

**United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021
Telephone: (602) 242-0210 FAX: (602) 242-2513**

AESO/SE
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March 15, 2000

Memorandum

To: Field Manager, Tucson Field Office, Bureau of Land Management, Tucson, AZ

From: Field Supervisor

Subject: Biological Opinion for the Proposed Ray Land Exchange/Plan Amendment

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed Ray Land Exchange / Plan Amendment in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Formal consultation was initiated by the Bureau of Land Management (BLM) on June 28, 1999. The BLM determined the proposed action may affect and is likely to adversely affect the cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) and that it may affect but is not likely to adversely affect the southwestern willow flycatcher (*Empidonax traillii extimus*), bald eagle (*Haliaeetus leucocephalus*), and lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*).

This biological opinion is based on information provided in the biological assessment (BA) (BLM and SWCA 1999), final environmental impact statement (EIS) (BLM 1999), literature reviews, project meetings, information contained in our files, and various correspondence between our agencies. Literature cited is not a complete bibliography of all literature available on the project nor subject species. A complete administrative record of this consultation is on file at this office.

The Service concurs that the Ray Land Exchange / Plan Amendment is not likely to adversely affect the southwestern willow flycatcher, bald eagle, and lesser long-nosed bat. Rationale for our concurrences is described in the CONCURRENCES section.

It is the Service's biological opinion that the Ray Land Exchange / Plan Amendment is not likely to jeopardize the continued existence of the cactus ferruginous pygmy-owl or result in destruction or adverse modification of critical habitat.

CONSULTATION HISTORY

April 12, 1999: Informal section 7 consultation began with BLM.

June 28: Service received BLM memorandum of June 23, 1999, requesting initiation of formal section 7 consultation.

September 2: The Service transmitted a memorandum indicating that all information necessary to initiate consultation was received or was otherwise accessible and that formal consultation was initiated on June 28. The Service informed BLM that American peregrine falcon was removed from the list of endangered and threatened wildlife, and therefore will not be included in consultation. Service further informed BLM that critical habitat for the cactus ferruginous pygmy owl is final and therefore will be included in consultation, rather than conference.

September 8: Service advised BLM, via electronic mail, that upon further review, potential effects to critical habitat of the cactus ferruginous pygmy-owl may be better addressed under separate consultation for the appropriate Resource Management Plan into which acquired lands are incorporated.

October 15: Service received BLM memorandum, dated October 12, requesting reinitiation of formal consultation on critical habitat for the cactus ferruginous pygmy-owl for the Eastern Grazing EIS (2-21-96-F-422), the Phoenix Resource Management Plan (2-21-88-F-167), and the Safford and Tucson Field Office's Livestock Grazing Program (2-21-96-F-160).

October 27: BLM informed Service, via electronic mail, that effects on the offered land would already be covered by the umbrellas of the Phoenix RMP biological opinion (2-21-88-F-167) and the Eastern Arizona Grazing EIS biological opinion (2-21-96-F-422), and that reinitiation of these consultations for effects to cactus ferruginous pygmy-owl critical habitat is ongoing.

November 10: Service submitted the draft biological opinion for the Ray Land Exchange / Plan Amendment under cover memorandum to BLM. Draft concurrences were provided for the lesser long-nosed bat, southwestern willow flycatcher, and bald eagle. Conservation recommendations were provided for the cactus ferruginous pygmy-owl.

February 22, 2000: Service received BLM memorandum of February 16, 2000, regarding comments on the draft biological opinion. BLM amended portions of the BA and requested that Service remove conditional concurrences for the lesser long-nosed bat and southwestern willow flycatcher, and concur with BLM's determination that the proposed action may effect, but is not likely to adversely affect these two species.

DESCRIPTION OF PROPOSED ACTION

BLM proposes to amend the Phoenix and Safford District Resource Management Plans (RMPs) and conduct a land exchange with ASARCO Inc. (Asarco). Asarco seeks to acquire approximately 10,976 acres of public lands and mineral estate lands (selected lands) adjacent to its Ray open-pit copper mine and other operations in south-central Arizona. In exchange, Asarco is offering approximately 7,300 acres of land (offered lands) that it owns within the State of Arizona. The following is based on information presented in the final EIS, the BA, and information gained from BLM personnel. For a more complete description of the proposed action, including maps and figures, please refer to BLM (1999) and BLM and SWCA (1999).

Plan Amendment

The proposed action is currently not compatible with the Phoenix and Safford RMPs, because not all of the selected lands have been designated for disposal by exchange. Therefore, a plan amendment to change the land tenure decision for both RMPs is being considered by BLM. Criteria for disposal include lands that are difficult or uneconomic to manage, lands no longer needed for the original purpose for which they were acquired, and/or lands that will not serve an important public purpose.

The plan amendment would amend the current land tenure decisions in the approved Phoenix and Safford District RMP's. Specifically, the Phoenix District RMP would be amended to allow disposal by exchange of approximately 7,840 acres of full estate public lands and 2,065 acres of mineral estate public lands presently classified for retention and management under BLM's multiple-use mandate (see Table 1-2 and Figure 2-6 in BLM 1999). Similarly, the Safford District RMP would be amended to allow disposal of 355 acres of full estate public lands and 78 acres of mineral estate public lands. No change in land tenure classification is necessary for the 637 acres of public mineral estate land near Casa Grande as these lands have already been identified for disposal by exchange in the approved Phoenix RMP.

Land exchange

As stated above, Asarco seeks to acquire approximately 10,976 acres of public lands adjacent to existing mining operations in exchange for approximately 7,300 acres of land it owns within Arizona.

Selected lands: The selected lands consist of 31 parcels of public lands located in Pinal and Gila counties in south-central Arizona. Twenty-eight of the parcels occur in the Middle Gila River Basin between Mineral Creek to the north, the White Canyon Wilderness to the northwest, and the San Pedro River to the southeast. These 28 parcels are a mix of Federal surface acres and split-estate lands with Federal minerals and are clustered in three areas: the Ray complex (RM parcels), Copper Butte/Buckeye (CB parcels) and Chilito/Hayden (CH parcels), near Asarco's

Ray Mine and the communities of Ray, Kearny, Hayden, and Winkelman, Arizona (Figure 1 in BLM and SWCA 1999). The remaining three parcels are located about 50 miles west of the Ray Complex, near the community of Casa Grande (CG parcels) in Pinal County. The Casa Grande parcels are split-estate Federal minerals with no Federal surface ownership (Table 1 in BLM and SWCA 1999)

Asarco seeks to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray Mine. Asarco intends to use a portion of the selected lands to support and expand current and future mining-related operations, with the remainder used for site security and environmental buffers. Foreseeable uses as described in BLM (1999) and BLM and SWCA (1999) include: existing mining, production operations and support, transition, intermittent, and long-range prospect. These categories reflect differences in the timing of mining activity; the degree of certainty about the activity (i.e., the current stage of planning); and the nature and extent of anticipated surface disturbance resulting from the activity.

Existing Mining: If surface disturbance has already occurred due to mining activity in or adjacent to the Ray Mine, the affected lands are classified as existing mining. Areas of existing mining total approximately 272 acres (2%) of the selected lands. The parcels in this category are all located in the Ray Mine portion of the Ray Complex Area.

Production Operations and Support Areas: Areas classified as Production Operations and Support would be subject to substantial disturbance (25 to 100 percent) of the land surface. These areas comprise an estimated 3,614 acres (33%) of the selected lands. Potential foreseeable mining uses include (but are not limited to): expansion of open pits, haul roads, solution-extraction rock deposition areas, and overburden deposition areas. Most of the selected lands parcels in this category are located in the Ray Mine and Copper Butte/Buckeye portions of the Ray Complex Area.

Transition: Transition areas would be subject to less intensive mining-related activities, resulting in 5 to 25 percent surface disturbance. An estimated 875 acres (8%) of the selected lands fall into this category. Potential foreseeable mining uses include (but are not limited to): raveling areas around overburden and leach rock deposition areas, access roads, storm water diversion ditches, rights-of-way, and administrative facilities.

Intermittent Use: These areas would not be subject to direct mining activity, resulting in less than five percent surface disturbance. Potential intermittent uses, which would affect an estimated 4,481 acres (41%) of selected lands, include (but are not limited to) consolidation of Asarco ownership and buffering neighboring land owners from mining operations.

Long-Range Prospect: Selected lands in this category could potentially be used for mine development and associated support facilities at some point in the future, but no conceptual mine planning has begun. Because future mining uses of these lands are unknown, the degree of

surface disturbance resulting from such mining activity cannot be projected. Approximately 1,733 acres (16%) of the selected lands fall into this category.

Offered lands: In exchange, the BLM's Tucson and Kingman Field Offices would acquire lands totaling approximately 7,300 acres including: lands with riparian habitat; lands within watersheds of important riparian areas; lands with high value wildlife habitat; lands for administrative sites, developed recreation sites, or that provide access to public lands; lands with significant cultural and paleontological properties; and inholdings within special management areas. The offered lands consist of parcels owned by Asarco, which are located in Pinal and Mohave counties (Figure 2 in BLM and SWCA 1999). These include parcels along: the Gila and Big Sandy rivers, the Black Mountains, McCracken Mountains and Cerbat Mountains. Asarco is offering two separate parcels and three parcel groups (the offered lands, 2 individual parcels and three parcel groups) that it owns. These private parcels are located in Pinal and Mohave county and include the following: 1) the Gila River Parcel at Cochran (Pinal County) contains a segment of the Gila River Riparian Management Area and is within the Middle Gila Cultural Resource Management Area; 2) the Sacramento Valley Parcel abuts the Warm Springs Wilderness in Mohave County; 3) the Knisely Ranch parcel group lies within the Mount Tipton Wilderness in Mohave County, 4) the Tomlin Parcel group lies adjacent to the Big Sandy River, located within the Big Sandy Herd Management Area; and 5) the McCracken Mountains Parcel group occurs within the McCracken Desert Tortoise Habitat Area of Critical Environmental Concern. For a detailed description of the offered lands, refer to BLM (1999).

SCOPE OF ANALYSIS

We contend that Asarco's foreseeable land uses on the selected lands would be attributable to the proposed land exchange and should be evaluated as effects of the proposed action. However, future BLM management activities conducted on the offered lands, that may potentially affect critical habitat for the cactus ferruginous pygmy-owl, would be subject to the ongoing consultation reinitiations for the Phoenix RMP (2-21-88-F-167) and the Eastern Arizona Grazing EIS (2-21-96-F-422). Therefore, the effects of future Asarco mining activity on the selected lands are evaluated herein while the effects of future BLM management actions on the offered lands are not, as they will be covered under the above referenced reinitiations.

Based on information contained in our files, Asarco's proposed Ray Mine Water Quality Improvements and Rock Deposition Area Expansion (also referred to as the Consent Decree Work Plan Project) would utilize portions of the selected lands. Specifically RM-2, RM-3, and RM-7 appear to be located within areas proposed for a diversion tunnel and valley fill rock deposition area (RDA) along Mineral Creek. In our view the proposed Ray Land Exchange / Plan Amendment and Ray Mine Water Quality Improvements and Rock Deposition Area Expansion are interdependent and interrelated actions because the diversion tunnel and RDA could not be constructed but for the acquisition of BLM property. However, based on the amount of area subject to jurisdiction under section 404 of the Clean Water Act, it seems that the

U.S. Army Corps of Engineers (Corps) has a greater amount of discretionary authority over the proposed future diversion tunnel and RDA than does BLM. Therefore, the effects associated with the proposed Ray Mine Water Quality Improvements and Rock Deposition Area Expansion are the result of a future separate Federal action, specifically permitting by the Corps under section 404, and are outside the scope of this consultation.

Based on information contained in our files, water discharged from mining operations at the Ray Mine has been, and continues to be, in exceedance of water quality standards. In our view these discharges are not interdependent nor interrelated to the Ray Land Exchange / Plan Amendment as they could continue or cease irrespective of the acquisition of BLM property. Therefore, the effects of water discharged in exceedance of standards are better addressed by the Environmental Protection Agency under their National Pollution Discharge Elimination System permitting program and are outside the scope of this consultation.

BIOLOGICAL OPINION FOR CACTUS FERRUGINOUS PYGMY-OWL

Status of the species

The Service listed the Arizona population of the cactus ferruginous pygmy-owl on March 10, 1997; the listing was effective on April 9, 1997. The cactus ferruginous pygmy-owl is a small bird, averaging 17 cm (6.75 in) in length. The average weight of a male is 62 g (2.2 oz), while females average 73 g (2.6 oz). Cactus ferruginous pygmy-owls are reddish-brown overall, with a cream-colored belly streaked with reddish-brown. Their crown is lightly streaked, and paired black-and-white spots on the nape suggest eyes. They have no ear tufts and their eye color is yellow. Their tail is reddish-brown with darker stripes, and is relatively long for an owl.

Species distribution

According to early surveys referenced in the literature the cactus ferruginous pygmy-owl, prior to the mid-1900s, was "not uncommon," "of common occurrence," and a "fairly numerous" resident of lowland central and southern Arizona in cottonwood forests, mesquite-cottonwood woodlands, and mesquite bosques along the Gila, Salt, Verde, San Pedro, and Santa Cruz rivers and various tributaries (Breninger 1898 *in* Bent 1938, Gilman 1909, Swarth 1914). Bendire (1888) noted that he had taken "several" along Rillito Creek near Fort Lowell, in the vicinity of present-day Tucson, Arizona. Records indicate that the cactus ferruginous pygmy-owls were initially more common in xeroriparian habitats (very dense thickets bordering dry desert washes) than more open, desert uplands (Monson and Phillips 1981, Johnson and Haight 1985a, Johnson-Duncan et al. 1988, Millsap and Johnson 1988, Davis and Russell 1990). The cactus ferruginous pygmy-owl was also noted to occur at isolated desert oases supporting small pockets of riparian and xeroriparian vegetation (Howell 1916, Phillips et al. 1964).

The historic use of Sonoran desertscrub habitats by cactus ferruginous pygmy-owls is not as clear. A disproportionately low number of historical records from desertscrub habitats may be due to the focus of early collection efforts along rivers where humans tended to concentrate, while the upland areas received less survey. An additional hypothesis is offered by Johnson and Haight (1985a), who suggest that cactus ferruginous pygmy-owls adapted to upland associations and xeroriparian habitats in response to the demise of Arizona's riparian bottomland woodlands. It is also possible that desertscrub habitats simply are of lesser quality for cactus ferruginous pygmy-owls and have always been occupied by cactus ferruginous pygmy-owls, but at lower frequency and density (Johnson and Haight 1985b, Taylor 1986). Historical records of cactus ferruginous pygmy-owls do exist for Sonoran desertscrub in areas such as the Santa Catalina foothills and in "groves of giant cactus" near New River, north of present-day Phoenix. Kimball (1921) reported one cactus ferruginous pygmy-owl in a mesquite tree in the foothills of the Santa Catalina Mountains. Fisher (1893) took two cactus ferruginous pygmy-owl specimens near New River, and observed "several others" in mesquite and large cacti.

The range of cactus ferruginous pygmy-owls in Arizona extends from the International Border with Mexico north to central Arizona. The northernmost historic record for the cactus ferruginous pygmy-owl is from New River, Arizona, approximately 56 km (35 mi) north of Phoenix, where Fisher (1893) reported the cactus ferruginous pygmy-owl to be "quite common" in thickets of intermixed mesquite and saguaro cactus. The Museum of Vertebrate Zoology contains a clutch of four eggs collected by G.F. Breninger on May 18, 1898 in Phoenix, Maricopa County. One additional record exists for this northern portion of the cactus ferruginous pygmy-owl's range, and is filed under R.D. Lusk with the United States National Museum Smithsonian Institution. This record indicates that five eggs and a skin were collected at Cave Creek on April 12, 1895 (USNM 1996). Cactus ferruginous pygmy-owls were also detected in central Arizona at the Blue Point Cottonwoods area, at the confluence of the Salt and Verde rivers, in 1897, 1949, 1951, and 1964 (AGFD unpubl. data, Phillips et al. 1964). Additionally, cactus ferruginous pygmy-owls were detected at Dudleyville on the San Pedro River as recently as 1985 and 1986 (AGFD unpubl. data, Hunter 1988).

The easternmost record for the cactus ferruginous pygmy-owl is from 1985 at the confluence of Bonita Creek and the Gila River. Other records from this eastern portion of the cactus ferruginous pygmy-owl's range include a 1876 record from Camp Goodwin (current day Geronimo) on the Gila River, and a 1978 record from Gillard Hot Springs, also on the Gila River. Cactus ferruginous pygmy-owls have been found as far west as the Cabeza Prieta Tanks in 1955 (Monson 1998).

Over the past several decades, cactus ferruginous pygmy-owls have been primarily found in Sonoran desertscrub communities in southern and southwestern Arizona consisting of palo verde, ironwood, mesquite, acacia, bursage, and columnar cacti (Phillips et al. 1964, Monson and Phillips 1981, Davis and Russell 1984, 1990, Johnson and Haight 1985a, Johnsgard 1988). Regardless of past distribution in riparian areas, it is clear that the cactus ferruginous pygmy-owl has declined throughout Arizona to the degree that it is now extremely limited in distribution in

the state (Johnson et al. 1979, Monson and Phillips 1981, Davis and Russell 1984, AGFD 1988, Johnson-Duncan et al. 1988, Millsap and Johnson 1988, Monson 1998).

Hunter (1988) found fewer than 20 verified records of cactus ferruginous pygmy-owls in Arizona for the period of 1971 to 1988. Although cactus ferruginous pygmy-owls are diurnal and frequently vocalize in the morning, the species was not recorded or reported in any breeding bird survey data in Arizona (Robbins et al. 1986). Formal surveys for the cactus ferruginous pygmy-owl on Organ Pipe Cactus National Monument (OPCNM) began in 1990, with one located that year. Beginning in 1992, survey efforts conducted in cooperation with the AGFD, three single cactus ferruginous pygmy-owls were located on the Monument (Fish and Wildlife Service and National Park Service, unpubl. data, 1992).

In 1993, surveys were conducted at locations with cactus ferruginous pygmy-owl sightings from 1970 or later. These areas included the lower San Pedro River from Cascabel to Winkelman, northwest Tucson, east Tucson from Sabino Canyon to Tanque Verde Wash, the lower elevations of Saguaro National Park, Rincon Mountain District, Rincon Creek from the X-9 Ranch to Thunderhead Ranch, and the confluence of the Salt and Verde rivers. Only one cactus ferruginous pygmy-owl was detected during these survey periods, and it was located in northwest Tucson (Felley and Corman 1993).

Surveys were again conducted in 1994 at Catalina State Park north of Tucson, Winkelman, the Aravaipa Creek confluence, near Mammoth, and at Bingham Cienega along the lower San Pedro River, Cabeza Prieta National Wildlife Refuge, Picacho Reservoir, Sycamore Canyon in the Pajarito Mountains, and at the confluence of the Salt and Verde rivers. These surveys yielded no cactus ferruginous pygmy-owl detections (Collins and Corman 1995).

In 1996, AGFD focused survey efforts in northwest Tucson and Marana and detected a total of 16 cactus ferruginous pygmy-owls, two of which were a pair, and two of which were fledglings. Three additional cactus ferruginous pygmy-owls were detected at OPCNM in 1996. There were also three additional but unconfirmed reports of cactus ferruginous pygmy-owls from OPCNM.

In 1997, survey efforts of AGFD located a total of ten cactus ferruginous pygmy-owls in the Tucson Basin study area, which is roughly bounded on the north by the Picacho Mountains on the east by the Santa Catalina and Rincon Mountains, on the south by the Santa Rita and Sierrita Mountains, and on the west by the Tucson Mountains. Eight of the ten cactus ferruginous pygmy-owls were found in the northwest Tucson area, and the remaining two were found on the western bajada of the Tortolita Mountains. Of the eight cactus ferruginous pygmy-owls documented from northwest Tucson in 1997, one pair successfully fledged four young. The remaining three cactus ferruginous pygmy-owls included a single adult in the northwest Tucson area and the two cactus ferruginous pygmy-owls found on the western bajada of the Tortolita Mountains. Nine of the cactus ferruginous pygmy-owls were located during the nesting season, while three were located in the fall. Of the three cactus ferruginous pygmy-owls located in the fall, two were known to be from the nest site. It is unknown if the third cactus ferruginous

pygmy-owl located in the fall was from the known nest site for that year. This cactus ferruginous pygmy-owl was located more than 3 km (2 mi) from the nest site, and was counted as the tenth cactus ferruginous pygmy-owl for 1997 (AGFD, unpubl. data, 1997). Two adult males were also located at OPCNM 1997, with one reported from a previously unoccupied area (T. Tibbitts, OPCNM, pers. comm., 1996).

In 1998, a total of 35 cactus ferruginous pygmy-owls were observed, including 11 juveniles in the Tucson basin, and five juveniles at OPCNM (S. Richardson, AGFD, pers. comm., M. Richardson, USFWS, unpubl. data, Tibbitts, OPCNM, pers. comm., D. Bieber, Coronado National Forest, pers. comm.). Three adults were found along xeroriparian drainages in semi-desert grassland in southern Arizona, and two adults were also located in Pinal County. One adult was located in eastern Tucson as well (USFWS, unpubl. data). The increase in the number of observed owls in 1998 is likely due to increased survey effort from previous years, and location of successful nest sites.

The recently completed 1998-99 survey season has resulted in 41 adult cactus ferruginous pygmy-owls documented in Arizona (S. Richardson, AGFD, pers. comm., 1999). Six adult cactus ferruginous pygmy-owls were documented in southern Pinal County, 11 adults in the northwest Tucson area, 19 adults in riparian woodlands and xeroriparian habitats in semi-desert grasslands and upland Sonoran desertscrub habitat in southern Arizona, and five adults at OPCNM. Nesting was confirmed for at least 11 of these sites, with 37 young documented and, as of early August, 27 young were still alive. As with other owls and raptors, a high mortality (50 percent or more) of young is typical during the first year of life.

Life History

The cactus ferruginous pygmy-owl is crepuscular/diurnal, with a peak activity period for foraging and other activities at dawn and dusk. They can often be heard calling throughout the day, but most activity is reported between one hour before sunrise to two hours after sunrise, and late afternoon/early evening from two hours before sunset to one hour after sunset (Collins and Corman 1995).

Cactus ferruginous pygmy-owls are known to use a variety of habitat types. Within Arizona, they are known to occur in riparian woodlands, mesquite bosques, and Sonoran desertscrub communities as well as in non-native habitat within these communities. While plant species diversity differs between these communities, there are certain unifying characteristics in each of these occupied habitat types. These unifying characteristics include the presence of vegetation in a fairly dense thicket or woodland, the presence of trees or cacti large enough to support cavity nesting, and elevations below 1,616 m (4,000 ft). Historically, cactus ferruginous pygmy-owls were associated with riparian woodlands in central and southern Arizona. Plants present in these riparian communities include cottonwood, willow (*Salix* spp.) and hackberry (*Celtis* spp.). Cottonwood trees are suitable for cavity nesting, while the density of mid- and lower-story vegetation provides necessary protection from predators and an abundance of prey items for the

carnivorous cactus ferruginous pygmy-owl. Mesquite bosque communities are dominated by mesquite trees, and are described as mesquite forests due to the density and large trees.

The Arizona Upland Subdivision of the Sonoran Desert provides an over-story of mature saguaros (*Carnegiea gigantea*) which are suitable for cavity nesting, as well as large mesquites and other trees which may additionally be used for nesting. Saguaro cavities are also used for roosting, perching, and caching food (H. Smith, OPCNM 1996). The mid- and lower-stories are comprised of a variety of mesquite, palo verde (*Cercidium* spp.), ironwood (*Olneya tesota*), acacia (*Acacia* spp.), graythorn (*Zizyphus obtusifolia*), bursage (*Ambrosia* spp.), cholla (*Opuntia* spp.), prickly pear (*Opuntia* spp.), and annual and perennial grass species. As in riparian habitat, the larger trees provide perches for foraging and protection from predators. Adequate vegetation in mid- and lower-stories appears to be important, and likely provide protection from predators and a higher density of prey items including lizards, small birds and mammals, and insects.

In southern Texas, cactus ferruginous pygmy-owl habitat includes coastal plain oak (*Quercus virginiana*.) associations as well as the Tamaulipan Thornscrub of the lower Rio Grande valley region, which is comprised of mesquite, hackberry, oak, and Texas ebony (*Pithecellobium ebano*) (Griscom and Crosby 1926, Bent 1938, Oberholser 1974, Tewes 1993, Wauer et al. 1993). In northeastern Mexico, they occur in lowland thickets, thornscrub communities, riparian woodlands, and second-growth forest (van Rossem 1937, AOU 1983, Enriquez-Rocha et al. 1993, Tewes 1993). In central and southern Arizona, their primary habitats are riparian cottonwood forests, mesquite bosques, and Sonoran desertscrub, although most recent observations have occurred primarily in Sonoran desertscrub associations of palo verde, bursage, ironwood, mesquite, acacia, and giant cacti such as saguaro and organ pipe (*Stenocereus thurberi*) (Gilman 1909, Bent 1938, van Rossem 1937, Phillips et al. 1964, Monson and Phillips 1981, Johnson-Duncan et al. 1988, Millsap and Johnson 1988). Farther south in northwestern Mexico, cactus ferruginous pygmy-owls occur in Sonoran desertscrub, Sinaloa thornscrub, and Sinaloa deciduous forest as well as riverbottom woodlands, cactus forests, and thornforest (Enriquez-Rocha et al. 1993). The diet of the cactus ferruginous pygmy-owl includes birds, lizards, insects, small mammals (Bendire 1888, Sutton 1951, Sprunt 1955, Earhart and Johnson 1970, Oberholser 1974), and frogs (Proudfoot et al. 1994b).

While the majority of cactus ferruginous pygmy-owl detections in the last six years have been from the northwest Tucson area, cactus ferruginous pygmy-owls have also been detected in southern Pinal County, at OPCNM, on the Buenos Aires National Wildlife Refuge (BANWR), and on the Coronado National Forest. Cactus ferruginous pygmy-owls at OPCNM have been detected in Sonoran desertscrub habitat dominated by creosotebush (*Larrea tridentata*), saguaro, velvet mesquite (*P. velutina*), palo verde, cat-claw acacia, ironwood, triangle-leaf bursage, and white brittlebush (*Encelia farinosa*). Small washes in the area support canyon ragweed (*A. ambrosioides*) and salt cedar (*Tamarix pentandra*). In addition, relatively large mesquite bosques are present in some areas (Collins and Corman 1995). On the BANWR and adjacent areas in the Altar Valley, cactus ferruginous pygmy-owls have been located within riparian habitat in semi-desert grassland communities. Vegetation in these riparian areas included netleaf

hackberry, velvet mesquite, Arizona ash (*Fraxinus velutina* var. *velutina*), acacia, and Mexican elderberry (*Sambucus caerulea*).

Non-migratory Status

Cactus ferruginous pygmy-owls are considered non-migratory throughout their range by most authors, and have been reported during the winter months in several locations, including OPCNM (R. Johnson, unpubl. data, 1976, 1980, Tibbitts, pers. comm., 1997). Major Bendire collected cactus ferruginous pygmy-owls along Rillito Creek near Camp Lowell at present-day Tucson on January 24, 1872. The University of Arizona Bird Collection contains a female cactus ferruginous pygmy-owl collected on January 8, 1953 (University of Arizona 1995). Similarly, records exist from Sabino Canyon documenting cactus ferruginous pygmy-owls as present on December 3, 1941, and December 25, 1950 (US Forest Service, unpubl. data). These winter records demonstrate that cactus ferruginous pygmy-owls are found within Arizona throughout the year, and do not appear to migrate to warmer climates to the south during the winter months. However, Russell and Monson (1998) postulated that they may be migratory in the northern portion of their range.

Nesting

Cactus ferruginous pygmy-owls nest in a large cavity in a tree or large columnar cactus. These cavities may be naturally formed (e.g. knotholes) or excavated by woodpeckers, and nest lining material may or may not be present. Researchers in Texas noted that one pair of cactus ferruginous pygmy-owls removed material from a cavity prior to laying eggs one year, but laid eggs on material in the nest cavity the following year (Proudfoot et al. 1994). Breninger (1898) noted that no nest lining was used at one observed nest. Whether or not a nest lining is actually constructed, it is likely that prey remains, including feathers and other materials, build up on the nest cavity floor over its use.

Cactus ferruginous pygmy-owls begin nesting activities in late winter to early spring. Breninger (1898) noted that nesting along the Salt and Gila rivers began about the 20th of April. An additional record indicates that five eggs were collected on the 12th of April (USNM 1996). Bent (1938) noted that George Sennett took one egg and an adult female at Canon del Caballeros near Victoria, Tamaulipas, Mexico on May 2, 1988.

With respect to current research, much of the specific timing of cactus ferruginous pygmy-owl nesting chronology is unknown due to limited opportunities for study and the secretive nature of the cactus ferruginous pygmy-owl. Data generated from nest box studies in Texas indicated that cactus ferruginous pygmy-owls lay eggs from mid- to late-April. Eggs were laid asynchronously, with one egg laid every 32 to 39 hours until the entire clutch of four to five eggs has been laid (Proudfoot 1996). Incubation continued for 21 to 23 days, with eggs hatching asynchronously at a rate of one egg hatching every 20 to 26 hours. Fledging occurred 26 to 28 days after hatching was complete (Proudfoot 1996).

Applying this information to the 1996 nest in Arizona, along with observed copulation and fledging dates, the Arizona Game and Fish Department (AGFD) determined a nesting chronology for Arizona cactus ferruginous pygmy-owls. Copulation was observed on March 31, and egg laying was estimated to have taken place from April 6 to April 11, with the onset of incubation estimated to have taken place from April 7 to April 12. Hatching was estimated at May 9. Fledging was confirmed on June 4 (Abbate et al. 1996). While the intermediate dates are estimates, the copulation and fledging dates are confirmed, and provided recent, confirmed starting and ending dates for nesting chronology in Arizona. Information from a nest located in 1995 confirms that fledging occurred on July 29. Working backwards and using information gained from additional cactus ferruginous pygmy-owl nests, it was estimated that egg laying took place around May 31 to June 5, with the onset of incubation at June 1 to June 6, and hatching from June 30 to July 3. The difference between fledging from these two nest sites is approximately two months. As with other avian species, this may be the result of a second brood or a second nesting attempt following an initial failure (Abbate et al. 1996).

In both Texas and Arizona, observations indicate that the female incubates the eggs and attends hatchlings, while the male provides food to the female and young. In Texas, studies noted that males provided all of the food collected for the females and their young for approximately the first week following hatching (Proudfoot 1996). In Arizona, the majority of hunting activity and prey captures by male cactus ferruginous pygmy-owls were conducted away from the nest site and, consequently, out of sight of nest observers (Abbate et al. 1996).

Dispersal

According to studies conducted in Texas, juveniles remained within approximately 50 m (165 ft) of adults until dispersal. Dispersal occurred approximately 63 days after the young first left the nest. Dispersal distances (straight line) of six juveniles from their natal sites to nest sites the following year in Texas ranged from 17.3 (10.8 mi) to 1.93 km (1.2 mi) (Proudfoot unpubl. data 1999). One banded juvenile from Arizona was observed approximately 3.9 km (2.4 mi) from its nest site following dispersal (S. Richardson, AGFD, pers. comm., 1997). Radio telemetry studies conducted by AGFD in the Tucson basin in 1998 showed dispersal distances of young fitted with transmitters from 3.5 km (2.17 mi) to be up to 10.4 km (6.5 mi) (in straight line distance), typically occurring from July through September (S. Richardson, AGFD, pers. comm., 1999). They found that juveniles may move up to one mile in a night, however, they appear to fly from tree to tree instead of long single flights (S. Richardson, AGFD, pers. comm., 1998). Subsequent surveys during the spring of 1999 have found that their locations are in the same general location as last observed the preceding fall. In 1999, six juveniles were fitted with transmitters to determine dispersal distances by AGFD in northwest Tucson. Dispersal distances ranged from 2.3 km (1.4 mi) to 20.7 km (12.9 mi) and the mean was 10 km (6.2 mi) (S. Richardson, AGFD, pers. comm., 1998).

Prey

The cactus ferruginous pygmy-owl's diverse diet includes birds, lizards, insects, and small mammals (Bendire 1888, Sutton 1951, Sprunt 1955, Earhart and Johnson 1970, Oberholser 1974) and frogs (Proudfoot et al. 1994). Bendire (1888) indicated that cactus ferruginous pygmy-owls were known to carry off young chickens.

Home Range

Based on visual and auditory detections of an adult pair and one fledgling at a 1996 nest site, Abbate et al. (1996) estimated a breeding season home range size for cactus ferruginous pygmy-owls in Arizona. By following the adult female and the fledgling, it was noted that the size of the area used by the female and fledgling expanded as the fledgling grew older. In fact, the fledgling was observed at what may have been the northern and southernmost points in the home range area. In contrast, the adult male appeared to be using the same size area during incubation as he did during the nestling stages. The adult female was observed to use an area approximately 0.2 ha (0.5 ac) in size during the pre-fledgling and nesting stages. However, this area expanded to approximately 14 ha (35 ac) post-fledgling, and the 14 ha (35 ac) area was also used by the fledgling. Following dispersal of the fledgling, it was believed that the area used by the adult cactus ferruginous pygmy-owls expanded beyond the 14 ha (35 ac) area (Abbate et al. 1996). An additional pair of cactus ferruginous pygmy-owls was found in the late fall of 1997. Researchers in Arizona indicated that this pair used approximately 64 ha (160 ac) (S. Richardson, AGFD, pers. comm., 1997). Much of the work in Arizona has been completed on a very limited sample size and further research is needed to better quantify the home range of this species within various habitat types found there.

Studies at OPCNM have indicated that cactus ferruginous pygmy-owls occupy a home range varying from approximately 1.2 to 8.1 ha (3 to 20 ac) during the breeding season. Researchers at OPCNM have also noted that cactus ferruginous pygmy-owls habitually use a central area within that acreage (Tibbitts, OPCNM, pers. comm., 1997).

In Texas, Proudfoot (1996) using radio telemetry determined that the area used by adult male cactus ferruginous pygmy-owls during the incubation period ranged in size from 1 to 9 ha (3 to 21 ac), with a mean size of 4 ha (10 ac). Proudfoot (1996) further determined that cactus ferruginous pygmy-owls of unknown sex used an area ranging from 19 to 115 ha (48 to 287 ac), with a mean of 68 ha (172 ac) in late fall. Additionally, Proudfoot (1996) notes that, while cactus ferruginous pygmy-owls used between 1 and 9 ha (3 and 21 ac) during the breeding season, they would defend areas up to 113 ha (279 ac), indicating that their total territory may encompass an area at least 110 ha (279 ac) in size. Proudfoot (pers. comm. 1999) indicated that pairs utilize an area within 600 m (1,969 ft) of their nest site. Proudfoot (pers. comm., 1997) has stated that his data indicate that the acreage necessary to successfully raise young is approximately 39.5 ha (98.8 ac). He hypothesizes that the decreased availability of prey items such as insect and reptiles during the colder months may mean that cactus ferruginous pygmy-

owls forage over larger areas during the winter in order to access a suitable forage base (Proudfoot 1996).

Critical Habitat

On December 30, 1998, the Service proposed approximately 290,000 ha (725,500 ac) of critical habitat in southern and central Arizona (63 FR 71820). Areas with most of the recent cactus ferruginous pygmy-owl occurrences and areas believed to be important to genetic and demographic interchange were identified and proposed as critical habitat. The Service published a final rule (64 FR 37419) on July 12, 1999 which designated approximately 296,115 ha (731,712 ac) of riverine riparian and upland habitat in Pima, Cochise, Pinal, and Maricopa counties in Arizona effective August 11, 1999.

Environmental baseline

Surveys and habitat assessments were conducted on the selected land parcels in March of 1998 (BLM and SWCA 1999). No owls were detected and no critical habitat occurs on any of the selected lands parcels. However, BLM believes that 6,646 acres of selected lands should be considered unoccupied potential habitat for the species. Additionally, 320 acres of critical habitat are located on the offered lands. The following consultations have occurred in or near the action area.

1. Phoenix Resource Management Plan (Consultation 2-21-88-F-167). The biological opinion issued by the Service concluded “no jeopardy” for this species. Conservation measures for this species included: pygmy-owl habitat descriptions, mapping, habitat management and surveys.
2. Phoenix District Portion of the Eastern Arizona Grazing Environmental Impact Statement (Consultation 2-21-96-F-422). The biological opinion issued by the Service concluded “no jeopardy” for this species. Conservation measures for this species included: habitat descriptions, mapping, habitat management and surveys.
3. Upper Gila River-San Simon Grazing EIS (2-21-96-F-423). The biological opinion issued by the Service concluded “no jeopardy” for this species. Conservation measures applied to the biological opinion for this species included mapping, habitat descriptions, surveys and habitat management.

Effects of the action

The proposed action would change an administrative planning decision (land tenure in the RMP) and would transfer ownership and authority for lands between BLM and Asarco. The proposed action would remove Federal control and responsibility on 6,646 acres of suitable habitat for the

pygmy-owl on the selected lands, and the foreseeable mining uses would likely result in the destruction of portions of unoccupied potential habitat for the pygmy-owl.

Construction of open pits, haul roads, solution-extraction rock deposition areas, overburden deposition areas, raveling areas, leach rock deposition areas, access roads, stormwater diversion ditches, rights-of-way, and administrative facilities would result in clearing of vegetation, grading of topography, introduction of hazardous materials, and increased traffic and noise. Plants which are potentially suitable for nesting, such as saguaro or mesquite, would be permanently removed from these areas resulting in the loss of dispersion opportunities for the pygmy owl. Plants and other habitat features which support populations of prey species, such as small mammals, would be removed resulting in the loss of foraging opportunities for the pygmy owl. In a worst case scenario, all 6,646 acres of potential pygmy owl habitat could be permanently lost to mining activities. Because these lands are unoccupied, no direct effects to pygmy-owls are expected to occur. No critical habitat occurs on the selected lands. The proposed action will bring 320 acres of suitable habitat on offered lands into Federal ownership and management.

Cumulative effects

Cumulative effects are those adverse effects of future non-Federal (State, local government, and private) actions that are reasonably certain to occur in or near the project area. Future Federal actions would be subject to the consultation requirements established in section 7 of the ESA and, therefore, are not considered cumulative to the proposed project. Effects of past Federal and private actions are considered in the Environmental Baseline.

Asarco is currently in negotiations with the State to purchase approximately 1,110 acres near the Ray and Copper Butte/Buckeye mining complexes. Acquisition of this acreage and implementation of the foreseeable mining uses would eliminate additional areas described by BLM as potential habitat for the owl.

Conclusion

After reviewing the current status of the species, environmental baseline for the action area, effects of the land exchange, and cumulative effects, it is the Service's biological opinion that the Ray Land Exchange / Plan Amendment, as proposed, is not likely to jeopardize the continued existence of the cactus ferruginous pygmy owl. Critical habitat for this species is not located on the selected lands, therefore none will be affected by the foreseeable mining uses.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species without special exemption. Take is defined as to harass,

harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Harass is defined in the same regulation by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take of a listed animal species that is incidental to, and not the purpose of, the carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement. The Service does not anticipate incidental take of the cactus ferruginous pygmy-owl.

Survey data provided by BLM did not document the presence of the cactus ferruginous pygmy-owl on the selected lands to be traded to Asarco. If a cactus ferruginous pygmy-owl is located on or nearby the selected lands before completion of the land exchange, and that owl may be adversely affected by the proposed action, then reinitiation of consultation is warranted [50 CFR 402.16(b)].

CONCURRENCES

The BLM has requested our concurrence that the proposed Ray Land Exchange / Plan Amendment may affect, but is not likely to adversely affect the southwestern willow flycatcher, bald eagle, and lesser long-nosed bat. For a more complete description of the proposed action, as well as maps and illustrations of the various land parcels, please refer to BLM (1999) and BLM and SWCA (1999).

Southwestern willow flycatcher

Environmental baseline: No southwestern willow flycatchers were detected during surveys conducted along Mineral Creek at the Ray Complex in 1998 (BLM and SWCA 1999). No other selected lands parcels were surveyed for willow flycatcher as suitable habitat was not determined to be present. The selected lands are not within any area designated as critical habitat for this species.

Small areas of Sonoran riparian deciduous forest vegetation occur on several parcels in the Ray Complex. Dominant species include Goodding willow, Fremont cottonwood, and seep willow. Approximately 11.7 acres of this habitat type is found along Mineral Creek on Parcel RM-7. Along the creek, willow and cottonwood patches occur as narrow stringers no wider than about 15-20 feet. Foliage volumes and stem densities are low and understory vegetation is sparse. Approximately 0.5 acre of Sonoran riparian deciduous forest vegetation is found along a

perennial spring on Parcel RM-18. In total, Sonoran riparian deciduous forest vegetation covers approximately 13 acres of the selected lands in the Ray Complex area.

Less than one acre of remnant Sonoran riparian deciduous forest vegetation occurs on Parcel CB-4 in the Copper Butte/Buckeye Complex. Walnut Creek, a perennial stream dominated by tamarisk, mesquite, Goodding willow, and Fremont cottonwood, is near the action area but occurs outside of the selected Parcel CB-1. An approximately one quarter mile section of wash located near the center of Parcel CB-4 is currently dominated by Fremont cottonwood, Goodding willow and seep willow, but doesn't have perennial water. SWCA determined the Walnut Creek area was not suitable flycatcher nesting habitat as the patch size was too small, habitat was of poor quality, and the patch was at least 2.5 km from the nearest patch of potentially suitable flycatcher habitat along the Gila River. The plant community along Walnut Creek appears to be poor habitat because canopy height throughout the patch is highly variable and mean canopy height is at the lower end of the range known to be used, mesquite is co-dominant throughout the patch, and the patch as a whole is uneven-aged and structurally heterogeneous.

Approximately 3.4 acres of Sonoran riparian deciduous forest vegetation occurs in the central portion of CH-1, which BLM does not consider suitable flycatcher nesting habitat. A seep in the central portion of Section 22 supports a small group of soapberry, and a spring-fed drainage with a series of bedrock pools in the south-central portion of Section 22 supports scattered tamarisk, Fremont cottonwood and Goodding willow in addition to xeroriparian mixed scrub vegetation. The only riparian plant community within the Casa Grande area is xeroriparian mixed grass.

Effects of the action: BLM has determined that no parcels in the proposed land exchange, other than parcel RM-7 along Mineral Creek, have the potential to develop into suitable habitat for the southwestern willow flycatcher. BLM has further determined that based on their review of the environmental assessment prepared by the Corps (1999), parcel RM-7 is proposed to be converted into a wetland for mitigation purposes and will therefore not be mined. BLM would acquire 320 acres of riparian habitat known to be occupied by the southwestern willow flycatcher on the Gila River Parcel at Cochran in Pinal County.

Cumulative effects: Cumulative effects are those adverse effects of future non-Federal (State, local government, and private) actions that are reasonably certain to occur in or near the project area. Future Federal actions would be subject to the consultation requirements established in section 7 of the ESA and, therefore, are not considered cumulative to the proposed project. Effects of past Federal and private actions are considered in the Environmental Baseline.

Asarco is currently in negotiations with the State to purchase approximately 1,110 acres near the Ray and Copper Butte/Buckeye mining complexes. Acquisition of this acreage and implementation of the foreseeable mining uses would not affect the southwestern willow flycatcher as suitable habitat is not present on these lands (BLM and SWCA 1999).

Of concern to the Service is the implementation of the proposed Ray Mine Water Quality Improvements and Rock Deposition Area Expansion which would eliminate significant amounts of wetland and riparian vegetation along Mineral Creek (outside of the selected lands), portions of which meet the suitability criteria for southwestern willow flycatcher. However, as stated above in the SCOPE OF ANALYSIS, it is our view that the effects of this activity is the result of a separate Federal action, and therefore should not be considered cumulative.

Conclusion: In our draft biological opinion we concurred that, based on the available information, the proposed Ray Land Exchange / Plan Amendment is not likely to adversely affect the southwestern willow flycatcher provided that surveys for the species are conducted within suitable habitats on selected lands prior to land clearing activities. Our reasoning behind the survey condition was based on our concern that the temporal lag between execution of the land exchange and the initiation of mining activity may be sufficient to allow for dispersion or range expansion of the species onto the selected lands. As described above in the CONSULTATION HISTORY, on February 16, 2000, the BLM submitted a memorandum requesting that the conditional concurrence on southwestern willow flycatcher be removed and that we concur with a determination of “may affect, not likely to adversely affect.” Based on amendments to the BA provided by BLM indicating that no suitable habitat will be disturbed by mining activities conducted on the selected lands, we concur that the Ray Land Exchange / Plan Amendment, as currently described, is not likely to adversely affect the southwestern willow flycatcher.

Bald eagle

Environmental baseline: Surveys were not conducted for bald eagles on either the selected or offered lands parcels. Bald eagles are known to occur along the Gila River and have been observed in the vicinity of the Gila River Parcel at Cochran and Tomlin #4 parcel. Although no observations of bald eagles have been recorded for any of the selected parcels or on any of the other offered lands parcels, these parcels may be visited by wintering or nesting bald eagles during foraging or transient activities. Critical habitat has not been designated for the bald eagle.

The Ray Complex parcels lack large riverine, lake or reservoir habitats which would provide foraging areas for bald eagles and also lack suitable nesting substrates (large trees, snags, or cliffs). The closest known nest site (unsuccessful) is near the confluence of the San Pedro and Gila Rivers nears Winkelman. Eagles may occasionally visit the project area when foraging along the Gila River.

Two very small borrow pits containing water are located on Parcel RM-3. No emergent wetland species were observed at either of these artificial ponds. Although the reservoir on Parcel RM-7 supports an approximately seven-acre patch of mixed broadleaf vegetation at its north end, the vegetation around the remainder of the reservoir includes approximately 47 acres, including open water, which is composed of the same species as those occurring around stock tanks in the Copper Butte/Buckeye area. These reservoirs may hold water for extended periods but do not

support fish, however bald eagles may occasionally visit the ponds when searching for prey in the area.

The Copper Butte/Buckeye parcels lack large riverine, lake or reservoir habitats which would provide foraging areas for bald eagles and also lack suitable nesting substrates (large trees, snags, or cliffs) with the exception of a few cliffs in Parcels CB-1 and CB-5. Cliffs which might provide suitable nesting substrates for bald eagle and are within 13 miles of the Gila River occur in greater abundance in Walnut Canyon and other others near the selected lands. Stock tanks are located on Parcels CB-1, CB-2, and CB-3 and are sparsely vegetated, predominantly with mesquite, desert broom, and seep willow; however, the margins of the stock tank on Parcel CB-3 are heavily vegetated in places with these three species and with blue palo verde. In total, artificial ponds in this area cover approximately 3.6 acres of the selected lands in the Copper Butte/Buckeye area. These reservoirs may hold water for extended periods but do not support fish. Bald eagles may occasionally visit the ponds when searching for prey in the area. The parcels in the Chilito/Hayden and Casa Grande area do not provide suitable habitat for the bald eagle as they lack large riverine, lake or reservoir habitats which provide prey species and nesting substrates. A bald eagle nest site near Winkelman is approximately 1.5 miles from parcel CH-5 and 2.5 miles from parcel CH-4.

Effects of the action: The proposed land exchange is not anticipated to result in direct effects to the bald eagle or its habitat on the selected lands, as the selected lands lack large riverine, lake or reservoir habitats which provide prey species and nesting substrates and few potentially suitable cliff habitats are available. Implementation of the foreseeable uses is not expected to affect the bald eagle or its habitat as no bald eagles are nesting on the selected lands. The proposed land exchange would bring the 320-acre Gila River Parcel at Cochran into Federal ownership and management, which provides suitable foraging habitat for bald eagle (approximately 1.1 miles of riverine habitat) along the Gila River and the Tomlin # 4 parcel which also provides potential foraging habitat.

Cumulative effects: Asarco is currently in negotiations with the State to purchase approximately 1,110 acres near the Ray and Copper Butte/Buckeye mining complexes. Acquisition of this acreage and implementation of the foreseeable mining uses would not affect the bald eagle as the species is not known to frequent these areas.

Of concern to the Service are the impacts of regional mining operations on water quality in the Gila River and potential effects to listed species, especially bald eagles. However, as stated above in the SCOPE OF ANALYSIS, it is our view that the effects of this activity are the result of a separate Federal action, and therefore should not be considered cumulative.

Conclusion: Based on the available information, we concur that the proposed Ray Land Exchange / Plan Amendment is not likely to adversely affect the bald eagle.

Lesser long-nosed bat

Environmental baseline: No lesser long-nosed bats or evidence of their occurrence (e.g. droppings) were noted on the selected lands in the Ray Complex during inspections of 40 mine adits and natural caves or during mist net surveys conducted at the Ray Complex from 1993 to 1998 (BLM and SWCA 1999). Vegetation on the selected lands include both saguaros and agaves; however, most of these lands are at the northern edge of the transient use area for this species and greater than 50 miles from any known roost. Critical habitat for this species has not been designated.

No lesser long-nosed bats or evidence of their occurrence (e.g. droppings) were noted on the selected lands in the Copper Butte/Buckeye area during inspections of 9 mine adits and natural caves from 1993 to 1998. No recorded roosts for lesser long-nosed bats are within 50 miles of this area. No lesser long-nosed bats or evidence of their occurrence (e.g. droppings) were noted on the selected lands in the Chilito/Hayden area during inspections of 8 mine adits and natural caves from 1993 to 1998. The Casa Grande selected lands do not provide suitable habitat for this species as there is no vegetation for foraging and no abandoned buildings or natural features to provide roosting habitat. The Casa Grande parcels are however, within 50 miles of a lesser long-nosed bat roost.

Effects of the action: The proposed land exchange would result in Asarco acquiring 57 mine adits, none of which contained lesser long-nosed bats during surveys from 1993 to 1998 and all of which are north of the current range of the species. Implementation of the foreseeable uses would likely eliminate 57 mine adits on the selected lands, which could provide potential roost habitat for the species if it were to expand its range. Similarly, upland habitats including both saguaro and agave would be eliminated by the foreseeable uses which could provide foraging habitat if a range expansion occurred for the species. However, extensive acreage of both saguaro and agave foraging habitats are available in the vicinity of currently known roosts for the species. The proposed land exchange would result in BLM acquiring the offered lands, none of which contain habitat for the lesser long-nosed bat with the possible exception of the Gila River Parcel at Cochran.

Cumulative effects: Asarco is currently in negotiations with the State to purchase approximately 1,110 acres near the Ray and Copper Butte/Buckeye mining complexes. Acquisition of this acreage and implementation of the foreseeable mining uses would not affect the lesser long-nosed bat as these lands are outside of the species' range.

Conclusion: In our draft biological opinion we concurred that, based on the available information, the proposed Ray Land Exchange / Plan Amendment is not likely to adversely affect the lesser long-nosed bat provided that surveys for the species are conducted prior to construction activities that would eliminate mine adits. Our reasoning behind the survey condition was based on our concern that the temporal lag between execution of the land exchange and the initiation of mining activity may be sufficient to allow for dispersion or range

expansion of the species into the selected lands. As described above in the CONSULTATION HISTORY, on February 16, 2000, the BLM submitted a memorandum requesting that the conditional concurrence on lesser long-nosed bat be removed and that we concur with a determination of “may affect, not likely to adversely affect.” Based on further review of the current known range of the species, proximity of selected lands to range limits, and discussion with BLM staff, we agree that the potential for dispersion or range expansion onto selected lands by the lesser long-nosed bat is insignificant and discountable. We therefore concur that the Ray Land Exchange / Plan Amendment, as currently described, is not likely to adversely affect the lesser long-nosed bat.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefits of threatened and endangered species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We offer the following conservation recommendations.

- 1) We recommend that BLM conduct annual surveys for the cactus ferruginous pygmy-owl until the land trade is completed in the event owls move into the area. Surveys should follow the protocol accepted by the Service at the time, currently AGFD and Service (2000). In the event that owls are detected, section 7 consultation should be reinitiated.
- 2) We recommend BLM encourage Asarco to conduct annual surveys for the cactus ferruginous pygmy-owl after the land exchange is completed until commencement of construction activities to reduce the possibility of unauthorized incidental take that may occur in the event owls move into the area. Surveys should follow the protocol accepted by the Service at the time, currently AGFD and Service (2000). In the event that owls are detected, Asarco should work with the Service on development of a habitat conservation plan.
- 3) We recommend that BLM encourage Asarco to conduct annual surveys for the southwestern willow flycatcher within suitable habitats along Mineral Creek until the commencement of dewatering and vegetation clearing associated with construction of the proposed diversion tunnel and valley fill RDA. Surveys should follow the protocol accepted by the Service at the time, currently Sogge *et al* (1997). In the event that flycatchers are detected, efforts should be made to avoid unauthorized incidental take.
- 4) We recommend that BLM participate in open pro-active discussions with resource agencies, including the Service, and other interested entities to assess and remedy water quality degradation along the Gila River and tributaries. Of particular concern are potential effects to

bald eagle, southwestern willow flycatcher, and proposed critical habitat for the spinedace (*Meda fulgida*) and loach minnow (*Tiaroga cobitis*), as well as general fish and wildlife resources.

5) BLM should conduct, or at minimum allow, biological surveys and specimen collections of the aquatic invertebrate community of the perennial springs located on parcel RM-18 and CH-1 prior to execution of the land exchange. Natural springs and seeps within the southwest are known for their propensity to harbor endemic aquatic invertebrates such as springsnails, beetles, caddisflies, and amphipods. Such surveys and collections would aid in the documentation of regional biological diversity and geographic endemism, demonstrate sound environmental policy, and be consistent with the National Memorandum of Understanding Concerning The Conservation Of Springsnails In The Great Basin entered into by both the BLM and the Service on November 6, 1998.

In order to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendation.

REINITIATION NOTICE

This concludes formal consultation for cactus ferruginous pygmy-owl and informal consultation for southwestern willow flycatcher, bald eagle, and lesser long-nosed bat for the Ray Land Exchange / Plan Amendment. As provided in 50 CFR Part 402.16, where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), reinitiation of consultation is required if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the action is subsequently modified in a manner that causes an effect to listed species or critical habitat in a manner not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

In future communication regarding this consultation, please refer to consultation number 2-21-95-F-156. If we may be of further assistance, please contact Mike Martinez at (602) 640-2720 or Sherry Barrett at (520) 670-4617.

/s/ David L. Harlow

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (PARD-ES, GARD-AZ/NM)
Area Manager, Bureau of Indian Affairs, Phoenix, AZ
Supervisor, Project Evaluation Program, Arizona Game and Fish Department, Phoenix, AZ

LITERATURE CITED

- Abbate, D., A. Ditty, and S. Richardson. 1996. Cactus ferruginous pygmy-owl surveys and nest monitoring in the Tucson Basin area, Arizona. Final Report to the Arizona Game and Fish Department. 25 pp.
- American Ornithologists' Union. 1983. Checklist of North American birds, 6th edition. Allen Press, Lawrence, Kansas. 877 pp.
- Arizona Game and Fish Department. 1988. List of threatened native wildlife in Arizona. Arizona Game and Fish Commission, Phoenix, Arizona 32 pp.
- Arizona Game and Fish Department and U.S. Fish and Wildlife Service. 2000. Cactus ferruginous pygmy-owl survey protocol. Revised January 2000.
- Bendire, C.E. 1888. Notes on the habits, nests and eggs of the genus Glaucidium Boie. Auk 5:366-372.
- Bent, A.C. 1938. Life histories of North American birds of prey, part 2. U.S. Natl. Mus. Bull. 170. 482 pp.
- Breninger, G.F. 1898. The ferruginous pygmy-owl. Osprey 2(10):128 (in Bent 1938).
- Collins, M.D. and T.E. Corman. 1995. Cactus ferruginous pygmy-owl Surveys in Arizona: 1993-1994 season. Nongame and Endangered Wildlife Program Technical Report 37. Arizona Game and Fish Department, Phoenix, Arizona.
- Davis, W.A. and S.M. Russell. 1984. Birds in southeastern Arizona. Tucson Audubon Society, Tucson, Arizona. 169 pp.
- Earhart, C.M. and N.K. Johnson. 1970. Size dimorphism and food habits of North American owls. Condor 72(3):251-264.
- Enriquez-Rocha, P., J.L. Rangel-Salazar, and D.W. Holt. 1993. Presence and distribution of Mexican owls: a review. J. Raptor Res. 27:154-160.
- Felley, D.L. and T.E. Corman. 1993. Spring 1993 cactus ferruginous pygmy-owl surveys in Arizona. Nongame and Endangered Wildlife Program Technical Report. Arizona Game and Fish Department, Phoenix, Arizona. 16 pp.
- Fisher, A.K. 1893. The hawks and owls of the United States in their relation to agriculture. U.S. Dept. Agr. Div. Ornithol. and Mammal. Bull. 3:1-210.
- Gilman, M.F. 1909. Some owls along the Gila River in Arizona. Condor 11:145-150.

- Griscom, L., and M.S. Crosby. 1926. Birds of the Brownsville region, southern Texas. *Auk* 43:18-36.
- Howell, A.B. 1916. Some results of a winter's observations in Arizona. *Condor* 18:209-214.
- Hunter, M.L., Jr. 1996. Fundamentals of conservation biology. Rand McNally, Taunton, MA. 482 pp.
- Johnson, R.R., L.T. Haight, and J.M. Simpson. 1979. Owl populations and species status in the southwestern United States. Pages 40-59 *in* P. Schaffer and S.M. Ehler, eds., *Owls of the west: their ecology and conservation*. Proc. Natl. Audubon Soc., George Whittel Education Center, Tiburon, CA.
- , and -----. 1985a. Status of the ferruginous pygmy-owl in the southwestern United States. Abstracts, 103rd Stated Meeting of the American Ornithologists' Union, Arizona State University, Tempe, Arizona.
- , and -----. 1985b. Avian use of xeroriparian ecosystems in the North American warm deserts. Pages 156-160 *in* R.R. Johnson et al., tech. coord. *Riparian ecosystems and their management: reconciling conflicting uses*.
- Johnson-Duncan, E.E., D.K. Duncan, and R.R. Johnson. 1988. Small nesting raptors as indicators of change in the southwest desert. pages 232-236 *in* R.L. Glinski *et al.*, eds. *Proceedings of the Southwest Raptor Management Symposium and Workshop*. Nat'l. Wildl. Fed., Washington, D.C. 395 pp.
- Kimball, H.H. 1921. Notes from Southern Arizona. *Condor* 23:57-58.
- Millsap, B.A. and R.R. Johnson. 1988. Ferruginous pygmy-owl. Pages 137-139 *in* R.L. Glinski *et al.*, eds. *Proceedings of the Southwest Raptor Management Symposium and Workshop*. Nat'l. Wildl. Fed., Washington, D.C. 395 pp.
- Monson, G. and A.R. Phillips. 1981. Annotated checklist of the birds of Arizona. The University of Arizona Press, Tucson, Arizona. 240 pp.
- , 1998. *In* The raptors of Arizona, R.L. Glinski, ed. University of Arizona Press, Tucson, Arizona. pp. 159 - 161.
- Oberholser, H.C. 1974. The bird life of Texas. University of Texas Press. Austin, Texas. 1,069 pp.
- Phillips, A.R., J. Marshall, and G. Monson. 1964. The birds of Arizona. University of Arizona Press, Tucson, Arizona. 212 pp.

- Proudfoot, G., S.L. Beasom, and M. Hernandez. 1994a. Use of nest boxes by pygmy owls in south Texas. Page 20 in the Annual Report to the Caesar Kleberg Foundation for Wildlife Conservation from the Caesar Kleberg Wildlife Research Institute, College of Agriculture and Human Sciences.
- , -----, D. Graul, and T. Urban. 1994b. Food habits of the cactus ferruginous pygmy owl. Page 19 in the Annual Report to the Caesar Kleberg Foundation for Wildlife Conservation from the Caesar Kleberg Wildlife Research Institute, College of Agriculture and Human Sciences.
- , 1996. Natural history of the cactus ferruginous pygmy-owl. Master's Thesis, Texas A & M University. Kingsville, Texas.
- Ridgeway, R. 1914. The birds of North and Middle America. 6:1-882 (In Bent 1938).
- Robbins, C.S., D. Bystrak, and P.H. Geissler. 1986. The breeding bird survey: its first fifteen years, 1965-1979. U.S. Department of the Interior, Fish and Wildlife Service. Resource Publication 157. Washington, D.C. 196 pp.
- Russell, S.M. and G. Monson. 1988. The birds of Sonora. The University of Arizona Press. 360pp.
- Sogge, M. K., R. M. Marshall, S. J. Sferra, and T. J. Tibbitts. 1997. A southwestern willow flycatcher survey protocol and breeding ecology summary. National Park Service/Colorado Plateau Res. Station/N. Arizona University, Tech. Rept. NRTR.
- Sprunt, A. 1955. North American birds of prey. National Audubon Society. Harper and Brothers, New York, New York. 227 pp.
- Swarth, H.S. 1905. Summer birds of the Papago Indian Reservation and of the Santa Rita Mountains, Arizona. Condor 7:22-28.
- Taylor, R.C. 1986. Checklist to the birds of Sonora and the Sea of Cortez, including Barranca del Cobre. Borderland Productions, Portal, Arizona. 23 pp.
- Tyler, H.A. and D. Phillips. 1978. Owls by day and night. Naturegraph Publishing Inc. Happy Camp, California.
- U.S. Bureau of Land Management and SWCA, Inc., Environmental Consultants. 1999. Biological Assessment: Ray Land Exchange / Plan Amendment. June 1999.

U.S. Bureau of Land Management. 1999. Final Environmental Impact Statement for the Ray Land Exchange / Plan Amendment. Bureau of Land Management, Arizona State Office, Tucson Field Office. June 1999.

U.S. Army Corps of Engineers. 1999. Environmental assessment for the ASARCO Ray Mine water quality improvements and rock deposition area expansion. Prepared by URS Greiner Woodward Clyde. August, 1999.

U.S. National Museum, Smithsonian Institution (USNM). 1996. Records from the United States National Museum of Natural History. Provided through Russell B. Duncan from Craig Ludwig, Scientific Data Manager.

van Rossem, A.J. 1937. The ferruginous pigmy (sic) owl of northwestern Mexico and Arizona. Proc. Biol. Soc. Washington, 50.

Wauer, R.H., P.C. Palmer, and A. Windham. 1993. The ferruginous pygmy-owl in south Texas. American Birds 47:1071-1076.