

Revised December 29, 2000

Fact Sheet

Peabody Western Coal Company
Black Mesa Mining Complex
NPDES Permit No. AZ0022179

Contact Information

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Facility Description

Peabody Western Coal Company (PWCC) operates the Black Mesa and Kayenta Coal Mines in northeastern Arizona. The northern portion of the two coal mines is on the Navajo Nation. The southern portion of the two coal mines is on both Navajo and Hopi Indian lands. These mining facilities are multi-seam, multi-pit coal mines producing bituminous coal. The coal is sized and stored at preparation facilities located at each mine. No additional coal treatment, such as washing or drying, occurs at these facilities. The lease area currently contains five working open pits, and six reclaimed previously mined pits, and produces approximately 12 million tons of coal annually.

The Office of Surface Mining Reclamation and Enforcement (OSMRE) required PWCC to control all surface runoff water with the potential of being contaminated from contact with mining activities. In order to comply with this requirement, PWCC have constructed approximately 160 sedimentation ponds. EPA Region 9 includes 110 of these as discharge points under an NPDES permit. Since the original NPDES permit was issued in 1983, subsequent modifications have been made to the permit to add and delete certain sediment ponds as authorized points of discharge. The NPDES permit only allowed discharges due to storm events, and required that the 107 impoundments be maintained with adequate capacity to contain the surface runoff from a 10-year 24-hour storm event.

Water Quality Standards

Pursuant to the Water Quality Act of 1987 (WQA) and the "EPA Policy for the Administration of Environmental Programs on Indian Reservations" (November 8, 1984), EPA will work directly with Indian Tribal governments on a one-to-one basis, rather than as subdivision of other governmental units. This conforms with the Federal Indian Policy of January 24, 1983. Both the Navajo Nation and Hopi Tribe have received Treatment as a State (TAS) for Section 106 of the Clean Water Act (CWA); however, both tribes have not yet applied or otherwise received TAS for the purposes of Section 303 of the CWA. Both tribes utilized Section 106 grant money to develop water quality standards which have yet to be approved under

Section 303 by EPA Region 9. In the interim, state water quality standards will be protected until such time as when EPA approves the tribal standards.

In the last permit, by the tributary rule, state water quality standards applicable to discharge from this facility are those for the Little Colorado River below Lyman Reservoir. The protected uses for this segment were: Aquatic and Wildlife including warm water fishery, Domestic Water Source, Full Body Contact, Agricultural Irrigation, and Agricultural Livestock Watering. In 1992, the State of Arizona adopted new water quality standards which included an additional use for this segment: Fish Consumption (acute and chronic chemical specific). In 1996, the State of Arizona adopted new water quality standards, which includes standards for tributaries of listed surface waters. The receiving waters (unlisted tributaries) at PWCC are considered ephemeral in nature. Using the 1996 water quality standards on these unlisted ephemeral tributaries, the aquatic and wildlife [ephemeral] and partial body contact standards would apply.

EPA has published water quality criteria in 1986 EPA's Quality Criteria for Water ("Gold Book") for both chronic impacts to fresh water organisms and human health as it relates to drinking water and consumption of fresh water organisms.

Rationale for Permit Limits

Potential discharges from the three types of impoundments at this facility have been placed into three categories relating to the cause of discharge. These categories are: discharges resulting from lagoon de-watering (or discharges not resulting from a precipitation event); discharges resulting from a precipitation event less than or equal to a 10-year 24-hour storm; and, discharges resulting from a precipitation event greater than a 10-year 24-hour storm. Surface Mining Control and Reclamation Act (SMCRA) regulations require PWCC to maintain adequate capacity in sediment ponds. One option for doing this is to de-water the ponds.

Effluent limits for Total Iron, Total Suspended Solids, and Settleable Solids are based on the effluent limitations guidelines for the Coal Mining Point Source Category at 40 CFR 434. The pH limits are water quality based. Additional limits on Oil & Grease, 5-day Biochemical Oxygen Demand, and Fecal Coliform are based on Best Professional Judgement (BPJ) to protect the beneficial uses of the receiving water. These limits are continued from the previous permit.

Rationale for Permit Reopener

This permit may be reopened for the imposition of new water quality-based effluent limitations when Navajo and Hopi site-specific water quality standards are approved by EPA. Both tribes have passed their water quality standards but, under a new review procedure, EPA has yet to approve either of the tribe's standards.

This permit may also be reopened for the imposition of selenium and/or nitrate monitoring. The concern to monitor for selenium is based on past monitoring data of seeps submitted by PWCC, which indicated a few concentrations approached the 33 ug/l acute standard

for protection of aquatic and wildlife (ephemeral) criterion, and occasionally exceeded the chronic (ephemeral) criterion of 2 ug/l. A numeric permit limitation for selenium is not included because there is insufficient data to demonstrate a reasonable potential for violations of the selenium water quality standard. In addition to the selenium levels in the seeps, the frequency and the potential of the seep-water to reach a waters of the U.S. need to be better understood before determining what standard should apply (i.e. "acute" or "chronic") and whether any dilution factor can be allowed in calculation of a limit. As mentioned in the section below, this a study of the seepage issue is required in this permit.

The concern to monitor for nitrate is based on documented impacts to livestock that utilize the PWCC effluent for watering. PWCC reported that the 1989 deaths of 60 Navajo sheep was caused by high nitrate concentrations in the effluent. The concentration of nitrate was attributed to a mine operator washing ammonium nitrate from his truck into a stream. Although PWCC has indicated that this practice has been discontinued, the severity of the impact to livestock justifies the inclusion of nitrate monitoring under 40 CFR 122.44(i). Similar to the selenium monitoring requirement, no numeric permit limitation for nitrate is included. The regulations at 40 CFR 122.44(i) allow requirements for monitoring as determined to be necessary on a case-by-case basis pursuant to section 405(d)(4) of the CWA.

This permit may also be reopened for the imposition of Best Management Practices (BMPs) if EPA determines that current BMPs required by OSMRE are insufficient to protect water quality standards.

Seepage Issue

Evidence of water seepage from the earthen impoundments constructed at this facility was noted during an EPA inspection on April 30, 1987. The seepage fluctuates substantially depending on weather conditions and the level of water impounded, and would be exceedingly difficult to monitor. Any attempt to stop such seepage would require major construction, with significant impact on the environment in the vicinity of the impoundments. Water quality analysis, and comparison with comparable existing water quality data from undisturbed areas on the lease area, indicate that the seepage water quality is indistinguishable from alluvial water quality upstream of any mine related disturbances. On the basis of this information, while it is clearly within EPA authority to place limits on seepage from the impoundments, EPA has not placed such limits on impoundment seepage from this facility. However, the last NPDES permit had a requirement for PWCC to undertake a seepage study. PWCC proposed a seepage management plan on October 10, 1997. EPA and the Navajo Nation EPA reviewed and approved this plan. This renewed permit will carry on the seepage study requirement by requiring continued submission of annual monitoring reports.

Tributary Rule Issue

PWCC believes that the application of Little Colorado River water quality standards, via the tributary rule to those sections of Moenkopi Wash and Dinnebito Wash that cross their mine leasehold, is inappropriate. PWCC asserts that sufficient site-specific

monitoring data exist to justify the establishment of stream standards for the predominantly ephemeral channels that cross their leasehold. Both Indian tribes have passed water quality standards but these have yet to be approved by EPA. Neither tribes have site-specific water quality standards for PWCC.

Endangered Species Act (ESA) Determination:

According to an April 20, 2000 memo from David Harlow of the US Fish and Wildlife Service (USFWS) to Jerry Gavette of Office of Surface Mining (OSM), the following list of listed threatened or endangered (T&E) species, or proposed species, may occur in the project area:

Threatened:

Navajo sedge (*Carex specuicola*)
Apache Trout (*Oncorhynchus Apache*)
Little Colorado Spinedace (*Lepidomeda vittata*)
Loach Minnow (*Tiaroga Cobitis*)
Spikedace (*Meda fulgida*)
Bald Eagle (*Haliaeetus leucocephalus*)
Mexican Spotted Owl (*Strix occidentalis lucida*)

Endangered:

Pebbles Navajo cactus (*Pediocactus Peeblesianus var peeblesianus*)
Black-footed Ferret (*Mustela nigripes*)
Southwestern Willow Flycatcher (*Empidonax trailli extimus*)

Candidate

Chiracahua Leopard Frog (*Rana chiricahuensis*)

Experimental

California Condor (*Gymnops californianus*)

EPA has determined that this action will have **no effect** on T&E species. This is because permitted discharge from the impoundments occurs extremely infrequently (not since the fall of '98), and because there are no T&E aquatic species listed in the area of the discharges. Furthermore, all NPDES discharges appear to be in compliance with water quality standards necessary to protect wildlife. The June 1990 Environmental Impact Statement (EIS) for the Black Mesa and Kayenta mines examined the entire project as proposed and its potential effects on T&E species. The EIS concluded that the mining operations would have only minor impacts on T&E species. None of those minor impacts is attributed to NPDES-related discharges. While other actions at the mine such as coal exploration or the building of sediment ponds may effect habitat for these species, these actions are already regulated by OSM, and ESA review must be made during the permitting of all such actions by OSM. In fact, such a review was just conducted for an exploration project that includes the construction of 21 miles of temporary roads and 230 drilling pads (November, 1999). According to this review, USFWS and the Navajo Nation Department of Fish and Wildlife (NNDFW) both concurred that the action would not affect any of the above-listed species. PWCC also recently concluded a 1999/2000 baseline vegetation report for J9 Coal Resource Area and J9 Haul Road Corridor (September 2000), and its 1999

Wildlife Monitoring Report (March 30, 2000). Such studies are required by the Office of Surface Mining. Neither indicates that discharges from the impoundments are having any effect on T&E species.

Pertinent excerpts from these reports are available from EPA upon request. If upon further review of these or future studies, EPA, OSM, USFWS, NNEPA or NNDFW concludes that this permitted action is having any effect on T&E species, this permit may be reopened for the purpose of conducting formal consultation.



United States Department of the Interior

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In Reply Refer to:

AESO/SE
22410-2005-I-0565

December 12, 2008

Memorandum

To: Richard Holbrook, Chief, Program Support Division, Office of Surface Mining,
Denver, Colorado

From: Field Supervisor

Subject: Black Mesa Project – Permanent Program Permit AZ-0001D

Thank you for your correspondence of November 26, received on December 1, 2008. This letter documents our review of the Black Mesa Project, in Navajo County, in compliance with section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 et seq.). Your letter concluded that the proposed project may affect, but is not likely to adversely affect the endangered black-footed ferret (*Mustela nigripes*), endangered southwestern willow flycatcher (*Empidonax traillii extimus*), threatened Mexican spotted owl (*Strix occidentalis lucida*), threatened Navajo sedge (*Carex specuicola*) and its critical habitat, and California condor (*Gymnogyps californianus*). Within the action area the California condor is designated as a non-essential experimental population. Under this designation action agencies are only required to consult with us when they determine their action may jeopardize the continued existence of that species. However, we are including the California condor per your request. We concur with your determinations and provide our rationales below.

You also concluded that the proposed project may affect, but is not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*), which was removed from the Federal List of Threatened and Endangered Wildlife and Plants effective August 8, 2007. Since the bald eagle has been delisted there is no need to consult under section 7 of the ESA, and effects to the bald eagle will not be considered in this document. However, our evaluation of the Black Mesa Project with respect to the Bald and Golden Eagle Protection Act is included in Appendix A.

Description of the Proposed Action

A complete description of the proposed action is found in your November 2008, biological assessment (BA). The proposed action is to revise the life-of-mine (LOM) plans for Peabody Western Coal Company's (Peabody) permitted Kayenta mining operation. The LOM revision would allow minor modifications to the operation and reclamation plans for the Kayenta mining operation, and would incorporate into these plans the area previously occupied by the adjacent Black Mesa mining operations. Coal from the Kayenta mining operation is delivered by electric

railroad 83 miles northwest to the Navajo Generating Station near Page, Coconino County, Arizona. The Black Mesa mining operation previously supplied coal, via a coal slurry pipeline, to the Mohave Generating Station (MGS) in Laughlin, Clark County, Nevada, prior to suspension of the station's operations in 2005. Peabody believes that reopening the MGS for operation as a coal-fired power plant is unlikely. The Kayenta mining operation (covering 44,073 acres) and the Black Mesa mining operation (18,857 acres) are referred to, collectively, as the Black Mesa Complex (BMC) (62,930 acres). The LOM revision would not change the mining methods or average annual production rate of the Kayenta mining operation. Un-mined coal-resource areas within the Black Mesa mining operation would be incorporated into the expanded permit area for the BMC, but Peabody would not be authorized to mine these areas. Black Mesa operation infrastructure would be used as necessary to facilitate mining and reclamation by the Kayenta mining operation. Water, used for mining-related purposes, would be withdrawn from the Navajo (N) aquifer at an average rate of 1,236 acre-feet per year (af/yr). Mining operations would cease in 2026 when water use would decrease to 505 af/yr through 2028 and 444 af/yr through 2038, for reclamation and well maintenance purposes. The BMC is located on land either leased or within grants-of-easement within the boundaries of the Hopi and Navajo Indian Reservations, about 125 miles northeast of Flagstaff, Arizona, near the northern edge of Black Mesa within the protracted boundaries of Townships 35 through 37 North, Ranges 17 through 19 East, Navajo County, Arizona. Conservation measures, incorporated into the Black Mesa Project, include: monitoring Mexican spotted owls within two miles of the lease boundary beginning two years prior to scheduled disturbance in the N10 area and continuing until three years after the disturbance (BA section 6.3.3); and contingency measures in the event California condors occur at the BMC (6.5.3).

DETERMINATION OF EFFECTS

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the black-footed ferret, southwestern willow flycatcher, Mexican spotted owl, California condor, and Navajo sedge and its critical habitat for the following reasons:

Black-footed ferret

- The only known occurrence of this species in Arizona in the wild in the last 77 years is recently reintroduced populations located over 120 miles west of the BMC. The BMC is located within woodlands, with reclaimed BMC lands offering the only large areas of vegetation and topography suitable for prairie dog colonies, the ferret's habitat. Prairie dog colonies on the BMC are too small and scattered to support ferrets. Therefore, it is extremely unlikely that the species currently occurs in the action area and any potential direct or indirect effects on the species are discountable.

Southwestern willow flycatcher

- Riparian habitat suitable for breeding is not present on the BMC. Riparian vegetation, primarily in the form of tamarisk, occurs as narrow or small patches in several ephemeral washes that lack surface flows or saturated soil during the breeding season. However, this vegetation could potentially be used by migrant willow flycatchers. A total of three acres of tamarisk would be removed with the continuation of mining operations. The effects associated with this limited loss of habitat on migrant southwestern willow flycatchers are insignificant.

- Off-BMC and on the Navajo Nation, there may be some limited suitable breeding habitat associated with washes that will be affected by ground water pumping by Peabody (D. Mikesic, personal communication). Peabody pumps water from the N aquifer, which provides base flow to various drainages surrounding Black Mesa. Based on the lack of monitored decreases in ground water-discharge for N aquifer-fed springs, the proposed decrease in mining-related ground water pumping, and the small modeled change in ground-water discharge associated with all ground-water pumping, the effects to flycatcher habitat are considered to be insignificant.

Mexican spotted owl

- Mexican spotted owls occur in the vicinity of the BMC. Mining-related activity includes access road development, use by support vehicles, and road reclamation activities. The closest mining and mining-related activities would occur in the N-10 area greater than or equal to one-half mile from the nearest protected activity center (PAC). Therefore, effects on the Mexican spotted owl from project-generated noise are insignificant and discountable.
- Bright lights mounted on draglines that allow them to operate at night could have an effect on nocturnal spotted owl activities. However, the intervening topography and vegetation will likely filter most if not all of the light, at least as viewed from within the vegetation, which consists of well-developed stands of relatively dense pinon and juniper. Topography in between the PAC and the mining area consists of drainages and three associated ridges with elevations higher than the mining area. Based on the distance in between the PAC and the mining area (0.71 miles at a minimum) and the intervening topography and vegetation, effects associated with lighting are insignificant.
- Mining and mining-related activity will not alter Mexican spotted owl habitat.

California condor

- This species is being reintroduced at Vermillion Cliffs where it breeds (in addition to the Grand Canyon) and routinely travels throughout the Grand Canyon complex and along the Colorado River corridor, about 70 miles west of the BMC. Condors are capable of traveling long distances in a short period of time (e.g., 200 miles/day) and so may fly over the BMC. No condors have been reported at the BMC, and there are no unique foraging or nesting features (e.g., concentrations of carrion, or tall cliffs, respectively) within one mile of the BMC, so condors are not expected to stay in the area. Therefore, any effects of mining on condors are insignificant.

Navajo sedge with critical habitat

- Peabody pumps water from the N aquifer, the source of water for seeps and springs, which is habitat for this species. Based on the lack of monitored decreases in ground water-discharge for N aquifer-fed springs, the proposed decrease in mining-related ground water pumping, and the small modeled change in ground-water discharge associated with all ground-water pumping, the effects on Navajo sedge are insignificant.

- Designated critical habitat for Navajo sedge is located about 20 miles northwest of the BMC. Based on the limited hydrologic connection between the portion of the N aquifer where mining-related pumping occurs and the portion of the aquifer where critical habitat has been designated, effects on Navajo sedge critical habitat are insignificant.

When the Fish and Wildlife Service enters consultation on a proposed action for which the Bureau of Indian Affairs is a consultation participant, we treat affected American Indian Tribes as license or permit applicants entitled to full participation in the consultation process. This includes, but is not limited to, invitation to meetings between FWS and the action agencies, opportunities to provide pertinent scientific data and review the administrative record, and opportunities to review biological assessments and related documents. In keeping with our trust responsibilities to Tribes, by copy of this memorandum, we are notifying the Hopi Tribe and Navajo Nation, which may be affected by this proposed action.

Thank you for your continued coordination. No further section 7 consultation is required for this project at this time. Should project plans change, or if information on the distribution or abundance of listed species or critical habitat becomes available, this determination may need to be reconsidered. In all future correspondence on this project, please refer to the consultation number 22410-2005-I-0565. Should you require further assistance or if you have any questions, please contact John Nystedt (x104) or Brenda Smith (x101) at (928) 226-0614 of our Flagstaff Suboffice.

Brenda H. Smith

Steven L. Spangle

cc (hard copy):

Chairman, Hopi Tribe, Kykotsmovi, AZ (Attn: Arnold Taylor, Natural Resources Department)
 Project Manger, Black Mesa Project, Hopi Tribe, Flagstaff, AZ (Attn: Joelynn Roberson)
 President, Navajo Nation, Window Rock, AZ (Attn: John Stucker, Mineral Department)
 Director, Navajo Nation Department of Fish and Wildlife, Window Rock, AZ
 Director, Navajo Regional Office, Bureau of Indian Affairs, Gallup, NM (Attn: Omar Bradley)
 NEPA Coordinator, Environmental Services, Navajo Regional Office, Bureau of Indian Affairs, Gallup, NM (Attn: Harrilene Yazzie)
 Environmental Specialist, Environmental Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ (Attn: Amy Heuslein)
 Environmental Scientist, U.S. Environmental Protection Agency, Region 9, San Francisco, CA (Attn: Jeanne Geselbracht)
 Senior Project Manager, Army Corps of Engineers, Los Angeles District, Regulatory Branch, Arizona Section, Tucson Project Office, Tucson, AZ (Attn: Marjorie Blaine)
 Chief, Environmental Resources Management Division, Bureau of Reclamation, Phoenix, AZ (Attn: Bruce Ellis)
 Manager, Environmental Engineering, Peabody Group, Peabody Western Coal Company, Casper, Wyoming, (Attn: Brian Dunfee)

cc (electronic copy):

Chief, Division of Endangered Species, Fish and Wildlife Service, Albuquerque, NM

(Attn: Susan Jacobsen) (ARD-ES)

Tribal Liaison, Southwest Region, Fish and Wildlife Service, Albuquerque, NM (ARD-EA)

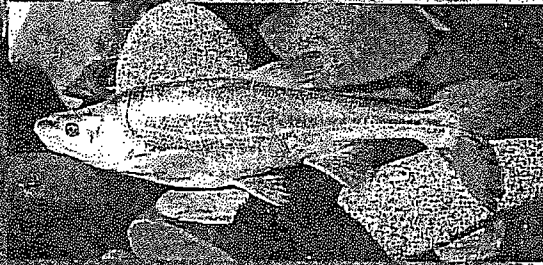
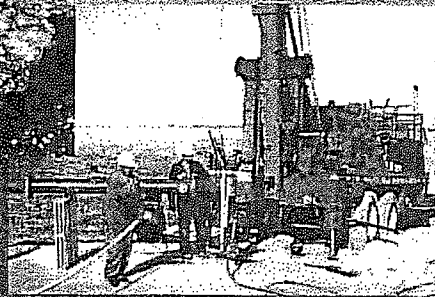
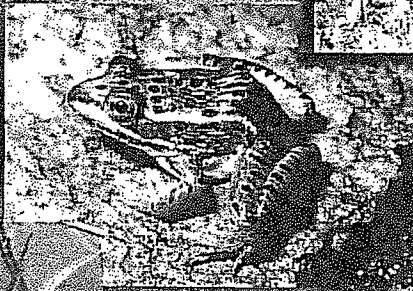
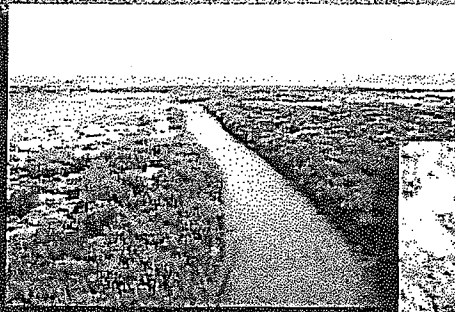
Assistant Field Supervisor, Fish and Wildlife Service, Flagstaff, AZ

Fish and Wildlife Biologist, Fish and Wildlife Service, Flagstaff, AZ (Attn: Shaula Hedwall)

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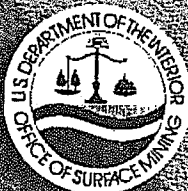
FINAL

BLACK MESA PROJECT BIOLOGICAL ASSESSMENT



Prepared by

URS



U.S. Department of the Interior
Office of Surface Mining
Reclamation and Enforcement

November 2008

the proposed action no longer includes pumping water from the C aquifer, information regarding the subcommittee meetings is not included here, but is available from the OSM Western Region Office and the FWS Flagstaff Service Office. A BA was submitted to FWS in March 2007; however, work on the Black Mesa Project was suspended on May 18, 2007. In July 2007, FWS informed OSM by letter that it had terminated its review of the BA. About one year after work was suspended, Peabody's intent to reduce the size and complexity of the Black Mesa Project was expressed to OSM and it became clear that the BA submitted to FWS would have to be revised. On June 17, 2008, a conference call took place with representatives from FWS, OSM, and URS to determine which species should be carried forward into the revised BA. Those species addressed in the BA as determined in the June 17, 2008, conference call are found in section 1.3 below.

1.3 SPECIES ADDRESSED IN THE BIOLOGICAL ASSESSMENT

On June 13, 2005, the FWS provided URS with a list of threatened and endangered species that may occur in the area affected by the Black Mesa Project. After changes were made to the proposed action, a conference call took place on June 17, 2008, with representatives from FWS, OSM, and URS to determine which species should be carried forward into the revised BA. Species identified as potentially affected by implementation of the proposed project actions were retained for evaluation in this BA and are presented in Table 1-1. Seven federally listed species or subspecies of plants and animals are addressed in this BA. Critical habitat has been designated for five of these species, as indicated in Table 1-1. Species for which the proposed actions were determined to have no effect are listed in Table 1-2 with a brief indication of why the species were considered not to be affected.

The development of this BA is intended to fulfill the compliance requirements of pertinent environmental laws, regulations, and policies in accordance with the requirements of Section 7(b) of the ESA of 1973, as amended, and implementing regulations [16 U.S.C. § 1536 (c), 50 Code of Federal Regulations (CFR) 402.12 (f) and 402.14 (c)], and ESA guidance contained in the Endangered Species Consultation Handbook (FWS and National Marine Fisheries Service 1998).

Table 1-1 Federally Listed Species Considered for Evaluation in the Biological Assessment

| Species | Status | Species Listing | | Critical Habitat | |
|---|--------|----------------------|----------------------|-----------------------|----------------------|
| | | Date Listed | Federal Register No. | Date Designated | Federal Register No. |
| Mammals | | | | | |
| Black-footed ferret (<i>Mustela nigripes</i>) | E | March 11, 1967 | 32 FR 4001 | N/A | N/A |
| Birds | | | | | |
| Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>) | E | February 27, 1995 | 60 FR 10694 | October 19, 2005 | 70 FR 60886 |
| Mexican spotted owl (<i>Strix occidentalis lucida</i>) | E | March 16, 1993 | 58 FR 14248 | August 31, 2004 | 69 FR 53182 |
| Bald eagle (<i>Haliaeetus leucocephalus</i>) | T | July 12, 1995 | 60 FR 36000 | N/A | N/A |
| California condor (<i>Gymnogyps californicus</i>) | E | March 11, 1967 | 32 FR 4001 | September 24, 1976 | 41 FR 41914 |
| Plants | | | | | |
| Navajo sedge (<i>Carex specuicola</i>) | T | May 8, 1985 | 50 FR 19370 | May 8, 1985 | 50 FR 19370 |

SOURCE: FWS 1967, 1985, 1987a, 1993b, 1995a, 1996a, 1996 b, 2004, 2005a

NOTES: E = endangered, FR = Federal Register, N/A = not applicable, No. = number, T = threatened

**Table 1-2 Special Status Species Excluded from Further Consideration
and Reasons for Their Exclusion**

| Species | Status | Habitat Requirements | Reason For Exclusion |
|---|--------|--|---|
| Birds | | | |
| Yellow-billed cuckoo (<i>Coccyzus americanus</i>) | C | Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries) at elevations below 6,600 feet (2,012 m). | No suitable habitat. |
| California brown pelican (<i>Pelecanus occidentalis californicus</i>) | E | Water or inaccessible rocks (either offshore or on mainland), and mudflats, sandy beaches, wharfs, and jetties. | No breeding records of the California brown pelican in Arizona, but an uncommon transient on many Arizona lakes and rivers, including the Colorado River. |
| Reptiles/Amphibians | | | |
| Chiricahua leopard frog (<i>Rana chiricahuensis</i>) | T | Streams, rivers, backwaters, and stock tanks at elevations from 3,300 to 8,900 feet (1,006 to 2,713 m) that are mostly free of introduced fish, bullfrogs, and crayfish. | Outside current range of species. |
| Fish | | | |
| Apache trout (Arizona) (<i>Oncorhynchus apache</i>) | T | Presently restricted to cold mountain streams with many low-gradient meadow reaches at elevations above 5,000 feet (1,524 m). | No suitable habitat. |
| Little Colorado spinedace (<i>Lepidomeda vittata</i>) | T | Moderate to small streams in pools and riffles with running water over sand and silt at elevations from 4,000 to 8,000 feet (1,219 to 2,438 m). | No suitable habitat. |
| Spikedace (<i>Meda fulgida</i>) | T | Moderate to large perennial streams over sand and gravel substrates with moderate to swift water velocities below 6,000 feet (1,829 m). | No suitable habitat. |
| Loach minnow (<i>Tiaroga cobitis</i>) | T | Large to small perennial streams with swift, shallow water over cobble and gravel at elevations below 8,000 feet (2,438 m). | Outside current range of species. |
| Plants | | | |
| Peebles Navajo cactus (<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>) | E | Limited geographic distribution in gravelly soils of the shinarump conglomerate of the Chinle formation at elevations from 5,400 to 5,600 feet (1,646 to 1,707 m). | Outside current range of species. |
| Welsh's milkweed (<i>Asclepias welshii</i>) | T | Active sand dunes derived from the Navajo Formation, in sagebrush, and in juniper and ponderosa pine communities between 4,700 and 6,250 feet (1,433 to 1,905 m) in elevation. | Habitat is located northeast, southwest, and northwest of the Black Mesa Complex; however, no habitat is present in the project area. Habitat is present near the Black Mesa and Lake Powell Railroad, but the rail line is not an interrelated or interdependent action to the LOM revision. |

SOURCE: FWS 2008a, 2008b

NOTES: C = candidate, E = endangered, T = threatened