it can be effectively used, and in the final appearance of the reclaimed site. In order to negate the adverse qualities of this methodology, it is recommended that all areas receive an overspray with the hydro-seeding application.

The total area to receive hydro-seeding would be all areas to receive top soil - 6.65 acres. This includes the top soil borrow area and associated disturbance.

Hydroseeding combines the advantages of applying seed uniformly over all areas, plus, with the addition of a tackifying agent, insures a greater degree of stability and seed-ground contact. "Tac" acts much in the same way as a "permeable matt" it sticks the seed to the ground and to a degree, helps adhere the new soil to the side hill. It minimizes the potential for erosion and will be residual for up to 2 years, aiding the seedlings to become established.

plant nurseries will be planted randomly on approximately one rod intervals where they occurred in the original land cover of the disturbed areas.

Trees, species and rates, to be planted on the slopes of 30% or less (in conjunction with the seed mixture) see Appendix A.

The willows will be planted within 20 feet of the drainage to assure sufficient moisture for growth. The standard for the tree seedling will be planted at the rate of 610 seedlings per acre. When considering a normal mortality rate, this would establish the required 90% of the USFS recommended density standard of 550 trees per acre.

The seeding rates used are average for the seeding method used it is hoped that the shrub seeds in the seeding mixtures will take hold and give a random spacing of plants over the area. If the seeded shrubs do not take, then the tublings will be planted in clumps. While clumping will not give a uniform seed dispersal over the entire area it would enhance wildlife habitat at little cost.

Species diversity standards have been established for revegetated areas. These will insure that a good mix of grasses, forbs, shrubs and trees, where appropriate, will be re-established, and that the reclaimed area will not be dominated by one or two species. The applicant has committed to protecting revegetated areas and to managing the reference area in a manner compatible with postmining land use.

Contemporaneous reclamation will be undertaken following construction. Plates 7-5 and 5-16 have been submitted showing areas of contemporaneous reclamation denoted on Plates 5-16 and 7-5 will be completed during the spring of 1989.

The US Forest Service, US Fish and Wildlife Service and DOGM have requested that the riparian habitat be restored along Crandall Creek. The proposed seed mix and planting mix should accomplish this goal.

3.41.240 Irrigation, if Appropriate, and Pest and Disease Control Measures, If any;

No irrigation is anticipated.

Applicant hereby commits to avoid the use of persistent pesticides and chemicals and to prevent fires.

Should lack of precipitation cause the vegetation to fail, all areas will be revegetated. No attempts will be made at irrigating the revegetated areas during final reclamation. The

On the MSG area including the reference area, there was no sign that any domestic livestock had ever used this area. The slope steepness of 70% and greater prohibits nearly all domestic livestock use. There was considerable signs that elk and mule deer had and were using the area. The 30% and less slopes and the riparian area show that domestic livestock have used the areas. However, the mine operations on the 30% and less slopes and on the riparian area will exclude all grazing because of the mining operations. Proper use of the area will be no problem.

In addition to the diversity figures already committed to, it will also be insured that no one species makes up more than 60% of the cover in its respective vegetation class; individual species of shrubs and trees will make up no more than 80% density figure for the class.

A detailed plan for monitoring revegetated areas is presented below. This includes specific methods for collecting data on cover, productivity and shrub and tree density, as well as a time table for all monitoring activity.

The reference area will be reviewed by the SCS for range conditions every five years, during the field season before permit renewal. If the range condition is found to be in a deteriorating condition because of encroachment of wildlife or livestock the area will be fenced.

The areas that have been revegetated will be monitored during the 2nd, 4th, 7th, 8th, and 10th years during the last half of the growing season, thus corresponding to the time of the original vegetation survey. Ocular estimates will be made in years 2 and 7 with quantitative estimates in years 4, 8, and 10, or 1 year prior to Phase II Bond Release. Species diversity will be confirmed in years 8 and 10, or 1 year prior to Phase II Bond Release, and compared to the reference area data collected during the same sample period. If on any year the monitoring shows the vegetation to be below the requirements, steps will be taken to increase the vegetation by additional seeding with the required seed mixture.

Circular plots will be located randomly across the entire revegetated area. A steel hoop of 11 feet circumference, enclosing an area of 9.6 square feet will be used to determine the ocular plot for estimating percent cover by species and total vegetative cover, percent bare ground, percent of surface fragments and percent litter within the hoop boundaries.

The point-centered quarter plats will be used to check tree and shrub densities in years 4, 8, and 10, or prior to Phase II Bond Release, in order to demonstrate that 80% of trees and shrubs have been in place for at least 60% of the liability period. No trees or shrubs will be counted that have not been established less than two years (2.0 or 2.1 seedlings).

See Appendix 3-2 and 3-3 relative to reference area comparisons.

3.42 Fish and Wildlife

Each application will contain a fish and wildlife plan for the reclamation and postmining phase of operation consistent with R645-301-330 (Section 3.30) and the performance standards of R645-301-358 (Section 3.58). Following mining, revegetation will be primarily concerned with replacing the pre-mining habitats. High value habitats (pinion-juniper, agricultural and riparian areas) will be restored; in many cases, they will be enhanced beyond their pre-mining condition.

The fish and wildlife control plan is a set of specifications and procedures to avoid potential adverse impacts to wildlife and their habitat.

3.42.100

Enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Such measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of perches and nest boxes. where the plan does not include enhancement measures, a statement will be given explaining why enhancement is not practicable.

No additional enhancements are proposed during the reclamation of the Genwal Canyon Mine Facilities, other than those stated in the reclamation plan.

3.42.200

Where fish and wildlife habitat is to be a postmining land use, the plant species to be used on reclaimed areas will be selected on the basis of the following criteria:

3.42.210

Their proven nutritional value for fish or wildlife;

3.42.220

Their use as cover for fish or wildlife; and

3.42.230

Their ability to support and enhance fish or wildlife habitat after the release of performance bonds. the selected plants will be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife.

3.53 Revegetation

General Requirements

The permittee will establish on regraded areas and on all other disturbed areas, except water areas and surface areas of roads that are approved as part of the postmining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan.

3.53.100

The vegetative cover will be;

3.53.110

Diverse, effective, and permanent;

3.53.120

Comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division;

3.53.130

At least equal in extent of cover to the natural vegetation of the area; and

3.53.140

Capable of stabilizing the soil surface from erosion. The erosion condition classification system will be employed on a yearly basis after final reclamation has been accomplished in order to monitor the effectiveness of revegetation in stabilizing the soil surface from erosion.

3.53.200

The established plant species will;

3.53.220

Have the same seasonal characteristics of growth as the original vegetation;

3.53.230

Be capable of self-regeneration and plant succession;

and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

See Section 3.41.220 this Chapter 3.

3.56 Revegetation; Standards for Success

3.56.100

Success of revegetation will be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the extent of the reference area or other approved success standard, and the general requirements of R645-301-353.

3.56.110

Standards for success statistically valid sampling techniques for measuring success, and approved methods are identified in the Division's "Vegetation Information Guidelines, Appendix A".

3.56.120

Standards for success will include criteria representative of unmined lands in the area being reclaimed to evaluate the appropriate vegetation parameters of ground cover, production, or stocking. Ground cover, production or stocking will be considered equal to the approved success standard when they are not less than 90 percent of the success standard. The sampling techniques for measuring success will use a 90-percent statistical confidence interval (i.e., one-sided test with a 0.10 alpha error).

3.56.200

Standards for success will be applied in accordance with the approved postmining land use and at a minimum, the following conditions.

3.56.210

For areas developed for use as grazing land or pasture land, the ground cover and production of living plants on the revegetated area will be at least equal to that of a reference area or such other success standards approved by the Division.

The area of disturbance will be reclaimed with the intent of limited domestic grazing as a side use to wildlife habitat and will adhere to the standards outlined in 356.230.

3.56.240

For areas to be developed for industrial, commercial, or residential use less than two years after regrading is completed, the vegetative ground cover will not be less than that required to control erosion.

Residential, Public Service or Industrial Postmining Land Use

Due to limitations imposed by topography, climate, soil conditions, inadequate water supply and other natural features, use of the land within the area has been limited primarily to livestock grazing, wildlife habitat and outdoor recreational activities.

No development for industrial, commercial or residential use is anticipated.

3.56.250

For areas previously disturbed by mining that were not reclaimed to the requirements of R645-200 through R645-203 and R645-301 through R645-302 and that are remined or otherwise redisturbed by coal mining and reclamation operations, at a minimum, the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion.

All previously disturbed land within the permit area of disturbance will be addressed and reclaimed in the same manner as newly disturbed areas.

As the vegetative ground cover existing before redisturbance was 50.3%, this figure has been established as the vegetative cover standard for success for the areas previously disturbed by mining.

3.56.300

Siltation structures will be maintained until removal is authorized by the Division and the disturbed area has been stabilized and revegetated. In no case will the structure be removed sooner than two years after the last augmented seeding.

Genwal Coal will leave all siltation structures in place until adequate vegetation cover is achieved to minimize negative impacts.

expected to continue as part of the postmining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices will be normal conservation practices within the region for unmined lands having land uses similar to the approved postmining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding and/or transplanting specifically necessitated by such actions.

Genwal Coal will take all steps necessary to insure success of the reclamation.

3.58 Protection of Fish, Wildlife, and Related Environmental Values

Crandall Canyon is used as a grazing area for elk and deer during the summer months. Lower Crandall Canyon is critical winter range for deer. Migration of elk and mule deer of the Manti-La Sal Range occurs as a sheet migration with no specific corridors as such.

Impacts on the lower 2 km. of the canyon will remove approximately 0.5 acre of moose habitat, winter habitat in particular. This represents only a minute portion of the moose winter habitat as the moose habitat encompasses all the Huntington drainages. Of the 0.5 acre winter range to be disturbed, of which the riparian habitats are ranked as being of critical value, only approximately 3000 square feet of wooded area will be disturbed. According to Larry Dalton of the State of Utah Division of Wildlife Resources, there is a tremendous volume of adjacent unoccupied habitat suitable to absorb displaced moose. The southeastern Utah moose herd is proliferating at a substantial pace due to the abundance of suitable unoccupied habitat.

Moose are drawn to Crandall Canyon because of the water and vegetation which grows along the Crandall Creek. The Division of Wildlife Resources provided a map of moose wintering habitat in the area, the information from that map is shown on Plate 3-1. Crandall canyon is of critical grazing value to moose all year long.

As per Larry Dalton, State of Utah, Division of Wildlife Resources, there are no known locations of drumming logs in Crandall Canyon or near the proposed surface or haul road areas to be disturbed.

The only construction work that may have had an impact on the Crandall Creek fishery is the construction of the haul and access road. This haul and access road was constructed and is maintained under jurisdiction of the USFS. Impacts and required mitigation are addressed in the approved environmental assessment, authorizing

Wildlife Service or the Utah Division of Wildlife Resources. Prior to the implementation of UDWR recommendations, Genwal Coal will advise Utah Division of Oil, Gas and Mining (UDOGM) and request their approval and/or recommendations. An annual survey will only be conducted: (1) in the event that UDWR recommends it, (2) this course of action will not unduly harass or stress nesting eagles, and (3) if prudent to insure their safety and/or habitat.

3.58.300

Nothing in the R645 Rules will authorize the taking of an endangered or threatened species or a bald or golden eagle, its

nest, or any of its eggs in violation of the Endangered Species Act of 1973 or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

3.58.400

The operator conducting coal mining and reclamation operations will avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Coal mining and reclamation operations will avoid disturbances to, enhance where practicable, or restore, habitats of unusually high value for fish and wildlife. See section 5.25.16.

3.58.500

Each operator will to the extent possible use the best technology currently available;

3.58.510

Ensure that electric power lines and other transmission facilities used for, or incidental to, coal mining and reclamation operations on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary.

All electric transmission lines that could pose a threat to raptors have been safeguarded to minimize hazard.

3.58.520

Design fences, overland conveyers, and other potential barriers to permit passage for large mammals, except where the Division determines that such requirements are unnecessary,; and

DIVISION OF WILDLIFE RESOURCES CLASSIFICATION
Native Utah Wildlife Species of Special Concern

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"Wildlife" means brine shrimp, crayfish, and species of vertebrate animals living in nature, except feral animals.

Extinct: Any wildlife species that has disappeared in the world.

Extirpated: Any wildlife species that has disappeared, as a part- or full-time resident, from the state Utah since 1800.

Endangered: Any wildlife species, subspecies, or population which is threatened with extirpation from Utah or extinction resulting from very low or declining numbers, alteration and/or reduction of habitat, detrimental environmental changes, or any combination of the above. Continued long-term survival is unlikely without implementation of special measures.

Threatened: Any wildlife species, subspecies, or population which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range in Utah or the world.

Sensitive: Any wildlife species which, although still occurring in numbers adequate for survival, whose population has been greatly depleted, is declining in numbers, distribution, and/or habitat (S1); or occurs in limited areas and/or numbers due to a restricted or specialized habitat (S2). A management program, including protection or enhancement, is needed.

ENDANGERED

Bald Eagle (*Haliaeetus leucocephalus*)
 Peregrine Falcon (*Falco peregrinus*)
 Whooping Crane (*Grus americana*)

THREATENED

Ferruginous Hawk (*Buteo regalis*)
 Yellow-Billed Cuckoo (*Coccyzus americanus*)
 Spotted Owl (*Strix occidentalis*)

SENSITIVE(S1: Due to declining populations)

Northern Goshawk (*Accipiter gentilis*)
 Caspian Tern (*Sterna caspia*)
 Black Tern (*Chlidonias niger*)
 Burrowing Owl (*Athene cunicularia*)
 Three-Toed Woodpecker (*Picoides tridactylus*)
 Loggerhead Shrike (*Lanius ludovicianus*)
 Common Yellowthroat (*Geothlypis trichas*)
 Bobolink (*Dolichonyx oryzivorus*)
 Short-eared Owl (*Asio flammeus*)

(S1/S2: Due to declining populations and limited distribution)

American White Pelican (*Pelecanus erythrorhynchos*)
 Least Bittern (*Ixobrychus exilis*)
 Osprey (*Pandion haliaetus*)
 Sharp-tailed Grouse (*Tympanuchus phasianellus*)
 Snowy Plover (*Charadrius alexandrinus*)
 Mountain Plover (*Charadrius montanus*)
 Long-billed Curlew (*Numenius americanus*)
 Swainson's Hawk (*Buteo swainsoni*)
 Lewis' Woodpecker (*Melanerpes lewis*)
 Williamson's Sapsucker (*Sphyrapicus thyroideus*)
 Willow Flycatcher (*Empidonax traillii*)
 Western Bluebird (*Sialia mexicana*)
 Crissal's Thrasher (*Toxostoma crissale*)
 Bell's Vireo (*Vireo bellii*)
 Lark Bunting (*Calamospiza melanocorys*)

(S2: Due to limited distribution)

Purple Martin (*Progne subis*)
 Cactus Wren (*Campylorhynchus brunneicapillus*)

D R A F T

SPECIAL CONCERN AMPHIBIAN SPECIES OF UTAH

DRAFT

EXTINCT

Relict (Utah) Frog (*Rana onca*)

THREATENED

Spotted Frog (*Rana pretiosa*)

SENSITIVE

(S1: Due to declining populations)

Boreal (Western) Toad (*Bufo boreas*)
Arizona Toad (*Bufo microscaphus*)
Lowland Leopard Frog (*Rana yavapaiensis*)

(S2: Due to limited distribution)

Pacific Treefrog (*Hyla regilla*)

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Revised 8/20/92

ENDANGERED SPECIES**Black-footed Ferret (*Mustela nigripes*)**

The black-footed ferret is considered the rarest mammal in North America. It was once common throughout the Great Plains (Canada to Texas), Montana, Wyoming, Colorado and Utah. Ninety percent of their diet is prairie dogs. The decrease of most populations of prairie dogs through habitat alteration and poisoning has led to the almost certain extirpation of this species in the wild. Efforts of many agencies have brought about a very successful captive breeding program and ferrets are ready for reintroduction into historical habitat. Efforts are underway in Utah to bring this species back to historical ranges if suitable conditions are present.

THREATENED SPECIES**Utah Prairie Dog (*Cynomys parvidens*)**

The Utah prairie dog population once numbered 95,000 individuals. It is found only in southwestern Utah. In 1976 its numbers declined to about 2,000, and it was listed as an endangered species. In 1984 it was reclassified as threatened. Efforts to establish four populations on federal lands have been in progress since the 1970s.

SENSITIVE SPECIESS1: Declining Populations**Red Bat (*Lasiurus borealis*)**

This bat has a reported Utah distribution in most counties, however, it has been confirmed in only two, Washington and Carbon.

Mexican Big-eared Bat (*Plecotus rafinesquii*)

The distribution of the big-eared bat, according to Durrant (1952) in Mammals of Utah, appears to be widely distributed through the lower two-thirds of the state. This may have changed in the past 50 years. There may have been changes in their numbers and habitat.

Spotted Bat (*Euderma maculatum*)

This bat is distributed throughout the West. Very little specific life history information is available on this species. It is found in very small numbers throughout its range and has been associated with other species of bats.

Botta Pocket Gopher (*Thomomys bottae*)

Botta's pocket gopher is widely distributed in Utah but locally isolated, maybe troubled.

Northern Pocket Gopher (*Thomomys talpoides*)

The northern pocket gopher is widely distributed on the major mountain range of Utah. Isolated populations may be declining.

S1/S2: Declining Populations and Limited Distribution**Big Free-tailed Bat (*Tadarida brasiliensis mexicana*)**

The northern range of the big free-tailed bat extends to extreme southwestern Utah.

Merriams Kangaroo Rat (*Dipodomys merriami*)

Has an extensive range in other southwestern states but is restricted to Washington County.

Cactus Mouse (*Peromyscus eremicus*)

Utah is the northernmost extension of their range. Habitat includes riparian zones. Found in lower population densities than most mice species. Inhabit areas where lower habitat productivity evident and coupled with a low tolerance for each other makes low population numbers evident.

Southern Grasshopper Mouse (*Onychomys torridus*)

Southern grasshopper mice are found only in Washington County according to existing records. They are found in the hot, dry, low-lying desert habitat. They are insectivorous feeding on scorpions, grasshoppers, spiders and insect cocoons.

Pika (*Ochotona princeps*)

Durrant (1952) describes five subspecies of pika. More may be present in Utah mountains.

Northern Flying Squirrel (*Glaucomys sabrinus*)

The northern flying squirrel is well distributed through the major mountain ranges of central and eastern Utah. It is primarily found in the riparian zones of this area. Loss of the riparian habitat adversely impact northern flying squirrel populations.

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SENSITIVE SPECIES

S1: Declining Populations

Northern Goshawk (*Accipiter gentilis*)

This neotropical migrant raptor occurs statewide primarily in mature mountain forest and valley cottonwood habitats. The species is adversely affected by loss of habitat from timber harvest and development in riparian areas. The goshawk's population has declined significantly in the Colorado Plateau ecoregion which dominates eastern Utah.

Caspian Tern (*Sterna caspia*)

This species nests colonially on Great Salt Lake wetlands, islands and dikes and occasionally on similar habitat in Utah Lake. The species is sensitive to human disturbance and predation by California Gulls. Colonies are also adversely impacted by water level fluctuations.

Black Tern (*Chlidonias niger*)

This species nests colonially in wetlands around northern Utah lakes, e.g., Utah, Pelican and Great Salt Lake. Much of the insectivorous tern's habitat has been lost to agricultural and commercial development. Populations appear to be declining and information is needed to accurately determine the degree of decline which has occurred.

Burrowing Owl (*Speotyto cunicularia*)

The burrowing owl is adversely impacted by agricultural and residential development. The owl, a neotropical migrant, nests in desert valleys and grasslands and is often found in association with prairie dog colonies. The owl's population appears to have declined across its range; its distribution has been restricted to remaining undisturbed, undeveloped areas.

Three-toed Woodpecker (*Picoides tridactylus*)

This species nests and winters in mountain forest conifers, usually above 8000 feet elevation in the Wasatch, Uinta and southeastern Utah ranges. The population of three-toed woodpeckers is apparently declining. The species is negatively affected by forest management practices such as clearcutting and fire suppression.

Loggerhead Shrike (*Lanius ludovicianus*)

This passerine is a permanent resident which nests in desert shrub and Pinyon-Juniper habitats statewide. The loggerhead shrike population in Utah and the West has significantly declined. It is adversely affected by range management practices, such as chaining, that result in severe habitat alteration.

Common Yellowthroat (*Geothlypis trichas*)

The yellowthroat population has declined significantly in Utah. This neotropical migrant nests in riparian and wetland habitats statewide and is negatively impacted by loss of habitat from a variety of development activities.

Bobolink (*Dolichonyx oryzivorus*)

This neotropical migrant was historically common but is now a rare nester in northern Utah grasslands and fields. Local populations are dwindling and are adversely affected by agricultural development and drought.

Short-eared Owl (*Asio flammeus*)

This raptor is a permanent resident of central and northern Utah wetlands and desert. The species appears to be declining. It is adversely impacted by loss of habitat to agriculture and urban development.

Lewis' Woodpecker (*Melanerpes lewis*)

This neotropical migrant is a permanent resident found primarily in the riparian habitats of the Uinta Basin and along the Green River. Formerly common in several areas of the state, the species distribution is currently reduced and poorly documented. This woodpecker usually feeds on flying insects and thus forages in open areas interspersed with trees. Current information indicates that the Lewis's woodpecker population is declining. It is adversely affected by loss of habitat from water development and agricultural practices. It is also increasingly affected by competition for nest cavities from non-native bird species.

Williamson's Sapsucker (*Sphyrapicus thyroideus*)

This woodpecker nests in high elevation (8000 feet to timberline) mountain forests (primarily Ponderosa, Conifer-Aspen) habitats statewide. The species is negatively impacted by habitat loss from timber harvest practices. Additional information is needed to more accurately determine the extent of population reductions for this neotropical migrant.

Willow Flycatcher (*Empidonax traillii*)

This neotropical migrant ranges statewide and nests primarily in mid to low elevation (< 7000 feet) willow habitats. The southwest subspecies occurs in southern Utah and is difficult to separate from the northern subspecies. The willow flycatcher is adversely affected by loss of habitat from agricultural practices, water development and replacement of native riparian habitats by non-native plant species. Additional information is needed to more accurately determine the degree of population declines of this species in Utah.

Western Bluebird (*Sialia mexicana*)

The western bluebird is a permanent resident which nests in mid elevation mountain forests (primarily Ponderosa-Aspen and Pinyon-Juniper) of southern and central Utah. The species population has apparently been declining throughout the West. It is negatively impacted by loss of habitat, including nesting cavities, from forestry practices and competition from non-native bird species.

Crissal's Thrasher (*Toxostoma crissale*)

This species is a permanent resident in southwestern Utah. It nests in dense mesquite and streamside shrubs in the Virgin River and its tributaries. The thrasher is adversely affected by riparian habitat loss from agricultural practices, water, road and urban development. Information indicates the species is declining in Utah.

Bell's Vireo (*Vireo bellii*)

This neotropical migrant nests in streamside willows of the Virgin River and Beaver Dam Wash in southwestern Utah. The species is apparently declining across its range and is negatively impacted by riparian habitat loss from agricultural, water, road and urban development.

Lark Bunting (*Calamospiza melanocorys*)

This neotropical migrant species nests in the grassland and sparse shrub-steppe habitats of northern and northeastern Utah. The bunting is adversely impacted by loss of habitat from agricultural practices; its population has declined significantly across its range.

S2: Limited Distribution**Purple Martin (*Progne subis*)**

This insectivore neotropical migrant nests colonially in cavities of lakeside trees in northern and central Utah forests. The species is declining and becoming localized across its range. The martin is negatively impacted by loss of habitat from water and urban development and timber harvest practices.

BASIS FOR LISTING UTAH FISH OF SPECIAL CONCERN

EXTINCT SPECIES

Utah Lake sculpin (*Cottus echinatus*)

This species once occurred in Utah Lake. It was probably extinct by the 1950's.

ENDANGERED SPECIES

Bonytail chub (*Gila elegans*)

This fish is restricted to the Colorado River Basin. The species is severely reduced in numbers. No wild bonytail have been captured for several years. The only significant numbers of these fish known to exist are held in culture facilities.

Colorado squawfish (*Ptychocheilus lucius*)

This species is restricted to the Colorado River Basin. Reproduction is known to occur at a few locations. The Green River has significant areas that have been identified as nursery habitat areas. Flow regulation, migration barriers, habitat loss/alteration and introduction of nonnative fish have been identified as causes for decline.

Humpback chub (*Gila cypha*)

This species is restricted to the Colorado River Basin. The species is severely reduced in numbers. Canyon areas on the Green River and Colorado River have been identified as important habitat for this species. Flow alteration has been identified as a significant cause of decline.

Razorback sucker (*Xyrachuchen texanus*)

This species is restricted to the Colorado River Basin. (Successful reproduction has only been documented once in the last 30 years.) The Green River has significant spawning areas. Flow regulation and introduction of nonnative fish have been identified as causes for decline.

Woundfin (*Plagopterus argentissimus*)

This fish is restricted to the Virgin River Basin. The species is severely reduced in numbers and distribution. Flow regulation and introduction of nonnative fish have been identified as causes for decline.

Virgin River chub (*Gila robusta seminuda*)

This fish is restricted to the Virgin River Basin. The species is severely reduced in numbers and distribution. Flow regulation and introduction of nonnative fish have been identified as causes for decline.

Virgin spinedace (*Lepidomeda mollispinus*)

This fish is restricted to the Virgin River Basin. The species is severely reduced in numbers and distribution. Flow regulation and introduction of nonnative fish have been identified as causes for decline.

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Bear Lake sculpin (*Cottus extensus*)

This species is restricted to Bear Lake.

Desert sucker (*Catostomus clarki*)

This fish is restricted to the Virgin River Basin. Flow regulation and introduction of nonnative fish have adversely affected this species populations.

BASIS FOR LISTING UTAH REPTILES OF SPECIAL CONCERN

ENDANGERED SPECIES

Gila Monster (*Heloderma suspectum*)

The only venomous native lizard in the United States. This lizard, threatened with extirpation due to overcollection and habitat loss, occurs in limited numbers in southern Washington County.

Desert Tortoise (*Gopherus agassizii*)

The only terrestrial turtle native to Utah. This Mojave Desert reptile occurs in declining numbers on the Beaver Dam Slope and other areas near St. George. (The species is in danger of extirpation due to habitat alteration and loss, impacts due to livestock grazing, and a respiratory tract disease.) Populations have declined as much as 75% in Utah.

THREATENED SPECIES

Chuckwalla (*Sauromalus obesus*)

Two subspecies occur; one in southwestern Utah and another along Glen Canyon. This large lizard is listed as a Federal Category 2.

SENSITIVE SPECIES

S1: Declining Populations

Utah Mountain Kingsnake (*Lampropeltis pyromelana*)

This colorful tri-colored snake occurs in disjunct populations in the Utah mountains. Population declines, although difficult to detect in this secretive species, are believed due to habitat impacts and overcollection. This species, although widespread in Utah, occurs in localized populations.

Utah Milk Snake (*Lampropeltis triangulum taylori*)

This species, attractive to snake fanciers, is spottily distributed in the mountain region of eastern and central Utah. Distinct distribution and habitat changes may be factors in its apparent decline.

S1/S2: Declining Populations and Limited Distribution

Many-lined Skink (*Eumeces multivirgatus*)

Occurs on the Colorado Plateau in southeastern Utah. Few locations are known from Utah. The number of observations of this reptile have declined in recent years.

Plateau Whiptail (*Cnemidophorus velox*)

Few locations are known from Utah. The number of observations of this reptile have declined in recent years.

Great Basin Rat Snake (*Elaphe guttata emoryi*)

Although common in western Colorado, there are few locations from Utah. The number of observations of this reptile have declined in recent years.

Western Smooth Green Snake (*Opheodrys vernalis*)

This species is known from but a few locations in the Uinta Mountains and southeastern Utah.

SUSPECTED MAMMAL DISTRIBUTION

SPECIES Common Name	Scientific Name	Priority	Agency Listing			DNR Regions				Forest Service National Forest				BLM Districts								
			DNR	FWS	FS	UMP	NR	NER	CR	SR	SER	U-C	UIN	ASH	W-L	FIS	DIX	SL	WVL	RCM	CC	WB
NONGAME MAMMALS (26)																						
Bat, Big-Eared	<i>Plecotus rafinesquii</i>	H	S1		S		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bat, Big free-tailed	<i>Myotis grisescens</i>	H	S1/2				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bat, Red	<i>Lasiurus borealis leiotis</i>	H	S1					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bat, Spotted	<i>Euderma maculatum</i>	H	S1	C2	S	S1	?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ferret, Black-footed	<i>Mustela nigripes</i>	H	E	E				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fox, Kit	<i>Vulpes macrotis nevadensis</i>	H	S2				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Gopher, Bottle's and Northern Pocket	<i>Thomomys bottae</i> and <i>T. talpoides</i>	H	S1	C2		S1/2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lynx, Canada	<i>Lynx canadensis canadensis</i>	H	S1/2	C2	S	S1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Marten, Pine	<i>Martes americana origenes</i>	H	S2				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mouse, Cactus	<i>Peromyscus eremicus eremicus</i>	H	S2					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mouse, Northern and Southern Grasshopper	<i>Onychomys leucogaster</i> and <i>O. torridus longicaudus</i>	H	S2				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Otter, River	<i>Lutra canadensis nexa</i>	H	S2			S1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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Priority:

H = High
M = Medium
L = Low

Agency:

DWR = Division of Wildlife Resources
FWS = U.S. Fish and Wildlife Service
FS = U.S. Forest Service
UHP = Utah Heritage Program

Division of Wildlife Resources Regions:

NR = Northern
NER = Northeastern
CR = Central
SR = Southern
SER = Southeastern

Forest Service National Forest:

W-C = Wasatch-Cache
UJM = Uinta
ASH = Ashley
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SPECIES

Common Name Scientific Name	Priority	Agency Listing				DWR Regions					Forest Service National Forest					BLM Districts				
		DWR	FVS	IS	UHP	NR	MIR	CR	SR	SER	W-C	UIN	ASH	M-I	FIS	DIX	SL	VNL	RCN	CC
BIRDS CONTD																				
Martin, Purple <i>Progne subis arboricola</i>	L	S2			S2	X		X	X		X	X		X						
Osprey <i>Pandion haliaetus</i>	H	S1/S2			S2	X	X	X	X	X										
Owl, Burrowing <i>Athene cucularia hypugaea</i>	M	S1			S2	X	X	X	X	X						X	X	X	X	X
Owl, Short-eared <i>Asio flammeus flammeus</i>	M	S1			S2	X	X	X	X							X	X	X		
Owl, Spotted <i>Strix occidentalis lucida</i>	H	T	PT	S	S1		X		X	X			X	X	X		X		X	X
Pelican, American White <i>Pelecanus erythrorhynchos</i>	H	S1/S2			S1	X		X								X				
Plover, Mountain <i>Charadrius montanus</i>	H	S1/S2	C2		S1	X	X		X								X			
Plover, Snowy <i>Charadrius alexandrinus nivosus</i>	H	S1/S2	C2		S2	X	X	X	X	X						X	X	X		X
Sapsucker, Williamson's <i>Sphyrapicus thyroideus</i>	M	S1/S2			S3	X	X	X	X	X										
Shrike, Loggerhead <i>Lanius ludovicianus</i>	M	S1	C2		S4	X	X	X	X	X	X					X	X	X		X
Tern, Black <i>Chlidonias niger</i>	M	S1	C2		S3	X	X	X								X	X			
Tern, Caspian <i>Sterna caspia</i>	M	S1			S3	X	X	X				X				X	X			
Thrasher, Crissal's <i>Toxostoma crissale</i>	L	S1/S2			S3				X											
Vireo, Bell's <i>Vireo bellii</i>	M	S1/S2			S1				X											

SUSPECTED FISH DISTRIBUTION

SPECIES Common Name Scientific Name	Priority	Agency Listing				DWR Regions					Forest Service National Forest					BLM Districts					
		DWR	FWS	FS	LMP	NR	MER	CR	SR	SER	W-C	UIN	ASH	M-L	FIS	DIX	SL	VNL	RCH	CC	MB
WONGAME FISH (19)																					
Chub, Bonytail <i>Gila elegans</i>																					
Chub, Humpback <i>Gila cypha</i>																					
Chub, Least <i>Notichthys phlegethontis</i>	H	T	C1	S1		?		X	X		?					X		X			
Chub, Leatherside <i>Gila copei</i>	H	S	C2	S3		?		X	X	X	?	X		X		?					X
Chub, Roundtail <i>Gila robusta</i>	H	S					X			X			?	X			X				X
Chub, Virgin River <i>Gila robusta seminuda</i>																					
CIALO, Bonneville <i>Protopium gemifer</i>																					
Sculpin, Bear Lake <i>Cottus extensus</i>	H	S		S1		X										X					
Sculpin, Piute <i>Cottus beldingi</i>	H	SQ				?			X		?					?					
Spinedace, Virgin <i>Lepidomeda mollispinis mollispinis</i>	H	T	C2	S1					X												
Squawfish, Colorado <i>Ptychocheilus lucius</i>																					
Sucker, Desert <i>Catostomus clarki</i>																					
Sucker, June <i>Chasmistes liorus</i>																					

SUSPECTED AMPHIBIAN DISTRIBUTION

SPECIES Common Name Scientific Name	Priority	Agency Listing			DWR Regions				Forest Service National Forest				BLM Districts										
		DWR	FWS	FS	UHP	MR	NER	CR	SR	SER	V-C	UIM	ASH	M-L	FIS	DIX	SL	VNL	RCH	CC	MB		
AMPHIBIANS (8)																							
Frog, Boreal Chorus <i>Pseudacris triseriata maculata</i>	H					X	X	X			X	X	X				?	X				X	
Frog, Lowland Leopard <i>Rana yavapaiensis</i>	H			S	S1	X	?	X									?	?	X				
Frog, Spotted <i>Rana pretiosa pretiosa</i>	H			S	S1	X	?	X									?	?	X				
Salamander, Arizona Tiger <i>Ambystoma tigrinum nebulosum</i>	H					X	X	X			X	X	X										
Toad, Arizona (Southwestern) <i>Bufo microscaphus microscaphus</i>	H				S2																		
Toad, Boreal (Western) <i>Bufo boreas boreas</i>	H					X	X	X															
Toad, Woodhouse's <i>Bufo woodhousei woodhousei</i>	H					X	X	X															X
Treefrog, Pacific <i>Hyla arenicolor</i>																							

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SUSPECTED REPTILE DISTRIBUTION

SPECIES Common Name	Scientific Name	Priority	Agency Listing		DNR Regions			Forest Service National Forest					BLM Districts											
			DNR	FUS	FS	UHP	NR	MER	CR	SR	SCR	M-C	UIN	ASH	M-L	VIS	DIX	SL	WVI	RCM	CC	MB		
REPTILES (25)																								
Chuckwalla, Glen Canyon and Western	<i>Sauromalus obesus</i>	H	S			S2																	X	
<i>S. o. multifasciatus</i>																								
Cockto, Utah Banded	<i>Coleonyx variegatus</i>	H	E	C3C		S2																		
Gila Monster, Banded	<i>Holoderma suspectum cinctum</i>	M	S0			S2		X	X															
Green Snake, Western Smooth	<i>Ophedrys vernalis blanchardi</i>	H	S			S1																		
Iguana, Desert	<i>Dipsosaurus dorsalis dorsalis</i>																							
Kingsnake, California	<i>Lampropeltis getulus calliforce</i>																							
Kingsnake, Utah Mountain	<i>Lampropeltis pyromelana infralebilis</i>	H	S			S4																		
Lizard, Desert Night	<i>Xantusia vigilis</i>																							
Lizard, Zebra-tailed	<i>Callisaurus draconoides</i>																							
Longnose Snake, Western	<i>Rhinocheilus lecontei lecontei</i>	M																						
Lyre Snake, Sonoran (Western)	<i>Trimorphodon biscutatus lambda</i>	M	S			S2																		
Milk Snake, Utah	<i>Lampropeltis triangulum taylori</i>	H	S			S4																		

Priority:

H = High
M = Medium
L = Low

Agency:

DWR = Division of Wildlife Resources
FWS = U.S. Fish and Wildlife Service
FS = U.S. Forest Service
UHP = Utah Heritage Program

Division of Wildlife Resources Regions:

NR = Northern
NER = Northeastern
CR = Central
SR = Southern
SER = Southeastern

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