APPENDIX C
BIOLOGICAL ASSESSEMNT
For
YAO QUARRY OPERATIONS

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RECLAMATION

Managing Water in the West

Biological Assessment

Quarry Operations –Yuma Area Office
Lower Colorado River Region

U.S. Department of the Interior
Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

May 2007

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Biological Assessment

Quarry Operations – Yuma Area Office
Lower Colorado River Region

prepared by

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Contract No. 03-PE-34-0230

U.S. Department of the Interior
Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

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1.0 Introduction

The Reclamation, Yuma Area Office (YAO) is responsible for maintenance of the Lower Colorado River (LCR) from Davis Dam to the Southern International Boundary (SIB), see Figure 1. Reclamation's mission is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Under the Colorado River Front Work and Levee System[1] and in accordance with the Law of the River (Reclamation 2006) Reclamation is responsible for providing flood control while maintaining the river channel and protective levees. Each year YAO performs inspections of the LCR to identify bankline areas, levees, and river structures that require maintenance. Adequate amounts of riprap and gravel are required to support ongoing maintenance activities. Reclamation proposes to use 14 existing quarries and establish two new quarries along the LCR in order to meet its responsibilities.

1.1 Scope of Analysis

This Biological Assessment (BA) is intended to be programmatic in nature. The BA evaluates and addresses the potential effects to federally protected species and contains measures designed to mitigate impacts associated with establishing new quarries, as well as those associated with the operation and maintenance of existing quarries through 2020. Individual quarry locations will require site-specific analysis that will be tiered to the Programmatic Environmental Assessment (EA) for Quarries Operations and this document.

Sensitive biological resources are known or expected to occur at some of the quarries. This report contains information needed by the United States Fish and Wildlife Service (USFWS) to update a Biological Opinion, in accordance with the requirements of section 7 of the Endangered Species Act (ESA) of 1973 (16 U.S.C. §1531-1544), as amended.

[1] The Colorado River Front Work and Levee System was authorized by the acts of March 3, 1925 (43 Stat. 1186, 1198), January 21, 1927 (44 Stat. 1010, 1021), July 1, 1940 (54 Stat. 708), and the act of June 28, 1946 (60 Stat. 338), Public Law 79-469, as amended by the act of May 1, 1958 (72 Stat. 101).

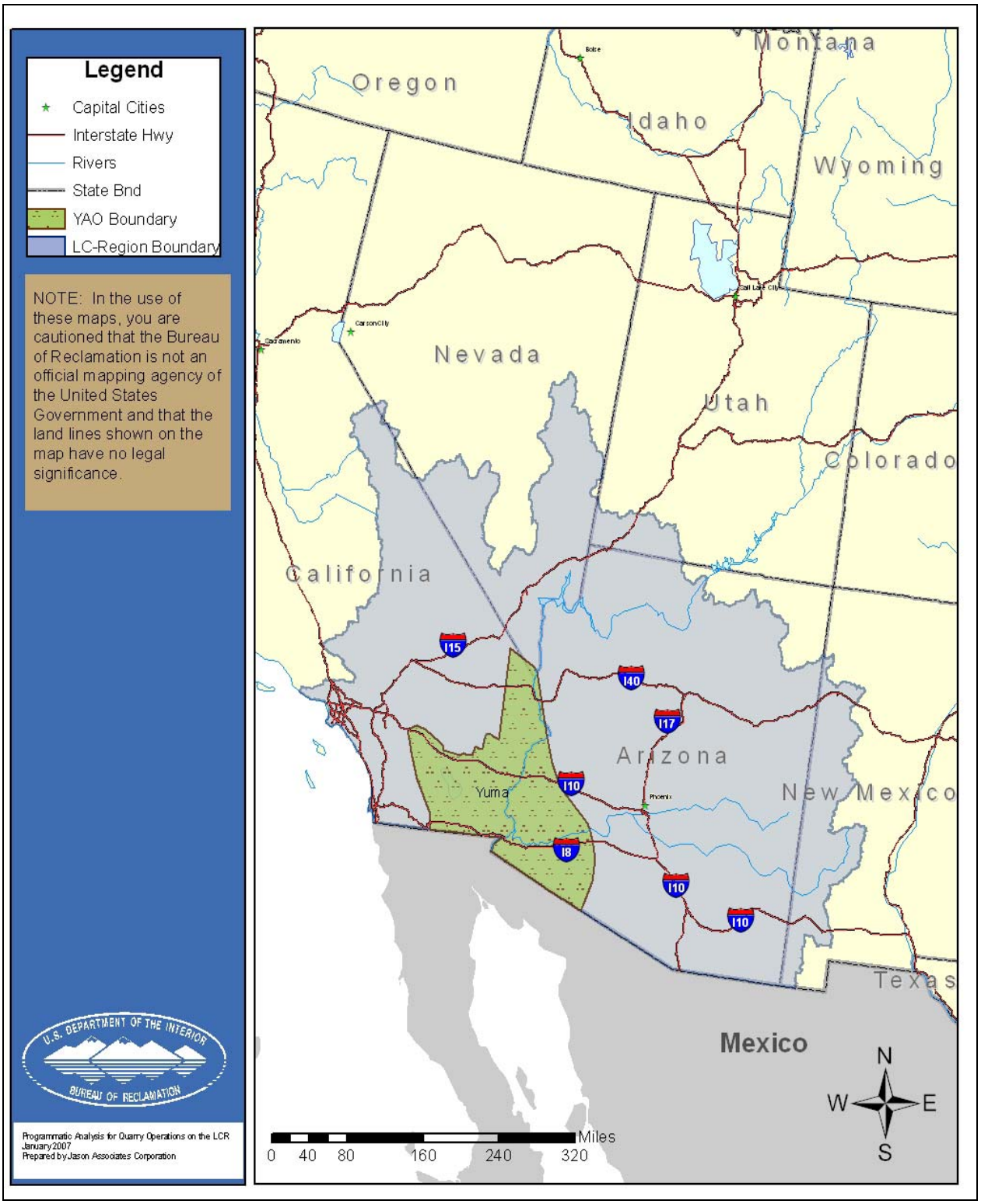

Figure 1-Yuma Area Office Boundary

1.2 Coordination

Reclamation is preparing the EA concurrent with this BA; scoping was initiated on March 10, 2005. In addition, Reclamation initiated consultation and coordinated with the USFWS and the Bureau of Land Management to help identify protected species and issues associated with the proposed project.

Reclamation was informed that the USFWS Phoenix Ecological Services office would function as the lead for section 7 consultations (Garvey 2005). In addition, Reclamation received two letters from the USFWS Phoenix Office informing Reclamation that the Biological Opinion (BO) for the quarries along the LCR needed to be renewed.

Reclamation requested a species list from the USFWS, Ventura Office for Quarry sites located in San Bernardino County, Riverside County, and Imperial County, California along the Colorado River (USFWS 2005a). USFWS responded to Reclamations' request on September 14, 2005 and provided listed, proposed, and candidate species that may occur in the vicinity of the proposed project for the above mentioned counties and is included in Appendix C-A.

The California Department of Fish and Game (CDFG) were contacted by Reclamation. CDFG responded on March 30, 2005 and requested to be added to Reclamations' mailing list.

Several quarry sites and a number of the roads that access the quarry sites are located on Bureau of Land Management (BLM) land and will require certain authorizations from BLM to access several of the quarry sites. Because BLM has discretionary authority over the proposed action, Reclamation requested that BLM become a cooperating agency for preparing the Programmatic EA. On May 24, 2005, BLM agreed to become a cooperating agency and an Interagency Acquisition between Reclamation and BLM, California Desert District was finalized in February 2006.

During collaboration, BLM identified several sensitive wildlife species of concern that may occur or have the potential to occur on BLM land and within the vicinity of the proposed project. The wildlife species of concern are: desert tortoise, rosy boa, chuckawalla, gila monster, and Alverson's foxtail cactus. In addition, BLM also identified the long-leaf sandpaper plant as a plant species of concern. Though, the above mentioned species are considered sensitive to BLM, they are not listed under ESA as threatened or endangered, with the exception of the desert tortoise. However, BLM requested that Reclamation address the species sensitive to BLM in the Programmatic EA. The desert tortoise will be addressed further in this BA.

1.3 Project History and Background

In 1996, Biological Assessments were prepared (CH2MHill 1996a and 1996b) to evaluate the potential for effects on listed species associated with operation of quarries along the LCR in California and Arizona. Reclamation initiated consultation with the USFWS and a Subsequent BO was issued by USFWS in 1997 concluding that operation of eight existing quarries (Manchester, Agnes Wilson, Palo Verde, Times Gulch, La Paz, Ehrenburg, Hart Mine No. 2, and Big Maria No. 2) and construction/operation of one new quarry (Quien Sabe West) was not likely to jeopardize the continued existence of the desert tortoise, nor was destruction or modification of the species designated critical habitat likely to result. The BO included Reasonable and Prudent Measures, and Terms and Conditions to reduce the likelihood of take associated with quarry construction/operation. To date, Reclamation has met the mitigation requirements for all 9 sites. The BO covered operation of the specified quarries through December 2005; however, the USFWS approved Reclamations' request to extend the BO to the end of 2006 (USFWS 2005b). Reclamation made an additional request to USFWS and received another extension to June 30, 2007 (USFWS 2006a).

In order to continue operation of the quarry sites beyond 2006, Reclamation has prepared this updated BA for 7 (6 existing, 1 new) of the original nine quarry sites. The Manchester quarry and the Big Maria No. 2 quarry were two of the original quarry sites evaluated under the 1997 BO that will not be evaluated under this updated BA. The Manchester quarry is located in a wilderness area and will be evaluated in a separated BA if Reclamation chooses to pursue operation of this quarry in the future. The Big Maria No. 2 quarry is no longer an active quarry site. In addition, Reclamation proposes to add 8 additional quarry sites to be covered under the updated BA (8 existing, 1 new).

1.4 Project Location

The proposed project which encompasses a total of 16 quarry sites extends from Davis Dam to Laguna Dam. The quarry sites are located in the upland areas within 10 miles of the LCR bordering the states of Arizona and California. Refer to Figure 2 for the general location of existing and proposed quarry sites.

Figure 2-Existing and Proposed Quarry Locations Along the Lower Colorado River

The following table shows the quarry sites included in this BA.

Table 1-Quarry Sites by County

Quarry	County/State	Status
Agnes Wilson *	Riverside, CA	Existing
Bat Cave No. 1	San Bernardino, CA	Existing
Cibola (Hart Mine No. 1)	La Paz, AZ	Existing
Eagle Pass	San Bernardino, CA	Existing
Ehrenberg*	La Paz, AZ	Existing
Hart Mine No. 2 *	La Paz, AZ	Existing
Laguna Dam	Yuma, AZ	Existing
La Paz East	La Paz, AZ	Existing
La Paz West *	La Paz, AZ	Existing
Palo Verde	Imperial, CA	Existing
Paymaster	Imperial, CA	New
Quien Sabe West *	Riverside, CA	New
Ripley	Riverside, CA	Existing
Section 7	San Bernardino, CA	Existing
Times Gulch *	Mohave, AZ	Existing
Trigo Wash	La Paz, AZ	Existing
* denotes a quarry that was included in the original 1996 BA and the 1997 BO		

1.5 Environmental Setting

The geology of the area, characterized by the Sonoran and Mohave Desert landscape, contains numerous mountain ranges and basins. The basins are composed of silt-filled channels and alluvial fans, fan terraces, and floodplains, consisting of Quaternary sand, gravel, and conglomerate (LCR MSCP 2004a). Both the Sonoran and Mohave deserts experience extreme temperatures and little rainfall, although the Sonoran Desert is considered to be more diverse in plant and animal life than the Mohave Desert due to its proximity to the Pacific Ocean.

The LCR provides important habitat for migratory birds, both upland species and waterfowl, as well as habitat for resident species. Wetlands and woody riparian vegetation such as Cottonwood willow, Saltcedar, Honey mesquite, Saltcedar-honey mesquite, Saltcedar-screwbean mesquite, Arrowweed, and Atriplex provide habitat for a variety of raptors, as well as habitat for waterfowl and shorebirds in the backwaters and reservoirs. Furthermore, the LCR provides important habitat to native fish, such as the Razorback sucker and the Bonytail chub.

The upland habitats near the LCR are characterized by Mohave and Sonoran desert scrub plant communities. Creosote bush (*Larrea tridentata*), scrub and white bursage (*Ambrosia dumosa*) dominate much of the project area and are commonly found between rocky hillsides and the desert saltbush community. The creosote bush scrub community is commonly associated with low species

diversity due to the alkaline conditions, although species diversity usually increases as elevation increases. Other common species associated with desert scrub habitat include, but are not limited to, palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), smoke tree (*Dalea spinosa*), brittlebush (*Encelia* spp.), catclaw acacia (*Acacia greggii*) and a variety of yucca and mesquite species. A wide variety of annual forbs are also found scattered within the area. Some of the common mammals found associated with upland habitats within the project area are mule deer (*Odocoileus hemionus*), coyote, (*Canis latrans*), bobcat (*Felis rufus*), Audubon cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and a variety of bats and rodents. Reptiles and amphibians, such as lizards, snakes, toads, and frogs are also present in upland and riparian habitats within the project area.

The LCR has been altered through the construction of dams such as the Hoover Dam, Davis Dam, Parker Dam, Headgate Rock Dam, Palo Verde Diversion Dam, Imperial Dam, and Laguna Dam. Although dam construction has been minimized considerably, dams have fragmented and modified fish and wildlife habitat as well as altered ecological processes.

1.6 Proposed Action

The Proposed Action is to continue using or re-open existing quarries and/or establish new quarries and associated access roads, as needed, to meet material needs. Utilization of a specific quarry site is directly dependent on the location of the operation and maintenance project. Typically, the nearest available quarry to the depleted stockpile site would be used to re-supply the site; and rarely, if ever, would more than one quarry be in operation at the same time.

In general, excavation of materials from a quarry would be accomplished by a Reclamation contractor. Contractors would be issued a delivery order detailing the amount and types of material required and the final delivery point, including any additional environmental requirements (e.g., conducting biological monitoring, preparing plans, and obtaining permits).

Quarry operations consist of blasting, as necessary, to produce working benches and working materials for the mechanically operated grizzlies and screening plant. Oversized rock that is produced during the blasting operation would be reduced to the designated riprap size and used in stockpiles in accordance with Reclamation’s delivery orders and associated specifications. Undersized materials and fines would be graded and screened to produce gravel base materials. Materials not meeting Reclamation’s standards and specifications and any stripped materials would be disposed of in and around the existing quarry site. Excess sub-standard materials would be graded to a generally uniform surface to blend in with the adjacent ground surfaces.

To meet Reclamation's standards and specification, surplus material produced during the quarry and processing operation may be stockpiled on the quarry floor until needed. Stockpiles would be separated by types of materials produced (i.e., riprap, gravel base, or 1- to 4-inch material). Materials would be relocated to the associated stockpile sites or banklines on an as-need basis.

During any given quarry operation, the height of the working face may exceed 40 feet. However, at the end of an individual delivery order, the final elevations of successive benches would not exceed a 40-foot vertical difference and would have a back slope of 3 to 1, or a slope to match any existing prominent rock joint. The existing rock faces of the quarry would be scaled (as defined by 30 CFR, Part 56, paragraph 56.2, *Definitions*) prior to beginning any quarrying operations and during the operation of any quarries as necessary to eliminate danger at the quarry site.

The following is a list of equipment that may be utilized during quarry operations:

- Mechanically operated grizzly and screening plant
- Two or three rubber-tired front-end loaders
- Rock crusher
- One or two dozers
- Blade (for maintaining access and haul roads)
- Water truck (for maintaining access and haul roads)
- Six to twelve haul trucks, depending on the size of the vehicles and the distance to where the rock is being stockpiled or placed on the bankline
- Compressor and air drill
- Certified platform scale
- Backhoe with ram attachment
- Service truck.

Access roads would be built within the confines of the quarry and to the benches as required for the operation of the quarry. After completion of the delivery order, all worked rock faces would be scaled and all access roads blocked with oversized rocks, fencing, or gates as needed.

Generally, all quarry sites have existing access roads; however, Reclamation may improve or repair such access, as needed, to accommodate travel to and from the quarry sites. Improvement/repair would be limited to grading, laying gravel, widening, and watering for dust control.

2.0 Methodology

2.1 Literature Search and Review

A literature search and review was conducted for federally listed species and for sensitive species listed in California and Arizona. Species data was collected for federally listed species from the USFWS searchable database[2] for the LCR area. Special status species information for the State of Arizona was acquired from the Arizona Game and Fish Department (AGFD) website[3] for Special Status Species. Species information for the State of California was obtained from the Lower Colorado River Multi Species Conservation Plan[4] (LCR MSCP) that was completed in 2004. Proposed and existing quarry sites are all located within the LCR MSCP planning area and most species analyzed in the LCR MSCP are applicable to this proposed project. Literature reviewed for this BA is listed in Section 5.0 of this document.

2.2 Site Investigations

Initial site investigations were conducted by a qualified biologist from Jason Associates Corporation between the periods of 08/18/05 and 09/13/05 with the exception of the proposed Paymaster quarry site. Site investigation for the Paymaster quarry site was not completed due to limited road access and rough walking terrain. Site visits were conducted for vegetation, mapping, wildlife and wildlife habitat, and rare plants. Sites were documented using data collection forms and photos, and are included in Appendix C-B. The location of each site was recorded using Global Positioning System technology and mapped using Geographic Information Systems.

Reclamation will perform additional site-specific biological surveys in each quarry site prior to commencing operation or construction at the individual quarry site.

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[2] http://www.fws.gov/endangered/wildlife.html#Species

[3] http://www.gf.state.az.us/w_c/edits/hdms_species_lists.shtml

[4] http://www.usbr.gov/LC/lcrmscp/workplans.html

3.0 Species of Concern

3.1 Federally Listed Species Eliminated from Further Consideration

A number of federally listed species were eliminated from further consideration because biological surveys found that the proposed project did not contain habitat that was suitable to maintain significant populations for known threatened and endangered species, with the exception of the desert tortoise. Section 3.3 will discuss the potential impacts to the desert tortoise from implementation of the proposed project. The following is a list of species and the reasons why they were eliminated from further consideration.

Southwest Willow Flycatcher (*Empidonax trailii extimus*): The southwestern willow flycatcher was listed as an endangered species on February 27, 1995. It is also listed as a wildlife species of special concern by the State of Arizona. Critical habitat was proposed for the southwestern willow flycatcher on October 12, 2004 by the USFWS. The ESA requires the preparation of recovery plans for threatened and endangered species. The Recovery Plan for the southwestern willow flycatcher was signed on August 2002. In the Recovery Plan, critical habitat was listed according to recovery and management units. Applicable critical habitat areas for the Lower Colorado Recovery Unit include: Little Colorado Management Unit (MU)-Little Colorado River, West/East/and South Forks of the Little Colorado River in Arizona; Hoover to Parker MU-Colorado River in Arizona and California; Parker to SIB MU-Colorado River in Arizona and California (USFWS 2005).

The southwestern Willow Flycatcher is primarily threatened due to the loss and modification of habitat associated with the operation of dams and reservoirs, water diversion and groundwater pumping, channelization and bank stabilization, livestock grazing, recreation, fire, and urban and agricultural development. Other secondary threats of equal importance are the introduction of exotic species and brood parasitism.

As of the 2001 breeding season, the minimum known number of southwestern willow flycatchers was 986 territories. In Arizona, 359 known southwestern willow flycatcher territories were recorded. Arizona has the highest known territory of the southwestern willow flycatchers'. The historical range of the willow flycatcher included southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico (USFWS. 2002a). In Arizona, it occupied portions of all major watersheds, but recent investigations indicate that their populations exist in much smaller numbers today, because of reduced habitat. Suitable habitat conditions for the flycatcher are generally dense, mesic riparian shrub and tree

communities 0.1 hectare (ha) (0.25 acres) or greater in size with floodplains large enough to accommodate riparian patches at least 10 m wide (USFWS. 2002a). The size and shape of riparian patches may vary from dense, linear, contiguous stands to irregularly-shaped mosaics of dense vegetation with open areas. But, overtime, suitable riparian habitat may become unsuitable, because they are typically located in flood plain areas that are prone to periodic disturbance.

Site visits indicated that the project area did not provide suitable habitat for the southwestern willow flycatcher. The existing quarry sites are located away from riparian habitat in moderately to highly disturbed areas. The proposed quarry sites are located in upland habitats and not in areas designated as critical habitat for the southwestern willow flycatcher. The maintenance and operation of existing quarries and the construction of proposed quarry sites will not jeopardize the continued existence of the species and will not result in the destruction or modification of designated critical habitat. Therefore, Reclamation has determined that the proposed project will result in ***No Effect*** to the southwestern willow flycatcher.

Yuma Clapper Rail (*Rallus longirostris*): The Yuma clapper rail was listed as an endangered species on March 11, 1967. In addition, the clapper rail is also considered a species of special concern by the State of Arizona and is protected under the Migratory Bird Treaty Act. Critical habitat has not been designated for this subspecies. The Yuma Clapper Rail Recovery Plan was signed in 1983 (USFWS 1983).

The clapper rail is primarily threatened by the loss of marsh habitat due to river management activities such as dredging, channelization, bank stabilization, and other flood control measures. However, high selenium levels are considered to be a potentially significant new threat to the clapper rails.

The Yuma clapper rail is found along the LCR from Laughlin, Nevada to Yuma, Arizona and in California and Mexico. Significant populations exist in the Imperial Valley near the Salton Sea in California and along the Gila River from Phoenix to Yuma, Arizona. According to the Yuma Clapper Rail 5-Year Review, survey data for the last ten years has ranged from 503 to 900 birds with approximately half of the clapper rails inhabiting the Salton Sea; the LCR supports the other half. In the LCR, populations have ranged from 217-445; Gila River data has ranged from 10-116; and the Salton Sea data has ranged from 234-523 (USFWS 2006b). Based on 1998-2002 survey data, the species status is considered stable in the United States. In the United States, the Yuma clapper rail is associated primarily with freshwater marshes, with the highest densities of this subspecies occurring in mature stands of dense to moderately dense cattail and bulrushes. Their home ranges for single or paired birds along the LCR encompassed up to 43 ha (106 acres) with an average home range of 7.5 ha (18.5 acres) (LCR MSCP 2004c). Nest sites selected by this subspecies are near upland in shallow sites dominated by mature vegetation, often in the base of a

shrub. Yuma clapper rails move into different cover types in winter, showing a preference for denser cover than in summer.

This subspecies was eliminated from further consideration, because this subspecies requires freshwater marsh habitat containing dense mature vegetation. The locations of the quarry sites are located in upland habitats up to 10 miles away from the LCR. Suitable habitat for this subspecies was not found during site investigations nor was the presence of Yuma clapper rail observed. Implementation of the proposed project will not jeopardize the continued existence of the species. Therefore, Reclamation has determined that the proposed project will result in ***No Effect*** to the Yuma clapper rail.

Least Bell's vireo (*Vireo bellii pusillus*): The least Bell's vireo was listed as endangered on May 2, 1986. Critical habitat for the species was listed on February 2, 1994. Areas that are listed as critical habitat are: Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties. About 49 percent of the least Bell's vireo population in the United States occurred within these 10 areas in 1994 (USFWS 1998a).

Historically, this species was widespread through riparian woodlands in the Central Valley and low elevation riverine valleys of California and northern Baja California, Mexico. However, extensive habitat loss due to stream channelization, water impoundment or extraction, water diversion, intensive recreation and development, and brood parasitism by the brown-headed cowbird, species populations declined dramatically. By the 1980's, this subspecies was extirpated in most of its historical breeding habitats. By the time the least Bell's vireo was listed in 1986, the statewide populations were estimated to have declined to 300 pairs, with the majority concentrated in San Diego County. However, since the bird was listed, intensive cow bird removal programs were initiated that resulted in dramatic increases bird populations. Today, the species is restricted to the eight counties in southern California and portions of Baja California, but recent observations have indicated that the subspecies have been expanding their range and recolonizing sites that have been unoccupied for years or decades. Expansion has been occurring mostly in the inland reaches of coastal valleys and northward into Riverside and Ventura Counties (USFWS 1998a).

The least Bell's vireo is dependent upon dense, multi structure riparian habitat for breeding, such as cottonwood-willow woodlands/forests, oak woodlands, and mule fat scrub. They typically place their nest sites in openings and along riparian edges, where the exposure to sunlight allows the development of shrubs, but have been seen to extend their activities into adjacent upland habitat sites. However, nest site characteristics are highly variable, and nest success appears to be unrelated to nest height, host species, and amount and arrangement of foliage cover in the vicinity of the nest. Upland habitats are primarily used by foraging adults and adults foraging with their fledglings. In addition, the least Bell's vireo has been observed using upland vegetation early in spring when floodwaters

inundate riparian habitat. Upland vegetation provides important supplemental food resources for birds in marginal habitat. Little is known about their habitat requirements in winter, but it is known that they are not exclusively dependent upon riparian habitat on wintering grounds. Although wintering least Bell's vireo do occur in willow-dominated riparian woodlands, a greater portion of the population appears to occur in mesquite scrub vegetation within arroyos as well as in shrubby areas associated with palm groves and along hedgerows associated with agricultural fields and rural residential areas (USFWS 1998a).

The least Bell's vireo arrives on southern California breeding grounds in mid-March to early April and is generally present on the breeding grounds until late September. Once the males arrive in their breeding grounds they begin to establish and defend their territories through counter-singing, chasing and sometimes confrontation; their territories typically range from 0.2 to 3.0 ha (0.5 to 7.5 acres). Nest building begins soon after the males and females pair. Egg-laying begins one or two days after nest completion. Both parents share in incubation, which takes approximately 14 days. Upon hatching, nestlings are fed by both parents for 10-12 days until fledging. After fledging, adults continue to care for the young for at least two weeks and fledglings generally remain in the territory or its vicinity for the most of the season, thereafter (USFWS 1998a).

The recovery plan for the least Bell's vireo identified 14 population / metapopulation units within California to protect and manage for the downlisting of the least Bell's vireo. These population / metapopulation units are critical habitat areas that fall within the counties of Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego. Several quarry sites are located in San Bernardino, California along the LCR. However, the quarry sites are not located within a unit area. The closest unit area to the LCR is the Santa Ana River which is several hundred miles away. Furthermore, site visits found no signs of the least Bell's vireo inhabiting the surrounding area. In addition, the quarry sites do not provide habitat that would support the least Bell's vireo. Reclamation has determined that the proposed project will not jeopardize the continued existence of the species and will not result in the destruction or adverse modification of designated critical habitat. Therefore, implementation of the proposed project will result in ***No Effect*** to the least Bell's vireo.

Sonoran pronghorn (*Antilocapra americana sonoriensis*): The Sonoran pronghorn was listed as an endangered species by the USFWS on March 11, 1967. It is also listed as a wildlife species of special concern by the State of Arizona. No critical habitat has been designated for this subspecies.
Prior to the 20th century, the pronghorn existed in large numbers throughout most of the prairie and desert regions. However, over the last century, the pronghorn's population has diminished significantly primarily due to the loss of habitat from extensive livestock grazing; human encroachment; illegal hunting; drought and predation; and the blockage of migration corridors.

By 1907, historical records indicate that the pronghorn was becoming rare in the Arizona region; and by 1941, only 60 antelope were estimated to exist in southwestern Arizona (USFWS 1998b). More recently, results from a 1996 survey estimated 164 pronghorn inhabited parts of Arizona. The Sonoran pronghorn occurs most frequently in the following areas: Pinta Sands, Growler Valley, Mohawk Valley, and San Cristobal Valley (USFWS 1998b).

The Sonoran pronghorn are known to occupy areas that consist of broad alluvial valleys. During the winter in the LCR basin, they tend to occupy valleys that are dominated by creosote (*Larrea tridentate*) and white bursage (*Ambrosia dumosa*). In the summers they migrate south and east to the foothills. Primary upland habitat consist of palo verde (*Cercidium microphyllum*), catclaw acacia (*Acacia greggii*), jumping cholla (*Opuntia fulgida*), and teddy bear cholla (*O. bigelovii*). Based on radio telemetry, it is estimated that males home range extend from 64.5 to 1,213.6 km^2 (25 mi^2 to 469 mi^2) and females home range can vary from 40.7 km^2 to 1,143.7 km^2 (16 mi^2 to 442 mi^2) (USFWS 1998b).

Existing quarry sites are located in highly disturbed areas with limited vegetation to no vegetation. Although the quarry site are in Yuma County (Laguna), pronghorn would almost certainly never visit the sites due to the shy nature of the species and reluctance to travel across man-made barriers such as highways (Interstate 8) and railroads, or natural barriers such as the Tinajas Altas and Gila Mountains and the Gila River. The proposed quarry sites are relatively undisturbed areas, however site visits concluded that these sites consists of low quality habitat and it is unlikely that these sites will support pronghorn. Therefore, Reclamation has determined that implementation of the proposed project will not jeopardize the continued existence of the species and will result in ***No Effect*** to the Sonoran pronghorn.

Razorback Sucker (*Xyrauchen texanus*): The razorback sucker was listed as an endangered species on October 23, 1991 and as a wildlife species of special concern by the State of Arizona. Critical habitat was designated by the USFWS in 1994 and includes portions of the Colorado River in Arizona, California, and Nevada, and portions of the Gila, Salt, and Verde rivers in Arizona. The Razorback Recovery Plan was updated and supplemented by the Razorback Sucker Recovery Goals in 2002.

The current major threats that are affecting razorback sucker populations are streamflow regulation and habitat modification (including cold-water dam releases, habitat loss, and blockage of migration corridors); competition with and predation by nonnative fishes; and pesticides and pollutants (USFWS 2002b).

The razorback sucker (*Xyrauchen texanus*) is a large catostomid fish endemic to the Colorado River Basin (USFWS 2002b). Historically, the razorback sucker inhabited the Colorado River and it tributaries from Wyoming to the Gulf of Mexico (LCR MSCP 2004c). In the LCR, the species occurred from the

Colorado River delta upstream to Lees Ferry, Arizona (USFWS 1998c). In the upper Colorado River basin, they occurred in the Colorado, Green, and San Juan River basins. Presently, the razorback sucker occurs in quantities much less than its historical distribution. The largest population of the razorback sucker in the entire Colorado River Basin occurs in Lake Mojave. In 1988, the population consisted of approximately 60,000 adults, however, the population declined to 25,000 fish by 1995. In 2000, the population even further declined to about 9,000 fishes (USFWS 2002b). The adult razorback sucker habitat requirements vary depending on the season and location, but typically include deeps runs, eddies, backwaters, and flooded off-channel environments in spring; runs and pools often in shallow water associated with submerged sandbars in summer; and low-velocity runs, pools, and eddies in winter (USFWS 2002b).

The maintenance and operation of the quarries will be conducted away from the LCR, backwaters, or reservoirs where the razorback sucker is known to inhabit. All maintenance and operations of the quarries will be conducted in the upland parts the LCR basin. Additionally, the proposed project will not interfere with migration corridors or result in substantial soil erosion that would impact fish habitat. Therefore, Reclamation has determined that implementation of the proposed project will not jeopardize the continued existence of the species or result in the destruction or modification of designated critical habitat. Implementation of the proposed project will result in ***No Effect*** to the razorback sucker.

Bonytail Chub (*Gila elegans*): The Bonytail was listed as an endangered species in April, 1980 and as a wildlife species of special concern in Arizona. Critical habitat was designated for the species on April 20, 1994 and includes the following areas: Hoover Dam to Davis Dam (including Lake Mohave), and the northern boundary of the Havasu National Wildlife Refuge to Parker Dam (including Lake Havasu).

The major threats currently affecting Bonytail populations are streamflow regulation and habitat modification (including cold-water dam releases, habitat loss, and blockage of migration corridors); competition with and predation by nonnative fishes; hybridization; and pesticides and pollutants (USFWS 2002c).

A small number of wild adults exist in Lake Mohave on the mainstem Colorado River of the Lower Colorado River Basin (i.e., downstream of Glen Canyon Dam, Arizona), and there are small numbers of wild individuals in the Green River and Upper Colorado River subbasins of the Upper Colorado River Basin (USFWS 2002c). Very little is known about the life history and habitat requirements of the Bonytail, because of its scarcity in natural environments (LCR MSCP 2004c). Bonytail are considered big or mainstem river species and occupy pools and eddies rather than areas with more current (USFWS 1990). In the Lower Basin, bonytail populations are limited to artificial impoundments, including ponds and reservoirs, and prefer lacustrine habitat rather than upstream riverine habitat.

According to Pacey and Marsh (1998), in reservoirs, bonytail are mostly pelagic, except during spawning events when they move to shallow rocky areas (LCR MSCP 2004c).

The maintenance and operation of the quarries will be conducted away from the LCR, backwaters, or reservoirs where the Bonytail is known to inhabit. All maintenance and operations of the quarries will be conducted in the upland parts the LCR basin. Additionally, the proposed project will not interfere with migration corridors or result in substantial soil erosion that would impact fish habitat. Therefore, Reclamation has determined that implementation of the proposed project will not jeopardize the continued existence of the species or result in the destruction or modification of designated critical habitat. Implementation of the proposed project will result in ***No Effect*** to the Bonytail chub.

Colorado pikeminnow (*ptychocheilus lucius*): The common name of the Colorado squawfish was changed to the Colorado pikeminnow by the American Fisheries Society (USFWS 2002d). The species is the largest cyprinid fish endemic to the Colorado River Basin. It was listed as an endangered species on March 11, 1967. Critical habitat was designated on April 20, 1994. The latest revised recovery plan was approved on August 6, 1991. Threats to the species include streamflow regulation, habitat modification, competition with and predation by nonnative fishes, and pesticides and pollutants (USFWS 2002d).

Today, wild populations of the Colorado pikeminnow primarily occur in the Upper Colorado River basin. In the LCR basin, the species were extirpated in the 1970s, but have been recently introduced into the Gila River subbasin, where it exists in small numbers in the Verde River (USFWS 2002d). However, reintroduction efforts of the pikeminnow resulted in low survival rates and unsuccessful reproduction.

The species lives in warm-water reaches of the Colorado River mainstem and larger tributaries, and requires uninterrupted stream passage for spawning migrations and dispersal of young. Adult and subadult species require deep runs and eddies maintained by high spring flows. These areas support aquatic insect and small fishes that adult and subadult species prey on. Young pikeminnow's require back water areas with little to no current and shallow depths 1 to 2 feet. Juveniles require similar backwater areas but are found in depths up to 3 feet. Spawning occurs after spring run-off at water temperatures typically between 18 and 23° C (USFWS 2002d).

The proposed project will not interfere with fish habitat or fish passage of the Colorado pikeminnow, because this species only occurs in small numbers in the Verde River. The locations of the quarry sites are located along the LCR. Furthermore, the quarry sites are located primarily in upland habitats away from fish habitat. Therefore, Reclamation has determined that implementation of the

proposed project will not jeopardize the continued existence of the species or result in the destruction or modification of designated critical habitat. Implementation of the proposed project will result in ***No Effect*** to the Colorado pikeminnow.

Bald Eagle (*Haliaeetus leucocephalus*): The bald eagle is listed as threatened under the ESA and the California Endangered Species Act. It is also considered a wildlife species of special concern in Arizona. However, the bald eagle has been proposed for delisting.

Bald eagles are primarily found along coasts, large lakes and major rivers along the Pacific Coast. Although bald eagles are not currently known to breed along the LCR, there is usually an influx of up to 15 individuals wintering in the area. Wintering bald eagles are most often found at the backwater lakes and marshes associated with the National Wildlife Refuges along the LCR. Bald eagle nesting sites in Arizona include cliffs, pinnacles, trees, and snags. Fish, small mammals, and waterfowl make up most of the eagle's diet. Primary threats to the bald eagle are habitat loss and degradation. Secondary threats include human disturbance, environmental contamination, poisoning, trapping, and illegal taking (LCR MSCP 2004c).

Site visits concluded that bald eagles do not exist in or near the immediate vicinity of the project area. Although the quarry sites are located near the LCR, the quarry sites including the surrounding area contain limited vegetation for prey base to occur. Therefore, it is unlikely for the bald eagle to inhabit these locations. Reclamation has determined that the proposed project will not jeopardize the continued existence of the species and therefore, will result in ***No Effect*** to the bald eagle.

3.2 Potential Impacts to Federally Listed Species

3.2.1 Desert Tortoise

Desert tortoises (*Gopherus agassizii*) are divided into two populations: the Mojave Desert population (populations occurring north and west of the Colorado River) and the Sonoran Desert Population (populations occurring south and east of the Colorado River). The Mojave population of the desert tortoise includes those animals in the Mojave Desert of Arizona, California, Nevada, southwestern Utah, and in the Colorado Desert in California. On August 4, 1989, the USFWS published an emergency rule listing the Mojave population of the desert tortoise as endangered. In its final rule, dated April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened (55 FR 12178-12191). The Service designated critical habitat (see Figure 3) for the Mojave desert tortoise in portions of California, Nevada, Arizona, and Utah in a final rule, published February 8, 1994 (59 FR 5820-5866). The Sonoran population of the

desert tortoise is not an endangered or threatened species; however, it is listed as a Species of Special Concern by the State of Arizona.

3.2.2 Species Description and Distribution

The desert tortoise is an herbivorous reptile found in portions of the Arizona, California, Nevada, and Utah deserts and is characterized by a high-dome, brown, gray or black shell, often with yellowish centers on each scute, stout elephantine legs, and males have a gular (throat) projection and concave surface on the lower shell (plastron). They range in size from two inches up to 15 for a mature male.

3.2.3 Habitat Requirements

The Mojave population of desert tortoise occurs primarily within the creosote, shadscale, blackbush, and Joshua tree series of Mojave desertscrub and the lower Colorado River Valley subdivision of Sonoran desertscrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from two to eight inches, diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner and Brown 1982, and Turner 1982). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. In Arizona, the Mojave population generally occupies desertscrub communities in the basins and bajadas but is also found on rocky slopes and is typically found below elevations of 4,000 feet.

In California, the Mojave population is typically associated with gravelly flats or sandy soils with some clay, but are occasionally found in windblown sand or in rocky terrain and occur below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of approximately 1,000 to 3,000 feet (Luckenbach 1982).

The preferred habitat for the Sonoran population of the desert tortoise is primarily rocky hillsides and bajadas of Mojave and Sonoran desert scrub but may encroach into desert grasslands, juniper woodland, and interior chaparral habitats. Sonoran populations are found from approximately 1,000 feet to 7,800 feet in elevation.

The specific constituent elements of desert tortoise critical habitat are:
(1) Sufficient space to support viable populations within each of the six recovery units and to provide for movement, dispersal, and gene flow

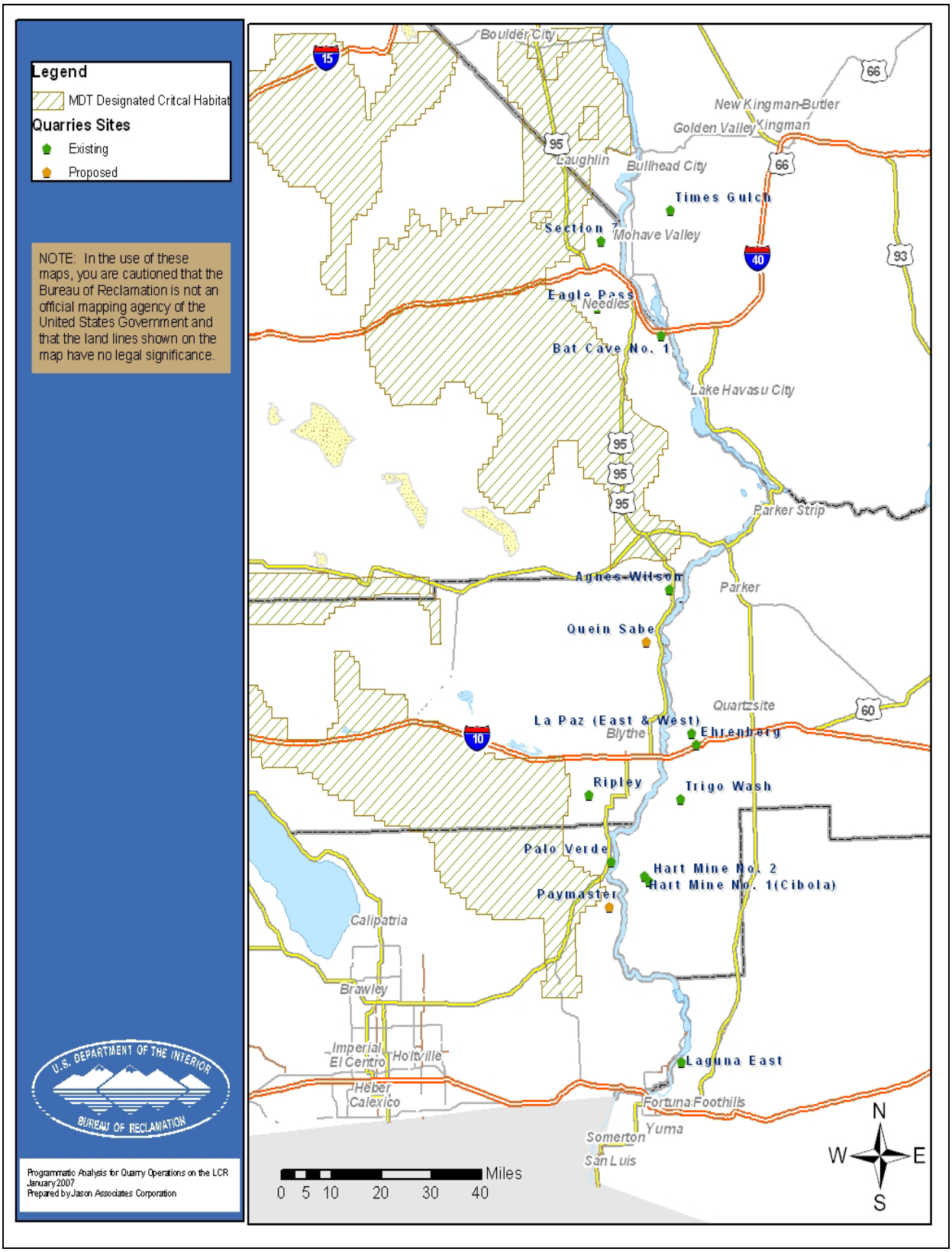

Figure 3-Designated Critical Habitat in the Vicinity of Quarry Sites

(2) Sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species
(3) Suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites
(4) Sufficient vegetation for shelter from temperature extremes and predators
(5) Habitat protected from disturbance and human-caused mortality

3.2.4 Life History

Desert tortoises may live 50 or more years in the wild. Their diet consists primarily of wildflowers, grasses, and cacti. Desert tortoises derive almost all their water intake from the plants they eat. A large urinary bladder can store over forty percent of the tortoise's body weight in water, urea, uric acid, and nitrogenous wastes. During periods of sufficient rainfall tortoises drink from temporary rain pools. A common defensive behavior when molested or handled is to empty the bladder, leaving the tortoise at a considerable disadvantage during dry periods.

To escape the temperatures of cold winters and very hot summers, many tortoises live in borrows. The spring and summer burrows vary from 18 inches to 5 feet long, but may only be a few inches from the surface. Winter burrows tend to be about eight feet long and may be two to three feet from the surface. They often share burrows and may use multiple burrows scattered across the landscape. They hibernate for up to nine months each year, becoming most active from March to June and September to October. When they are young they venture no more than 150 feet from their burrow. As they get older, they may go as far as 3/4 mile in a day and use a network of burrows. In the most densely populated areas, you may find one tortoise per 2.5 acres. Typically, tortoises' densities are closer to one tortoise per 100 acres.

Desert tortoises can reach 15 inches in length and weigh 15 pounds. Desert tortoises are most active around rainfall events, particularly during the summer monsoon season (August-September), with peak activity in early mornings and late afternoon. While active, desert tortoises forage on a variety of plant material, including grasses, wildflowers, fruits etc. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. Reproduction begins between ages 12-20, with clutch sizes of 1-14 eggs. In years with low rainfall, females may lay few to no eggs. Females can store sperm for five years or longer, meaning they can reproduce for several years after mating. Nests are built and eggs are laid in late spring or early summer. The hatchlings appear in 90 to 120 days. The mother leaves the nest, so once the hatchlings appear, they must survive on their own. Eggs are then laid again the next summer. The nest is often constructed in the female's burrow.

3.2.5 Threats and Vulnerability

Hatchling and small juvenile tortoise face the greatest number of predators, including, ravens, hawks, bobcats, and coyotes. The primary predators of adult

tortoises are mountain lions and man. The Mojave population is further threatened due to loss and degradation of habitat, illegal collection and vandalism, and disease (Upper Respiratory Tract Disease, shell disease). The Sonoran population is at risk for similar reasons except that primary predator of this population is feral dogs and the Sonoran population has a lesser occurrence of disease.

3.2.6 Species Management

The recovery plan for the desert tortoise is the basis and key strategy for recovery and delisting the desert tortoise (USFWS 1994). The plan divides the range of the desert tortoise into six distinct population segments or recovery units and recommends establishment of 14 Desert Wildlife Management Areas throughout the recovery units. Within each Desert Wildlife Management Area, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions.

The Arizona Interagency Desert Tortoise Team is currently working on a Conservation Agreement for the Sonoran population of the desert tortoise. The agreement will determine future direction of management issues based on previous and ongoing research.

3.2.7 Effects of the Proposed Action

Neither of the existing or proposed quarry sites is located within or immediately adjacent to critical habitat for the Mohave desert tortoise. Therefore, implementation of the proposed project will not result in the destruction or adverse modification of designated critical habitat.

Site visits conducted by a Jason Associates Corporation biologist concluded that the existing quarry sites did not contain suitable habitat to support the desert tortoise. All of the existing quarry sites are located in highly disturbed areas due to past quarry operations and limited vegetation exist within these areas. Furthermore, biologist did not find evidence of the desert tortoise occupying any of these sites or in the immediate surrounding area. However, desert tortoises could wander into active work sites and could potentially be killed or injured by haul trucks and other vehicles, and/or equipment.

The proposed quarry sites, Paymaster and Quien Sabe West are located in remote and relatively undisturbed areas that could support desert tortoise habitat. However, tortoises were not found in these areas. Though these areas are relatively undisturbed, the biologist did note in the site visit forms that there were signs of some recreational use in the area primarily from OHV's and hunters. Recreational use could adversely impact tortoise habitat or individual tortoises that may stray into these areas. Human predation is considered one of the major threats to the desert tortoise. People illegally collect desert tortoises for pets, food, and commercial trade. Road construction to gain access to these sites could

temporarily increase human use in the area and vehicular traffic. Consequently, tortoises could be killed or injured by vehicles from recreationalist or from haul trucks or heavy equipment associated with quarry operations. Additionally, new roads could temporarily increase illegal hunting of the desert tortoise. A study conducted by Berry (1990) found that 40% of the tortoises found dead on a study plot were killed by gunshot or vehicles traveling cross-country (USFWS 1994). All access roads will be blocked with oversized rock, fencing, or gates when quarries are not in operation. This will minimize impacts to the desert tortoise and its habitat.

Some quarry sites may also require blasting. If tortoises are present at the time of blasting this may result in effects to the individual tortoises.

Impacts to the desert tortoise are expected to be greatest between March 1 and November 1 when they are the most active. They typically begin to emerge to feed and mate during the late winter and early spring and remain active through the spring and sometimes emerge again after summer storms. Impacts would be minimized if the majority of the construction or hauling would be done in the winter. However, regardless of when the construction, reconstruction, or use of existing quarries will occur, each site will have full surveys conducted prior to implementation to ensure that impacts to the desert tortoise and its habitat are limited. Mitigation measures outlined in Section 3.2.8 will be implemented and on-going activities will be monitored during the life of the proposed project, but as mentioned previously, there is a potential for desert tortoises to be injured or killed during quarry operations. Though surveys would determine if a desert tortoise exists on-site at the time construction or operations begin, it would be impossible to predict when a tortoise would wander through. Continuous monitoring during the project life cycle would reduce the probability of a tortoise being injured or killed as a result of wandering into the site during construction or operations, but monitoring would not eliminate the risk completely. Therefore, implementation of the proposed project will result in a ***May affect, likely to adversely affect*** to the desert tortoise and its habitat.

3.2.8 Mitigation Measures and Monitoring

Impacts to the desert tortoise and tortoise occupied habitat would result in a ***May affect, likely to adversely affect*** determination. However, implementing the subsequent mitigation measures would minimize impacts. The following reasonable and prudent measures, and implementing terms and conditions will apply to both Sonoran and Mojave desert tortoise habitats.

Reasonable and Prudent Measure 1: Implement personnel education programs; define quarry area and access road; and define and implement operational procedures.

> *Term and Condition:* Reclamation shall designate a qualified representative (biologist or quarry manager) that:

- Is responsible for compliance with [the USFWS Biological Opinion and appropriate regulations]
- Shall coordinate with USFWS
- Shall have the authority and responsibility to halt all quarry activities
- Shall be on site

Term and Condition: Reclamation shall implement a desert tortoise education program that:

- Includes, but is not limited to: Reclamation employees, inspectors, supervisors, contractors, and subcontractors
- Shall be implemented prior to quarry construction and operational activities (quarrying, processing, hauling, and stockpiling)
- Confirms completion of the program (personnel shall sign a statement)
- Provides an overview of [the USFWS Biological Opinion and appropriate regulations], defines "take" and the penalties for violation of the laws
- Provides discussion of the legal protection and sensitivity of the species to human activity, distribution and ecology of the species, protocols for encounters with the species, and reporting requirements.
- Reduces adverse effects to desert tortoise and their habitat, and promotes long-term survival of the species

Term and Condition: Vehicles shall be limited:

- To existing routes and areas of disturbance
- To speeds that do not exceed 25 miles per hour (particularly from March 1 through November 1)
- Except during the establishment of new quarries and access roads; where areas of new construction shall be identified and work limited to these designated areas.
- To turn-around sites, work areas, temporary stockpiles, vehicular and equipment travel, and service areas shall be located within the quarry and access roads
- To authorized personnel only. Unauthorized vehicle use shall be prohibited; gates or other measures shall be implemented to restrict unauthorized vehicle access
- To best management practices, as described in individual Storm Water Pollution Prevention Plans for each quarry

Term and Condition: To the extent possible, Reclamation shall schedule:

- Construction and operation activities between November 1 and March 1 when desert tortoises are in hibernation.
- A qualified biologist to be present onsite to monitor construction and operation activities should quarry sites be constructed or operated outside of this period

Term and Condition: Reclamation shall compensate for loss of desert tortoise habitat.

Reasonable and Prudent Measure: Conduct full surveys for the presence or absence of desert tortoise prior to the construction and/or operation of each quarry site (including access roads).

Term and Condition: Reclamation shall have an authorized, qualified biologist:

- Conduct surveys within 24 hours of initiation of surface-disturbing activities for construction/operation activities during the desert tortoise season (March 1 through November1)
- Conduct 100-percent surveys within one (1) week of any quarry activity during desert tortoise hibernation (March 1 through November1)
- Conduct surveys and flag, as required, the location of the tortoise-barrier perimeter fence so that tortoise burrows are located outside the fenced quarry
- Excavate tortoise burrows within 40 feet of proposed quarry disturbance and relocate any desert tortoise and/or eggs
- Collapse or block desert tortoise burrows located within the quarry disturbance area to prevent reentry by tortoises

Terms and Condition: 100-percent surveys shall:

- Include areas of proposed new disturbance and expansion of existing quarries
- Include a buffer of 40 feet
- Be conducted a maximum of three (3) times for areas of new disturbance, or two (2) consecutive times if no desert tortoise are found

Terms and Condition: Construction and operation activities may occur within the quarry site:

- Only after the tortoise-barrier perimeter fence has been constructed and completed, as specified
- Without the presence and monitoring of a biologist after the enclosed quarry has been cleared of desert tortoises

Reasonable and Prudent Measure: Take of desert tortoise or destruction of desert tortoise habitat shall be closely monitored.

Term and Condition: An authorized, qualified biologist(s) shall:

- Be approved by FWS at least 15 days prior to initiation of quarry activities that may result in a take (Reclamation shall submit appropriate information)
- Handle desert tortoises in accordance with appropriate protocols, guidance and regulations

- Be present from March 1 through November 1 to monitor quarry activities that may result in take of desert tortoise
  - Inspect the quarry site a minimum of three (3) times per day for any excavations that might trap desert tortoises
  - Watch for desert tortoises wandering into construction/quarry areas and check under vehicles
  - Conduct other activities necessary to ensure that take is minimized
- Ensure that annual disturbances are limited to 10 acres
- Ensure that loss of desert tortoise habitat over the 13 year operational plan is limited to 65 acres
- Survey for and relocate desert tortoise/eggs within 24 hours of blasting within all areas that may be subject to falling rock and debris
- Relocate, upon discovery, the desert tortoise the minimum distance possible within appropriate habitat to ensure its safety from death, injury, or collection associated with quarry activities
  - Desert tortoises shall NOT be relocated to lands outside the jurisdiction of the Federal government without written permission of the landowner
- Maintain a record of all desert tortoises encountered during the project activities that includes:
  - Observance locations and dates
  - General condition and health, injuries, healing, and voidance
  - Location moved from and location moved to
  - Diagnostic markings (i.e. identification numbers of marked lateral scutes)
- Mark, for future reference, an identification number on the 4th costal scute (using the acrylic paint/epoxy technique)
- Notching of scutes or replacement fluids with a syringe is NOT authorized

Reasonable and Prudent Measure: Reduce the attraction of desert tortoise predators to the quarry vicinity to the maximum extent possible

Term and Condition: Reclamation shall be responsible for:

- Maintaining a sanitary quarry site at all times
- Controlling and limiting litter, trash, and garbage by placing refuse in predator-proof, sealable receptacles and removing debris regularly from the quarry site

Reasonable and Prudent Measure: Monitor incidental take resulting from the proposed action and report findings to the USFWS.

Term and Condition: Reclamation shall submit an annual monitoring report:

- To the appropriate USFWS office by 31 December
- That briefly documents the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of

tortoises excavated from burrows and moved from the quarry sites, and information on individual desert tortoise encounters
- Recommending adaptive terms and conditions to enhance desert tortoise protection and reduce unnecessary hardship on Reclamation and quarry personnel

Term and Condition: The USFWS will be notified within three days of finding any desert tortoises dead or injured. Reclamation shall:
- Provide notification of the date, time, circumstances, name of reporting individual, and location of incident
- Dispose of the dead animals in accordance with USFWS recommendations
- Ensure that an authorize biologist transports the injured animals to be treated and released, adopted, or euthanized, in accordance with USFWS and veterinarian recommendations

3.3 Sensitive and Species of Special Concern

Though the USFWS only requires agencies to analyze impacts to threatened and endangered species listed under the ESA, many States and individual agencies have also designated certain species that may not be listed under ESA as sensitive or species of special concern. Although these designations have no legal authority, Reclamation still considers how their proposed actions will impact these species. Table 2 below provides a summary of species that are considered sensitive or species of special concern to CDFG, AGFD, and BLM and the potential effects to those species from the proposed action. Because this BA is only required to analyze impacts to species listed under ESA, impacts to wildlife species of special concern will be analyzed in the Programmatic EA.

Table 2-Sensitive and Species of Special Concern

Species	Status	Potential to Occur
Arizona Bell's vireo (*Vireo bellii arizonae*)	Federal: None State: AZ – None CA - Endangered BLM: None MSCP: Covered	Low. Requires riparian habitat
California black rail (*Laterallus jamaicensis coturniculus*)	Federal: None State: AZ - Species of Special Concern CA - Threatened BLM: None MSCP: Covered	Low. Requires riparian habitat

Species	Status	Potential to Occur
California leaf-nosed bat (*Macrotus californicus*)	Federal: None State: AZ - Species of Special Concern CA - Species of Special Concern BLM: Sensitive MSCP: Evaluated	Moderate. Can occur on sites with desert scrub vegetation.
Cave myotis (*Myotis velifer*)	Federal: None State: AZ – None CA - Species of Special Concern BLM: Sensitive MSCP: None	Moderate. Roosts in caves, tunnels, and mine shafts in desert scrub.
Colorado River cotton rat (*Sigmodon arizonae plenus*)	Federal: None State: AZ – None CA – Species of Special Concern BLM: None MSCP: Covered	Low. Found in dense grassy and marshy areas adjacent to the Colorado River.
Elf owl (*Micrathene whitneyi)*	Federal: None State: AZ - None CA – Endangered BLM: None MSCP: Covered	Moderate. Can occur in upland habitat in the Sonoran desert. But require riparian vegetation.
Flannelmouth sucker (*Catostomus latipinnis*)	Federal: None State: AZ – Species of Special Concern CA - None BLM: None MSCP: Covered	Low. Requires riparian habitat.
Gila woodpecker (*Melanerpes uropygialis)*	Federal: None State: AZ - None CA - Endangered BLM: None MSCP: Covered	Moderate. Can occur in upland habitat types in the Sonoran desert.
Gilded flicker (*Colaptes chysoides*)	Federal: None State: AZ – None CA – Endangered BLM: None MSCP: Covered	Moderate. Occurs in upland habitat in the Sonoran desert.
Great egret (*Ardea alba*)	Federal: None State: AZ – Wildlife of Special Concern CA - None BLM: None MSCP: None	Low. Only occurs in riparian habitat types.

Species	Status	Potential to Occur
Lowland Leopard Frog (*Rana yavapaiensis*)	Federal: None State: AZ – Species of Special Concern CA - Species of Special Concern BLM: None MSCP: Evaluated	Low. Requires aquatic habitat.
MacNeill's Sootywing Skipper (*Pholisora gracielae*)	Federal: None State: AZ – None CA - None BLM: Sensitive USFS: Sensitive MSCP: Covered	Low. Requires saltbush stands. Saltbush is found minimally at or near quarry sites.
Pale Townsend's Big-Eared Bat (*Corynorhinus townsendii pallescens*)	Federal: None State: AZ – Species of Special Concern CA - Species of Special Concern BLM: Sensitive USFS: Sensitive MSCP: Evaluated	Low. Most records are from 3000 ft. elevation or above. All quarries found less than 3000 ft. elevation.
Sonoran yellow warbler (*Dendroica petechia sonorana*)	Federal: None State: AZ - None CA – Species of Special Concern BLM: None MSCP: Covered	Moderate. May migrate into upland habitats near riparian areas.
Spotted bat (*Euderma maculatum*)	Federal: None State: AZ – Species of Special Concern CA – Species of Special Concern BLM: None MSCP: None	Low. Varied habitat with specimens found from desert scrub to pine forests.
Summer tanager (*Piranga rubra*)	Federal: None State: AZ - None CA – Species of Special Concern BLM: None MSCP: Covered	Low to moderate. Migrants could occur in uplands near riparian areas.
Vermillion flycatcher (*Pyrocephalus rubinus*)	Federal: None State: AZ – None CA – Species of Special Concern BLM: None MSCP: Covered	Low. To moderate. Migrants could occur in uplands near riparian areas.

Species	Status	Potential to Occur
Western least bittern (*Ixobrychus exilis hesperis*)	Federal: None State: AZ – Species of Special Concern CA – Species of Special Concern BLM: None MSCP: Covered	Low. Tends to inhabit riparian areas
Western red bat (*Lasiurus blossevillii*)	Federal: None State: AZ - Species of Special Concern CA - Threatened BLM: None MSCP: Covered	Low. Roosts primarily in cottonwood trees in riparian habitat.
Western yellow bat (*Lasiurus xanthinus*)	Federal: None State: AZ – Species of Special Concern CA - None BLM: None MSCP: Covered	Low. Expanding range into SW US from Mexico. Associated with urban areas with palms.
White-faced ibis (*Plegadis chihi*)	Federal: None State: AZ – None CA - None BLM: Sensitive MSCP: None	Low. Tends to inhabit riparian areas.
Yuma hispid cotton rat (*Sigmodon hispidus eremicus*)	Federal: None State: AZ – None CA – Species of Special Concern BLM: None MSCP: Covered	Low. Found in dense grassy areas from Yuma south to Arizona/Mexico border.
Yuma myotis (*Myotis yumanensis*)	Federal: None State: AZ – None CA - Species of Special Concern BLM: None MSCP: None	Low to moderate. Prefers cliffs and rocky walls near water along LCR.
Yuma puma (*Felis concolor browni*)	Federal: None State: AZ – Species of Special Concern CA – Species of Special Concern BLM: None MSCP: None	Low to moderate. Can occur in upland habitats near riparian areas.

4.0 Conclusions and Determinations

Table 3 summarizes the potential effects to federally listed species from implementing the proposed project. Reclamation's determinations are based on applicable ESA regulations and USFWS Guidance. Reclamation has determined that the proposed operation of existing quarries and construction/operation of the new quarries will have ***No Effect*** on federally listed species with the exception of the Mohave desert tortoise. The proposed project ***May affect, is likely to adversely affect*** the Mohave desert tortoise or designated critical habitat for this species.

Reclamation has further determined that all sensitive species and species of special concern to CDFG, AGFD, and BLM resulted will not be adversely impacted as a result of the proposed action. The analysis to support this finding is included in the Programmatic EA for Quarry Operations.

Table 3-Summary of Effects Analysis

Common and *Scientific Name*	**Federal Status**	**Determination**		
		No effect	May affect, not likely to adversely affect	May affect, is likely to adversely affect
Colorado pikeminnow (*Ptychocheilus lucius)*	FE	X		
Desert tortoise (*Gopherus agassizzii*)	FT			X
Bald eagle (*Haliaeetus leucocephalus*)	FT	X		
Bonytail (*Gila elagans*)	FE	X		
Humpback chub (*Gila cypha*)	FE	X		
Least Bell's vireo (*Vireo bellii pusillus*)	FE	X		
Razorback sucker (*Xyrauchen texanus*)	FE	X		
Sonoran pronghorn (*Antilocapara americana sonoriensis*)	FE	X		
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE	X		
Yuma clapper rail (*Rallus longirostris yumanensis*)	FE	X		

Notes:
1 Determinations are for species and Designated critical habitat, if applicable.
Federal Status
FE = Listed as endangered under ESA
FT = Listed as threatened under ESA

5.0 Literature Cited

Arizona Game and Fish Department. 2001. Bonytail (*Gila elegans*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5 pp.

Bureau of Reclamation (Reclamation). 2006. *Law of the River*. U.S. Bureau of Reclamation, Lower Colorado Region. Retrieved May 8, 2006 from Http://www.usbr.gov/lc/region/pao/lawofrvr.html

CH2MHill. 1996a. *Biological Assessment of Lower Colorado River Quarry Sites Operated by the U.S. Bureau of Reclamation.* August 1996. Prepared for U.S. Bureau of Reclamation.

_____. 1996b. *Biological Assessment of Lower Colorado River Quarry Sites Operated by the U.S. Bureau of Reclamation.* September 1996. Prepared for U.S. Bureau of Reclamation.

Garvey, Kimberly. 2005. *Email from K. Garvey Re: FWS Consultation*. Natural Resources Specialist, Reclamation, Yuma Area Office. Yuma, Arizona.

Lower Colorado River Multi-Species Conservation Program (LCR MSCP). 2004a. *Lower Colorado River Multi-Species Program, Volume I: Programmatic Environmental Impact Statement/Environmental Impact Report*. December 17, 2004. Sacramento, California.

_____. 2004b. *Lower Colorado River Multi-Species Program, Volume III: Final Biological Assessment*. December 17, 2004. Sacramento, California.

_____. 2004c. *Appendix I: Status of LCR MSCP Covered Species*. December 17, 2004. Sacramento, California.

Luckenbach, R.A. 1982. *Ecology on management of the desert tortoise (Gopherus agassizii) in California.* U.S. Fish and Wildlife Service, Washington, D.C.

Turner, R.M. 1982. Mojave desertscrub. *Desert Plants, 4,* pp. 157-168.

Turner, R.M. and Brown, D.E. 1982. Sonoran desertscrub. *Desert Plants, 4,* pp. 181-221.

USFWS. 1983. *Yuma Clapper Rail Recovery Plan*. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

_____. 1990. *Bonytail Chub Recovery Plan*. U.S. Fish and Wildlife Service, Denver, Colorado. 35 pp.

_____. 1994. *Desert Tortoise (Mohave population) Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pages plus appendices.

_____. 1997. *Programmatic Biological Opinion for Construction and Operation of One Quarry and Operation of Eight Existing Quarries Along the Lower Colorado River from Near Davis Dam to Near Cibola Lake, Arizona/California, April 11, 1997*. U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, Phoenix, Arizona. AESO/ES 2-21-96-F-226.

_____. 1998a. *Draft recovery plan for the least Bell's vireo*. U.S. Fish and Wildlife Service, Portland, Oregon. 139pp.

_____. 1998b. *Final Revised Sonoran Pronghorn Recovery Plan.* Albuquerque, New Mexico. 70pp.

_____. 1998c. *Razorback sucker recovery plan*. Denver, CO: Region 6.

_____. 2002a. *Southwestern Willow Flycatcher Recovery Plan*. Albuquerque, New Mexico. i-ix + 210 pp., Appendixes A-O.

_____. 2002b. *Razorback sucker (Xyrauchen texanus) recovery goals: amendment and supplement to the razorback sucker recovery plan.* Denver, CO: Mountain-Prairie Region (6).

_____. 2002c. *Bonytail (Gila elegans) Recovery Goals: amendment and supplement to the Bonytail Chub Recovery Plan*. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

_____. 2002d. *Colorado pikeminnow (ptychocheilus lucius) Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan*. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

_____. 2005a. *Request for Species List for Projects located in San Bernardino County, Riverside County, and Imperial County, California along the Colorado River. September 16, 2005*. Ventura Fish and Wildlife Office, Ventura California. Pas: 1990-2895-3327.

_____. 2005b. *Extension of Programmatic Biological Opinion for Construction and Operation of One Quarry and Operation of Eight Existing Quarries (Nine Quarry Sites), Arizona and California, June 2, 2005*. United States Department of Interior, U.S. Fish & Wildlife Service, Phoenix, Arizona. AESO/SE 02-21-96-F-0226.

_____. 2005c. *Biological and Conference Opinion on the Lower Colorado River Multi-Species Conservation Program, Arizona, California, and Nevada*. March 4, 2005. United States Department of Interior, U.S. Fish & Wildlife Service, Phoenix, Arizona. AESO/SE 02-21-04-F-0161.

_____. 2006a. *Extension of Coverage for Programmatic Biological Opinion for Construction and Operation of One Quarry and Operation of Eight Existing Quarries, Arizona and California, Dec 18, 2006*. United States Department of Interior, U.S. Fish & Wildlife Service, Phoenix, Arizona. AESO/SE 22410-1996-F-0226.

_____. 2006b. *Yuma Clapper Rail 5-Year Review*. Date completed: May 30, 2006. Period covered by review: 200-2005.

BIOLOGICAL ASSESSMENT

APPENDIX A

COORDINATION AND CONSULTATION CORRESPONDENCE

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APPENDIX B

QUARRY SITE PHOTOS AND DATA FORMS

BIOLOGICAL ASSESSMENT

APPENDIX C

DESERT TORTOISE BRIEF

(POWER POINT PRESENTATION)